



Connecting Practice

Phase III

Final Report



ICOMOS

ICOMOS China





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1. The project in a nutshell

Connecting Practice is a joint exploration by ICOMOS and IUCN aimed at learning and developing new approaches that recognise and harness the interconnection of natural and cultural values and processes of highly significant heritage landscapes and seascapes to achieve a more effective, creative and inclusive way to maintain them and to learn from their long-lasting lessons.

Since the project began in 2013, three phases have been implemented and an additional phase is already foreseen. Each phase has contributed to increasing the awareness among heritage management actors about the close interrelations of the natural and cultural dimensions of heritage places and of need for joint approaches in their protection and management.

Multi-disciplinary fieldwork, resulting in collective experiential learning, has always been an integral part of the Connecting Practice working method. Where deemed useful, the project has also included other activities, such as during Phase III, when fieldwork was complemented by the analysis of the meaning of words and concepts relevant for Connecting Practice, which has resulted in a Commentary on Nature–Culture Keywords, and by a survey among site managers based on a structured questionnaire, to reach out to a larger number of sites and their staff and gather information about the nature – culture connections at their sites.

Indeed, throughout its three phases of implementation, Connecting Practice has confirmed that its competitive advantage lies in being a think–tank, an innovation platform for developing and testing new ideas; its outcomes form an experimental basis that can be further developed and operationalised through other projects and platforms within the World Heritage system and beyond.

View of the Duoyishu Area rice terraces, China
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Saloum Delta
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Participants in the field visit to Al Ain, UAE
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Volcano Pico Island
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A wide range of lessons learned have been gathered from Connecting Practice activities. Cross-cutting lessons include:

- the awareness that experiential learning is a powerful tool: it produces a form of synthetic knowledge which needs time and ad-hoc tools to be disentangled and communicated;
- exploring the nature-culture duality has brought into light a number of other dichotomies that are worth being explored: tangible – intangible, western – eastern, empirical – scientific, traditional – modern, mind - body;
- experiential learning is a transformative experience which releases its outcomes at different paces and needs time to evolve further;
- continuing the dialogue established with actors responsible for the management of heritage places is key for the project to yield its fruits;
- separate institutional arrangements represent the most frequent barriers preventing the effective integration of management for natural and cultural heritage; steps are needed to overcome these barriers.

The re-appraisal of the whole Connecting Practice project has clearly highlighted its key features:

- experiential learning generated in the fieldwork;
- capacity to innovate and to accept new challenges, where these offer promising perspectives;
- importance of the human dimension and equal exchange of collective learning;
- flexibility in the roles of the members of its community of practice;
- room for a judicious growth of Connecting Practice.

These characteristics need to be maintained in bringing Connecting Practice into the future.

Connecting Practice has experimented different working methods engaging ICOMOS and IUCN, and its outcomes have already fed into ongoing larger initiatives that are developing joint guiding instruments for improved management of World Heritage properties: the revision of the Enhancing our Heritage Toolkit as well as the preparation of one joint manual for both natural and cultural World Heritage properties and of one guidance for assessing impacts on World Heritage properties. Furthermore, the approach of Connecting Practice has influenced the evaluation process of nominations, namely at the Preliminary Assessment stage, for which a joint ICOMOS – IUCN evaluation process is envisaged.

The relevance of the findings of Connecting Practice goes beyond the World Heritage system, and they can be used also to pursue the integration of nature – culture management practices at heritage places with multiple designations.

Throughout its three phases, Connecting Practice has tested working methods and tools that can be further developed and operationalised either within the project itself or through other programmes and platforms. Refining the working methods of the fieldwork, by prolonging the post-visit dialogue among field visit team members and by extending the engagement of site managers in the project, as well as further developing the questionnaire and the Commentary to make them more applicable, are all activities that can fall within the scope of Connecting Practice. On the other hand, although centred on learning, Connecting Practice cannot become a capacity building or technical assistance platform, nor can the project turn into a forum for horizontal exchanges among site managers. Other more structured programmes and spaces exist that can address the need for dialogue and exchange that site management staff has demonstrated.

Over the last seven years, Connecting Practice has demonstrated its ability to achieve meaningful outcomes that have already begun to feed into the work of ICOMOS and IUCN and to attract the interest of many professionals, programmes and organisations in the heritage field.

2. Introduction

Following the successful work done in the first two phases of Connecting Practice, ICOMOS and IUCN are pleased to share the results of Phase III of Connecting Practice.

Since the launch of Connecting Practice in 2013, its community of practice has grown, with more and more professionals and site managers who share the vision and the ambitions of the project becoming involved in its activities. Reaching out to other organisations and research centres, such as the Food and Agricultural Organisation (FAO) and the Stockholm Resilience Centre, has greatly contributed to the multi-disciplinary nature of the project.

This report presents the activities carried out, the results obtained, the lessons learned and the challenges encountered in the implementation of this phase of the project. In comparison with the two previous phases, participation in the project has widened, thanks to site managers' responses to a survey, and this has confirmed the interest and the expectations that this initiative has raised, particularly at the site level.

The third phase has also offered the opportunity to reflect on the three phases of the project as a whole and its achievements, to clarify its position among other initiatives, platforms or projects and to outline perspectives and actions for the future.

ICOMOS and IUCN are grateful for the Christensen Fund's continuing support, which made possible carrying out the activities of Phase III. We are also thankful to the Abu Dhabi Department for Culture and Tourism, ICOMOS China, the Swiss Federal Office for the Environment (FOEN), the FAO – Globally Important Agricultural Heritage System (GIAHS) Programme Secretariat, the Stockholm Resilience Centre, Albaeco and Leuphana Universität Lüneburg for providing additional financial and technical support to the project. Many thanks go also to the site managers and stakeholders in the United Arab Emirates, Senegal, Portugal and China for their support and involvement in the fieldwork and to all site managers and professionals that have generously provided their time and expertise throughout the implementation of this third phase of the project.





Oyster farming in the Saloum Delta
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Hani Rice Terraces
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Traditional Architecture at the Al Ain Oases
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2.1 Overview of the Connecting Practice Project, purpose and objectives of Phase III

The first phase of the project was designed as an initial learning experience to identify practical strategies for a fully connected approach to considering nature and culture in the practices of ICOMOS and IUCN so as to improve understanding and conservation of World Heritage properties exhibiting strong natural and cultural values. Focused on improving and developing new working methods and reinforcing institutional collaboration, Phase I also offered the opportunity for influencing a shift in conceptual and practical arrangements in considering culture and nature within the implementation of the World Heritage Convention. In particular, it has contributed identify the interconnected character of the natural and cultural values of World Heritage sites beyond the reasons for which they were inscribed on the World Heritage List. Three World Heritage properties were visited in Phase I: the natural property of Sian Ka'an (Mexico), the cultural property of the Petroglyphic Complexes of the Mongolian Altai (Mongolia) and the Konso Cultural Landscape (Ethiopia).

The second phase was designed around a strong management element and translated lessons learned from the conceptual shift resulting from Phase I of the project into practical suggestions to support site managers in formulating strategies that emphasize human-nature interactions, and to explore how such interdependence has shaped heritage places. In addition to gathering a better understanding of the interconnected character of the natural, cultural and social values of the World Heritage properties used as case studies, ICOMOS and IUCN explored how such an understanding could help strengthen policy frameworks and management arrangements. Two case studies were selected for this phase, allowing for a longer involvement: the World Heritage cultural landscape Hortobágy National Park – the Puszta (Hungary) and the mixed property Maloti-Drakensburg Park (South Africa/Lesotho).

Building on the insights and outcomes of Phases I and II of Connecting Practice, the purpose of Phase III has focused on three main axes: promoting biocultural approaches to the conservation and management of continually evolved cultural and agricultural landscapes; exploring the relevance and operational translatability of the concept of resilience in designing management responses; and reaching out to other partners to increase the multi-disciplinarity of the project.

In particular, this phase of the Project has investigated how traditional management practices can be supported and sustained effectively within the processes of the World Heritage framework. In order to progress in the integration among international policy frameworks and management arrangements for highly significant landscapes, this phase has also sought to explore potential synergies with other international designations by considering properties that are also recognised as Globally Important Agricultural Heritage Systems (GIAHS) by FAO. This has initiated a conversation with the GIAHS programme on common conservation and management challenges at heritage agricultural landscapes and potential mutually reinforcing responses.

The approach of the third phase has continued to be centred on engaging at site level with communities, site managers, heritage practitioners and policy makers.

The result of the fieldwork and of the survey relate mainly to the sites; however, more general lessons have been drawn, which can support the development of improved frameworks and strategies applicable to a wider range of World Heritage properties and contribute to global heritage dialogues throughout the professional networks of the various organisations involved.

3. Project activities and working methods

Phase III of the Connecting Practice project built upon the achievements and the lessons learned during the previous two phases and particularly on Phase II, which consolidated an approach to field visits purposely tailored for the Connecting Practice project. Fieldwork is at the core of Connecting Practice. This work is clearly distinct from the missions carried out by ICOMOS and IUCN related to statutory processes under the World Heritage Convention and is much more experimental in nature.

Following the initial fieldwork experience of Phase I, orientations for Connecting Practice fieldwork were developed during Phase II. Designed and tested in Phase II, this 'model' for field visits provided a solid basis for this phase.

For Phase III, maintaining the experimental character of the project was important, and on the basis of the outcomes of the previous phases, we opted to encompass a wider palette of activities that could also respond to the need for operational instruments developed on the basis of the learning achieved in the previous years.

3.1 Learning from previous phases: diversifying and complementing activities

Phase II ended with the awareness of the high expectations raised by the implementation of Connecting Practice and the sense that the experimental platform of the project and the lessons learned in the first two phases had prepared the ground for integrating the successfully tested experiences into policies, guidelines and institutional practices. At the same time, the



Team Fieldwork
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System of water distribution
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achievements of, and growing interest in, Connecting Practice suggested that future efforts would need to focus on enhancing the impact and reach of the consolidated outcomes of the previous phases to disseminate messages to a wider audience and to accrue benefits for sites and organisations within the World Heritage system.

The experimental nature of Connecting Practice makes clear that the full operationalisation of its findings and their translation into policies, guidance and practices would be a more appropriate task for more structured projects or platforms. However, some activities of Phase III have been envisaged to start consolidating results into operational instruments. Harnessing the increased interest in Connecting Practice to include other sites - thus involving a larger group of practitioners - and to reach out to international partners working in complementary fields was seen as a promising direction to investigate new facets of the interconnection between nature and culture and to build alliances across international heritage programmes.

The considerations expressed above have led to conceive Phase III slightly differently from the previous phases and to integrate the key methodological component of the project, the experiential learning gathered through fieldwork, with other activities, namely the preparation of a glossary of key terms and the realisation of a survey among site managers of cultural landscapes and mixed properties to expand further the number and profile of sites and managers reached by the project. An initial 'concept paper' has set out the main points drawn from the previous phases and has gathered key terms and reflections to guide the work through Phase III which have been further developed into specific activities.

Given the focus of this phase on continuing agricultural landscapes and particularly on how these places have been shaped by natural processes and human practices over time, it appeared obvious to seek the involvement in the project of the GIAHS programme established within FAO.

Developing a partnership with the GIAHS programme seemed particularly relevant for two reasons. Firstly, the programme is based on the designation of heritage agricultural systems which overlaps in various instances with World Heritage designations, thereby offering space for joint approaches. Secondly, the focus of GIAHS shares similarities with the objectives of the World Heritage Convention. This parallelism is demonstrated particularly by the GIAHS programme's emphasis on these systems' contribution to sustainable development and food security, their rich biodiversity and genetic resources, the role played in their sustenance by local and traditional knowledge systems and management practices, the sense of place generated by cultural identity and, finally, the slow pace of their evolution.

Representatives of the GIAHS Secretariat participated in the two workshops and GIAHS experts were part of the field visits to GIAHS sites, thereby contributing to designing project activities and building its outcomes.

Phase III has also looked at the concept of resilience and explored whether and how this notion can be operationalised to understand better the interrelations among human, natural

and cultural dimensions of heritage landscapes and protected areas and if the resilience of these systems can be sustained through management strategies and actions. Connecting Practice has therefore sought a dialogue and collaboration with the Stockholm Resilience Centre, a transdisciplinary research hub dedicated to understanding complex social-ecological systems aiming to improve ecosystem management practices and long-term sustainability. Representatives of the Centre have participated in the workshops and contributed to the Commentary on Nature-Culture Keywords; furthermore, the work of the Centre on resilience has considerably inspired the fieldwork.

The multidisciplinary character of the fieldwork carried out in the preceding phases and the diversity of professional and disciplinary backgrounds of teams have highlighted throughout the project the need for clarifying and agreeing on the meaning of used words and concepts. If a leap is hoped to be achieved by ICOMOS, IUCN and other organisations in delineating common approaches to natural and cultural heritage and improving their management, reciprocal understanding is crucial. We therefore thought that preparing a glossary for the purpose of Connecting Practice would be useful as a first step to assist those involved in the project activities and to clarify terms and concepts in use.

3.2 Concept paper: a map to guide our work

Following Phases I and II of Connecting Practice which aimed to start exploring the interfaces of how ICOMOS and IUCN approach their fields of reflection and practice and to manipulate the newly acquired learning to see if it could already be put into practice, we felt the need to cement what had been achieved and to begin to map a new common ground with possible routes for the continuation of this journey beyond the boundaries of our practices. To this purpose, we have drafted a 'concept paper' which summarised previous results, emerging keywords and prompts to guide our work in this phase.

As a matter of fact, this document has functioned as an orientation map which is being drawn while we continue to navigate in the nature-culture space. It is a working document, which has captured the known conceptual geography at the time it was prepared and might record further changes in the future, while the journey and our understanding of the interconnections of cultural and natural processes and their outcomes progress.

Through the paper we have recognised that some concepts, i.e. values, attributes, persist and continue to define the geography of this new 'space' that begins to open in front of us, although they may exhibit 'shifting' properties, depending on the perspective from which we look at them or from the 'lenses' we look through. We also have tentatively positioned on the map some new 'noteworthy points', some terms / concepts or families of terms that we consider important although we were not sure of the extent of their relevance; their reciprocal location or interrelation remains unfixed and their boundaries blurred: nature-culture biocultural diversity / biocultural practices/ biocultural conservation, agrobiodiversity, traditional knowledge, resilience...

Our 'conceptual map' has also gathered a set of questions revolving around some of these key concepts that we considered useful to be explored from an operational perspective. The questions have been intended as prompts for this project phase, particularly for guiding the field visits and the preparation of the survey: they have been developed to stimulate thinking, conversations, exchanges and activities during the visits. They were also meant to gather information around whether and how these concepts are inflected and expressed at the local level or can be meaningful for a better understanding of the significance of the site and contributing to management effectiveness and inclusiveness.

We have realised that some of these prompts are in fact more complex research questions and would need further work to be unfolded and addressed. We are nevertheless convinced that they remain relevant for our work, and further exploration of their implications may help us clarify how these concepts can be substantiated and articulated through applicable approaches. These notions can generate a sharpened understanding of the intertwining of 'natural' and 'cultural' factors, of what processes these factors activate and perpetuate and how they can be taken into account in management strategies of landscapes/ seascapes. Trying to respond to these questions would help refine our intellectual instruments and methodological and operational approaches for better understanding, leading to more effectively managing and transmitting heritage to future generations.

3.3 Conducting the fieldwork

Fieldwork remains central to Connecting Practice: the intense experience offered by visiting a site with a group of peers and exchanging with a multitude of local actors has proved to produce a great deal of mutual and lasting learning, extremely precious for this project, which aims to trigger an enduring shift in thinking and to ensure lasting changes in attitude and practice.

In this phase, the number of sites involved in the field visits was increased so as to respond to the growing interest in the project and to obtain more comparable information and lessons from the fieldwork, progressively cumulating a 'library' of cases and lessons learned at different places. Augmenting the field visits to four properties allowed for carrying out only one visit to each site. We were aware that this would slightly reduce the depth of the work that could be carried out at each site. Therefore, for the fieldwork, we relied on the lessons learned during previous phases to harness at best the potential of individual field visits to trigger new thinking.

The selection of the sites focused on World Heritage properties exhibiting strong human and nature interactions for subsistence purposes and the existence of other international designations.

The initial sites identified for the field visits of Phase III included: two World Heritage properties with partially overlapping GIAHS designations – the *Cultural Sites of Al Ain (Hafit, Hili, Bidaa*

Bint Saud and Oases Areas) in United Arab Emirates and the *Cultural Landscape of the Honghe Hani Rice Terraces* in China; the *Landscape of the Pico Island Vineyard Culture* (Portugal) which is part of a much larger area, covering the Azores Archipelago, protected under the UNESCO Global Geoparks; and a cultural landscape illustrating the synergic interaction between a natural environment rich in biodiversity and ancient socio-economic gathering practices – the *Saloum Delta* in Senegal, which is also a Biosphere reserve and Ramsar site (MAB programme and Ramsar Convention).

The identified sites offered a diverse palette of geographical, morphological, climatic characteristics, human–nature interactions and forms of subsistence, very useful for comparative investigation into the character and extent of the interconnections between natural/ biological features and processes and cultural practices and to unfold the different ways in which the socio-ecological resilience of the properties could be understood and articulated.

In order to ensure comparability among the outcomes of the different cases, the terms of reference for all four field visits, which can be consulted as appendices to each field-visit report, revolved around the same three main topics:

- Exploring the interconnected character of the cultural, natural and social values of the property and associated biocultural practices
- Exploring how to strengthen the resilience of the property, by examining the social-ecological system, the dynamics of change and their desirability or undesirability
- Exploring the components of the management system of the property, its effectiveness and opportunities for its improvement.

For the World Heritage properties also designated as GIAHS, an additional point was added, aimed at exploring the GIAHS designation and the nature of the relationship with the World Heritage designation, to understand whether and to what extent they are mutually reinforcing and supportive.

The three common points of the Terms of Reference have been further articulated through specific sub-topics that offered the advantage to adapt the field visit focus to the specific situation and needs of each property and its management.

Although looking at the same aspects, the fieldwork was carried out slightly differently at each property because of the specificities of each site, the profile of the four multidisciplinary field teams and the tailored Terms of Reference.

Cultural Sites of Al Ain

The first visit was carried out at the Cultural Sites of Al Ain in November 2018. The serial property was inscribed on the World Heritage List primarily because it provides archaeological evidence of the transition from hunter and nomad society to sedentary occupation of the oasis and of skills developed in managing water to create a fertile environment in desert regions. However, the site encompasses both relict and continuing oasis landscapes, dating back to the 17th -18th centuries CE. The management system has been conceived to address the multidimensional character of this serial landscape.

A detailed analysis of the attributes conveying the Outstanding Universal Value of the Cultural Sites of Al Ain as well as other values manifested by the property and its wider setting was carried out during the field visit; although the property has been inscribed on the basis of cultural criteria only, recognised attributes include geological and pedological aspects, hydrological, climatic characteristics, biocultural practices, traditional knowledge, archaeological vestiges of the ancient landscape. The analysis has encompassed also key aspects of the social-ecological resilience of the system and allowed the field team to suggest consideration for actions that can enhance the capacity of the system to absorb and respond to internal and external stress factors (i.e., variations in water availability, market fluctuations and variability of demand for agricultural products, lack of interest of younger generations in traditional farming activities).

Al Ain and Liwa Date Palm Oases have been designated as Globally Important Agricultural Heritage Systems for the traditional water management system, the important role played by date production and for the genetic pool repository represented by historical date palm oases. The GIAHS and World Heritage designations overlap only at the Al Ain Date Oases, whereas the Liwa Oasis is located far from the World Heritage property.

An analysis of the World Heritage and GIAHS designations and of their respective management structures and instruments has showed that they can be seen as substantially complementary and that a great potential exists for establishing synergies and mutual benefits in sustaining the significance of the Cultural Sites of Al Ain and the Al Ain and Liwa Date Palm Oases. Further work would be needed to explore in depth if actual management activities are also coherent and mutually supportive of the values they intend to sustain.

The Hill Grand Tomb, Al Ain
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Meeting with women oyster and beekeepers from the village of Dassilamé Serrer
©2018 Cosme Kpadonou



This field visit made possible the meeting of the World Heritage site management team with those responsible for the GIAHS designation and the Environment Agency, thus activating dialogue and collaboration processes promptly appropriated by the local actors.

The Saloum Delta

The field visit to the Saloum Delta was the second to be carried out, in December 2018. The site has been inscribed on the World Heritage List for it is “a remarkable testimony of the synergy between a natural environment with extensive biodiversity and a coastal style of human development, based on sustainable shellfish gathering and fishing practices in brackish water” (WHC, 2011). The property has been inscribed only on the ground of cultural criteria, but its strong natural significance has been recognised. The Saloum Delta extends beyond the boundary of Senegal into Gambia.

In this fieldwork, the team has pushed further the analysis of the interconnections among a wide range of values, attributes, processes and practices. They examined the consequences of some dynamics generated by the erosion of the mangroves, and this analysis has revealed the key role played by the ecosystem and the freshwater in sustaining the attributes and processes that convey the Outstanding Universal Value, which, it is to be underlined, rests upon the cultural dimensions of the site. They have been highlighted as critical attributes to be monitored to guarantee the sustenance of the OUV.

The fieldwork has generated a number of recommendations to enhance the resilience of the system and strengthen the governance and the management, with a particular focus on traditional management mechanisms, on the role of local communities and on the need for considering the World Heritage property as part of a larger whole, where the Biosphere Reserve and the Gambian part of the Delta have a key function to play.

The other two field visits were carried out in the second year of the project, in 2019, and therefore could benefit from lessons learned during the first round of visits. In particular, the workshop held at ICOMOS Headquarters in February 2019 offered an opportunity to gather views and feedback from both international and local participants in the fieldwork. For instance, this resulted in the allocation of additional days to the visit to the Cultural Landscape of the Honghe Hani Rice Terraces, given the size of the property and logistical challenges, such as accessibility and internal mobility.

The Landscape of the Pico Island Vineyard Culture

The Landscape of the Pico Island Vineyard Culture has been inscribed on the World Heritage List because it illustrates “a unique response to viniculture on a small volcanic island” and “represents an extraordinary beautiful human-made terraced landscape which is testimony to generations of small-scale farmers who, in an hostile environment, created a sustainable living and a much valued wine” (WHC, 2014).

The analysis of the values and attributes of the property has made even more apparent the intertwining and mutual influence of natural characteristics, particularly the geological processes, social and cultural processes and practices in shaping the property and its significance. For instance, the aesthetic dimension of this cultural landscape is supported by natural attributes: the imposing presence of the volcano and by the lava flow fields. On the other hand, the relict vineyards, and to a certain degree even the continuously used ones, provide important habitats for a variety of species. Grapes and other fruits attract animals for feeding, and the stone walls offer shelter and nesting areas for birds and bats: these areas are monitored to prevent other species such as rats, woodpigeons and blackbirds which could harm the grapevines. Sealing gaps in the stone walls is a maintenance practice that guarantee the stability of the walls but if carefully implemented it can also contribute to reduce the presence of invasive species. The *currais* (small plots enclosed by dry stone walls) create a certain micro-climate by reducing the effects of heavy winds and consequently supporting the growth of grapevines, but also other plant species endemic to the region.

The strong emphasis on the continuing dimension of the vineyard landscape and conscious management efforts in this direction have made possible a significant increase of terraces returned to cultivation. However, the regeneration of vineyards has been pursued in such a way that it does not harm important fauna and flora species.

The fieldwork gathered preliminary findings that would need to be further elaborated at the site level and formulated a few observations and suggestions for strengthening the management of the property and bring more into light the specific values reflected by the World Heritage designation.

The Cultural Landscape of the Honghe Hani Rice Terraces

The Cultural Landscape of the Honghe Hani Rice Terraces has been recognised of Outstanding Universal Value because their inhabitants have created an integrated, complex land management and terraced farming system which revolves around rice cultivation and demonstrates ingenious skills in water and natural resources management and extraordinary harmony between people and their environment, both visually and ecologically, based on exceptional and long-standing social and religious structures.

Network of *currais*, Pico Island
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Hani Rice Terraces
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Also in this case, the fieldwork at the Honghe Hani World Heritage property has explicitly adapted Tool 1 of the Enhancing Our Heritage Toolkit for the identification of the values and attributes of the property. Again, the analysis has made evident the intertwining between natural factors and cultural practices, particularly the complex interrelations among traditional forest management, water management, rice farming, terrace building, animal husbandry, traditional knowledge and sacred dimensions of Hani people lifestyle.

The resilience analysis has made possible to understand better the Honghe Hani landscape and its social–ecological system and to enucleate some of the challenges faced by this landscape.

The reasons for the GIAHS designation were also examined: the traditional knowledge, and associated practices, of their environment and its geomorphological conditions has allowed for the Hani people to use ingeniously and efficiently the available resources, particularly water, and to build a mosaic landscape in which the forest, the village, the terraces and the river components constitute a social-ecological system where farming and other livelihood activities are congruent with environment and biodiversity protection and conservation. The focus of the GIAHS is the continuation of traditional agricultural practices, the conservation of the associated agrobiodiversity and the farmers. Values, key principles and objectives for the conservation and dynamic management of this heritage agricultural system have proven to be overall coherent with the World Heritage recognition. Additional future work may focus on whether envisaged strategies and actions for implementing the management visions for the two designations are also synergetic or may need fine–tuning.

Cross–cutting achievements and challenges encountered in field visits are further elaborated in the relevant sections of this report.

Further details about the visited properties and the result of the field work can be found in the field visit reports in Annexes 1 to 4 to this report.

3.4 The survey: engaging with more sites and their managers

The increased interest in Connecting Practice stimulated by the outcomes of the first and second phases and by the dissemination of its results has convinced us to find alternative ways to engage with a larger number of World Heritage sites and their managers.

Carrying out a survey has offered an opportunity to reach out to a wider audience within the technical and financial resources available: field visits, remain limited in number due to their complex logistics, the need for support and time from the site management institutions, and their cost implications.

The survey aimed to achieve a better understanding of site managers' perspectives regarding the challenges and opportunities of taking into account both natural and cultural dimensions



Saloum Delta
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Ancient technology with modern materials
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in managing World Heritage properties. The survey also sought to explore to what extent identified keywords and concepts that emerged in the Connecting Practice work were known by, and relevant to, site managers.

A questionnaire was drafted: some of the topics addressed in the field visits and the key questions identified in the Concept Paper informed its elaboration. The preliminary draft was discussed during the first workshop of the project (7–8 February 2019) and participants provided useful insights and suggestions to improve it and make it clearer. The finalisation of its design required various months of gestation and several exchanges among the members of the Connecting Practice team. The final draft was tested by two site managers that actively participated in Phase II of Connecting Practice: they filled in all sections of the questionnaire and provided their feedback and suggestions which led to further revisions and improvements to the questionnaire.

The final version of the questionnaire includes seven sections with sets of interrelated closed and open questions. The sections intend to explore the understanding of values, attributes and resources and how they are managed, to identify associated communities and actors and how they interact with and within the management system, to obtain information on the governance and the management at the site level, and to gather views on emerging issues in managing simultaneously natural and cultural heritage at the site. The last section gathers information on the background of the respondent.

The survey was presented at the World Heritage Site Managers Forum held immediately before the 43rd Session of the World Heritage Committee in Baku, Azerbaijan, in 2019. The questionnaire was circulated upon request to 42 World Heritage properties and 27 responses were received, the majority coming from the Europe and North America Region.

The analysis of the questionnaires revealed that, to some extent, awareness of the interrelatedness of natural and cultural values and of the need for more integration of management frameworks and mechanisms exists at the site level; attempts to achieve such integration in practice are not infrequent, despite the separation of management arrangements and the diverse interests and priorities among managing organisations and other stakeholders. Responses from site managers show that increased collaboration among management actors and a wider spectrum of available expertise are among the main benefits of a more integrated approach to management of cultural and natural heritage. The workshop made apparent that where considerable time and energy has been dedicated to compile the questionnaire, a wide range of benefits were generated. The survey has also highlighted a lack of clarity in the use of the terms 'values' and 'attributes' that need some attention in the appropriate capacity building contexts.

3.5 Commentary on Nature – Culture Keywords

The Commentary on Nature-Culture Keywords is the outcome of a much longer and more complex journey that we have begun with the intention to compile a brief glossary of terms and concepts that have emerged in implementing Connecting Practice or that seemed relevant for its objectives. The multidisciplinary space for intellectual and practice exchange of Connecting Practice has contributed to bring to the surface that often the terminology and the concepts in use in one disciplinary realm have different meanings in others or, conversely, that distinct terms or notions in one realm play a similar function in another. The confusion, uncertainties and misunderstandings that disciplinary vocabularies may cause when introduced in other realms was seen as an important factor that hinders the possibility of mutual understanding across disciplines interested in the same object and the progress in establishing a common ground favourable to integrating and complementing practices. Hence, preparing a glossary of key terms as a clarifying reference for the work within Connecting Practice has appeared a tangible and worthwhile objective.

Already in the phase of gathering relevant terms and initial definitions, we realised that the task before us was much more complex than expected. Many seemingly similar concepts have originated in different research contexts, accumulating slightly different meanings, with implications for their operationalisation that seemed worth being explored. The preliminary investigation into the key terms showed that in most cases these terms or concepts have multiple and slightly differing definitions, and often are referred to in institutional texts without an explicit definition. It became evident that attempting to develop a glossary establishing the definitive meanings of these terms would have been premature and probably not useful, for, as research progresses, new possible definitions emerge and supersede our efforts.

On the other hand, our preliminary probes into these terms suggested that a different approach could have been useful: investigating the origins, lineages, transmigrations and progressive stratifications of meaning of these concepts would have helped disentangle their complexity and bring to light their implications, their *parti pris*, their position and direction.

The commentary exercise was carried out to build some awareness about the background of these terms, to provide some orientation in their multiple meanings and the reasons of this multiplicity, and to understand better how they can be more consciously used in Connecting Practice.

An investigation of the initial and subsequent uses and meanings of terms was clearly a different, more complex and time-consuming exercise; therefore, we decided to concentrate our attention on a limited number of keywords and concepts. It appeared useful to group them in thematic clusters, as this seemed the more effective way to highlight connections, overlapping as well as noteworthy shifts in meaning. The group discussion on the glossary and on the relevant families of words during the first workshop of Connecting Practice Phase III (February 2019) led to a large number of terms that participants felt important to be addressed but also helped to define priorities. Given the scope of the work and the timeframe, we decided to focus on three clusters of words: biocultural approaches, resilience and traditional knowledge. Our choice was determined by the relevance these terms have shown in the work of Connecting Practice and in the progressive consolidation of their use in fields similar or complementary to those covered by ICOMOS and IUCN.

The Commentary summarises the work on three groups of keywords: each of these has a range of related terms and uses, drawn from various disciplines, applications and knowledge systems. Understanding this diversity has been a first step in the progress towards more joined-up concepts and approaches.

The Commentary is not a glossary and does not offer fixed and decided definitions. It is a shared exploration that exposes the fluidity of the work of Connecting Practice and is presented as a living document or work in progress, to be used as a resource and a stimulus to further dialogue and development.

The structure of the document is as follows:

- an introduction outlines the methods and logic;
- each of the three selected groups are discussed: biocultural approaches, resilience and traditional knowledge;
- an annex is provided that traces the use of these words through key international texts for natural and cultural heritage conservation;
- a list of academic literature that has informed work on the Commentary is the final section.

It is intended that the Commentary will remain open – a ‘living’ document that can continue to be improved. In the first instances, further work on ‘resilience’ will be undertaken in Phase IV of Connecting Practice. Further dissemination and feedback will enable a broader range of uses – such as in capacity building programmes.

3.6 Workshops

Phase III of Connecting Practice envisaged the workshops as reflection platforms for gathering inputs to refine the roadmap of the project and feedback on activities as well as for sharing reflections and lessons learned from a variety of actors: participants in the project activities, partners and potential new ones.

The first workshop was held at ICOMOS Headquarters in February 2019. It offered the opportunity to discuss the experience of the first two field visits, to present and discuss the draft questionnaire for the survey among site managers and to gather suggestions on the glossary. The format of the workshop included both presentations and group work. The results of the workshop informed the continuation of the activities in Phase III.

The final workshop could not be held in person, due to Covid-19 pandemic-related travel restrictions and was turned into five online Zoom sessions. The first three were dedicated to address the outcomes of, lessons learned from, and improvements for: the fieldwork, the survey of site managers and its questionnaire and the Commentary on Nature-Culture Keywords. Invited people included field visit participants, respondents to the questionnaire and peer reviewers of the Commentary. The last two sessions were dedicated to discussing cross-cutting lessons learned from all three phases of Connecting Practice and to outlining future steps for Connecting Practice; participants from previous phases also took part in these closing sessions.

The impossibility to carry out a final in-person workshop turned into an opportunity to open up participation to a larger number of colleagues, greatly enriching the exchanges and the outcomes of the final discussions.



Connecting Practice Group
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4. Progressing in the Connecting Practice project

Chapter 3 provided an account of how the envisaged activities for Phase III have been designed and implemented and what specific results they produced.

This chapter attempts to expand the horizon of the analysis to all three phases of Connecting Practice with a view to recapitulate immediate results but also to uncover hidden but lasting outcomes, the challenges encountered, their underlying reasons and the responses adopted. Through this analytical work, we seek to make a more comprehensive appraisal of Connecting Practice, to build its profile so as to start designing its future in a more conscious way.

4.1 What we have achieved

A core achievement of the project was to start and build a shared process. Connecting Practice has been the first project that ICOMOS and IUCN have jointly managed in the history of their work on the World Heritage Convention.

Connecting Practice has a strong empiric orientation. Preferring an empirical approach to a scientific standpoint relates to the effort of the project to acknowledge evidence collected on the ground that the models and solutions offered by disciplinary sciences and related techniques for conservation and management are often not fully satisfactory and that a need has emerged for a different way of learning from this evidence, instead of processing it through disciplinary constructs.

Therefore, since the inception of Connecting Practice, fieldwork has been the pivotal activity and instrument for pursuing the project's aim, which lies in recognising commonalities, establishing linkages and bridging the divide between the ways in which understanding, conserving and managing natural and cultural heritage have been conceived, organised and implemented.

The fieldwork envisaged in Connecting Practice is essentially based on visits to selected sites of professionals from the two sister organisations – ICOMOS and IUCN – who join colleagues representing the site management and the national and local institutions. Altogether they form the multidisciplinary team that jointly examines and discusses the nature–culture (and human) interconnections underlying the sites and how the management arrangements and conservation actions consider these interconnections and are tailored to sustain them.

In focusing on group fieldwork, Connecting Practice has relied on the power of experiential learning and its ability to gather and to process a considerable amount of information in a relatively short time.

After three cycles of field visits, with 11 field visits accomplished, 9 sites visited and slightly different formats applied, it is possible to make an appraisal of Connecting Practice fieldwork. This appraisal has been based on the extensive conversation occurred in the final workshop, gathering inputs from the international and local professionals involved in the visits throughout the three cycles.

The survey and the work on the terminology have complemented the field visits: their outputs – the Questionnaire and the Commentary – represent working tools for carrying out the survey and for facilitating exchange in the field visits as well as initial stages of operational instruments for a more integrated approach in understanding and managing landscapes and protected areas exhibiting rich cultural and natural heritage and to practically assist in achieving such integration.

Orientations for carrying out meaningful field visits

Phase II of the project has dedicated time and reflection to lay down the essential elements and guiding principles for carrying out effective field visits. A comprehensive reporting of these efforts can be found in the final report of Phase II of the project, and we invite you to consult it for more detailed information. Here we intend to summarise the key aspects that have been highlighted by the participants and by those who have contributed to design and test the field visit format.



Field visit
©2018 Leanna Wigboldus



View of the Duoyishu Area rice terraces
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A key element for experimental work through case studies is the samples selection: identifying the appropriate sites for the purposes of the investigation and testing of the project is fundamental. The selection certainly must consider the presence of relatively strong and evident natural and cultural values, in order to facilitate the engagement with local actors in a short period of time. The complexity of logistical arrangements also needs to be carefully considered, in order to balance safety measures, available resources and accessibility: which can hinder the quality and the results of the field visits.

The availability of sufficient human resources for managing the site is also an important factor to weigh: the advance preparation, the field visit itself and the post-visit follow-up needed for the fieldwork to yield all its fruits is considerable and the personnel of a severely understaffed site would struggle to participate proactively in the activities while attending to their duties. The possibility of direct exchanges between the international and the local members of the team without the permanent mediation of a translator is fundamental and calls into question the language skills of both sides.

Carefully selecting the professionals and forming the teams to be sent on site represent also important aspects for the success of the fieldwork. Diverse professional and educational backgrounds enrich the findings and the discussions, but also some understanding and experience of the basic elements of the World Heritage system have proved helpful, in order to avoid confusion of contexts and processes. Human capacities are also relevant for this work: adaptability to different working methods and contexts, spirit of collegial collaboration, openness to discuss issues on equal terms with local actors, availability to engage in exchanges and work prior to and after the visit.

Advance preparation is necessary, particularly close dialogue with local actors to clarify the aim of the field visit and its difference from missions that are envisaged within the World Heritage system, as well as to discuss the terms of reference, the agenda and the logistical arrangements. Using basically the same terms of reference for all field visits included in each phase and to a certain extent throughout all phases favours comparability and so does a unified structure for the field report, while leaving room for adaptations resulting from the team discussions.

During the fieldwork, establishing a collaborative climate based on equality of exchanges where the knowledge and experience of everyone is valued and respected has proved the most effective condition to achieve significant findings and good results. The presence of the operational coordinator of the project or of its phase during the field visits is also an important element to guarantee a coherent, though adaptive approach, throughout the field visits.

The project has tested different ways of carrying out and using the field visits: in the first year, they were essentially explorative in nature and used a variety of approaches and working methods, clearly reflected by the differences in the organisation of the field reports. Phase II sought to give consistency and a common structure to the fieldwork and to find ways to generate immediate benefits to the visited sites and to enable initial implementation of findings. The length of the field visits was prolonged and two for each selected site were envisaged, six months apart, with a view to allow further direct conversation with local actors after the intense exchanges in drafting together the report and to discuss the advancement in implementing preliminary suggestions. In both cases the second visit proved useful, either to discuss modalities for applying the lessons learned or to refine the common understanding and presentation of the interconnection and mutual influence of natural and cultural processes. However, we realised that a much longer engagement than the one possible within the time-span of one project phase would be necessary to refine the preliminary understanding of the site generated by the fieldwork, to ensure proper follow-up and to sustain the appropriation of the results at the local level.

Following the format for fieldwork experimented in Phase II, in this phase we adopted the same approach for the Terms of Reference for the field-visits – more focused and elaborate than in Phase I – but we have opted to limit the number of visit to one per site. This has allowed this phase of the project to engage with more properties and, at the same time, apply the lessons learned from Phase II and optimise the outcomes that could be obtained from one visit to the property.

Field visits as a facilitating factor for change

Given their experimental nature, the field visits of Connecting Practice are intense moments of professional and human encounter. They enter into the life of a site and, for a few days, suspend the course of the 'business as usual', at least for those directly involved in the visit programme and activities. The truly experimental dimension of these visits favours free and intense exchange between all actors involved and namely the opportunity to look at the heritage place from a wide range of perspectives. Many participants in the field – visit teams shared during the workshop their personal moments of revelation, about the site, its significance or their own work, which were generated by a genuine encounter with their colleagues at the site. These moments enable a shift in perspective and motivate change: as a matter of fact, in a number of cases, site managers demonstrated commitment and willingness to start implementing what they had learned and the initial suggestions received. The field visits have also been reported as precious occasions to gather a wide variety of actors, representatives of institutions, stakeholders, right-holders, that often have rare or no chance to meet, let alone to collaborate, and thus to create or strengthen networks for dialogue and coordination. In more than one instance, the field visits have activated processes for interinstitutional exchange and collaboration and larger participation.

Indeed, the intensity of the visit and of the exchange is an important asset for triggering change; however, the post-visit work must be managed in order to harness in full its potential and to avoid shortcomings.

Fieldwork as a tool for generating collective understanding

The intense and collaborative group work during the field visits has also facilitated a rapid and sound understanding of the spectrum of the values, the attributes and the interconnections between natural processes, human practices, and social and cultural systems. In this sense the field visits, although brief, are efficient tools. Obviously, the analysis initiated by the visits needs to be further developed, but what can be achieved through short but intense periods of joint work is remarkable and allows for formulating initial assessments and considerations for management improvement. More importantly, the strong experiential dimension of the field visits generates a different form of collective knowledge, embedding intellectual, emotional, and senses-based aspects, which has left an imprint on those who participated in its construction and holds a transformative power of attitude and thinking. The final workshop proved that most of the participants hold lasting memories of their visit, of the people encountered and of the fieldwork, even though this may have occurred several years before (the project began

in 2013 and the first visits were held in 2014). The experience brought to participants an enhanced consciousness about the site and, where some have had the opportunity to embed their learning directly into their work, many recognised a different attitude in their profession, more aware of the entanglement of humans with their environment and of natural and cultural processes. Participants have also explicitly or implicitly recognised that the site itself, with its physical presence, acts as a catalyst for creating connections with the place and among the people and for an enhanced mutual understanding.

Expanding the multi-disciplinarity of field teams

Throughout all phases, efforts have been made to expand the multi-disciplinarity of the teams and to include professionals with diverse and multidisciplinary professional and educational backgrounds, including archaeologists, agronomists, landscape architects, geographers, ecologists, anthropologists, geologists, natural and social scientists. In most cases, these professionals have used to work for or collaborate with IUCN and ICOMOS, and often with a World Heritage focus; however, Phase III achieved to integrate in the fieldwork professionals engaged with the GIAHS programme, namely an agricultural engineer and an ecologist. This has made possible not only a richer professional exchange but also to widen the scope of the discussion to the approaches used in GIAHS programme, its priorities and implications for conservation and management. Indeed, the exploration of synergies and challenges for a harmonised approach to the conservation of sites bearing significance under the World Heritage Convention and the GIAHS programme need to be continued and deepened. However, the promising perspectives offered by the initial conversation with the GIAHS programme confirm the relevance for Connecting Practice of reaching out to other programmes to bring into light commonalities and specificities of their aims with the World Heritage framework and areas of possible cooperation for mutual strengthening and better integration for enhanced management effectiveness.

Testing methodologies from different contexts

In the first phase of Connecting Practice, the fieldwork was based on more or less formalised approaches and working methods in use within the World Heritage system as well as independent approaches related to the professional experience of the team members. In Phase II, the fieldwork focused on the testing of the potential of expanding the Enhancing our Heritage Toolkit (EoH), originally conceived mainly for World Heritage natural sites, to cultural ones as well.

Phase III expanded significantly its horizons from a methodological perspective. The choice to test the relevance of the concept of resilience, which is new to the World Heritage system, required looking into other contexts, where efforts to operationalise this notion have already been made. Resilience, for the purpose of Connecting Practice, relates to social–ecological systems and, during the fieldwork, this also meant trying to define the social–ecological system of each case study site. Different methods and approaches were used at the sites to explore both the specific social–ecological systems of the sample sites and their resilience.

At the Saloum Delta, a combined analysis of the social–ecological system of the property was developed by using two frameworks, the first elaborated by Elinor Ostrom ¹ in her research on the governance of commons and the second by Melissa Poe ² and others, whose research has sought to integrate cultural dimensions into the conservation of ecosystems. This analytical work has resulted in the mapping of the social–ecological system of the Saloum Delta, including its cultural dimensions, and in the identification of the key actors and interactions of the governance of resources and of related negative and positive aspects.

At Pico Island, the fieldwork team adapted the approach of resilience-thinking, based on the work of the Stockholm Resilience Centre and of the Resilience Alliance, to the property and its social-ecological system. The objective was to attempt an experimentation of how this ‘thinking’ can be applied to heritage properties and how the concept of resilience could be used to inform management planning processes. The experiment has allowed to identify some points of contact and parallels with aspects of the World Heritage system and to set out some methodological questions tailored to the property and its wider social–ecological system to bring forward the analysis.

In the Cultural Landscape of the Honghe Hani Rice Terraces, to investigate the interconnections among the natural characteristics and processes with social and cultural practices - especially the farming and water management practices - the ways these have shaped the landscape, generated and supported its natural and cultural values and to profile the specific resilience of the heritage place, the field team chose the Socio-Ecological Production Landscapes (SEPLs) resilience indicators developed by the United Nations University – Institute of Advanced Studies (UNU – IAS). This approach has been selected as it is tailored for landscapes like the Honghe Hani Rice Terraces. It defines twenty indicators articulated in four complementary spheres: a) ecosystem protection and the maintenance of biodiversity, b) agricultural biodiversity, c) knowledge, learning and innovation, d) social equity and infrastructure. Each indicator includes one or more explanatory questions and a set of scores, for the method envisages an assessment through scoring and trend definition. In the case of the Honghe Hani Rice Terraces, the method was adapted to focus on observation and understanding, therefore the scoring was omitted. The application of this method has made possible a multifaceted depiction of aspects relevant to define the specific resilience of the Honghe Hani landscape and its social–ecological system and to enucleate some of the challenges faced by this landscape.

An appraisal and a comparison of the potential of these methods as well as of the results they have yielded in their application at the selected sites would be a necessary follow-up; an understanding of their suitability to be applied to heritage places and of their capacity to incorporate considerations for heritage conservation would complete the comparison. In this way it will be possible to outline an adapted *modus operandi* for resilience assessment for World Heritage properties that takes into account the most positive elements of the tested methods.

¹ Elinor Ostrom was an American political economist (1933 – 2012). In 2009 she was awarded the Nobel Prize in Economic Sciences for her research on economic governance and especially on the commons.

² Melissa Poe is an anthropologist, employed at the University of Washington (USA), whose research focuses on community-based natural resource management.

Exploring alternative ways of interacting with places and on-site practitioners

The survey, carried out via a questionnaire, has offered the possibility to involve, although to a lesser degree of engagement than the field visits, a larger number of sites and representatives of their management. Initially we imagined that the questionnaire would have helped to add only a few more sites to our analysis; however, it has aroused interest among site representatives and more responses than those initially imagined – although still limited for statistical purposes – have been gathered. The responses to the questionnaire have revealed common issues across sites in conjugating the management of natural and cultural heritage, as illustrated in the description of the activity in the previous chapter. Some of these issues are structural in nature: for instance, the separation of institutions and mandates makes the alignment and integration of instruments and arrangements a difficult objective to pursue and to achieve, or large-scale heritage protection institutions show limited willingness to support joint management initiatives at the site level. Further investigation of emerging barriers to converging practices at the institutional level would need ad-hoc work, specific to each site and national contexts.

The discussion held at the final workshop on the outcomes of the questionnaire has revealed that responding to the questions required gathering a variety of information and has stimulated exchanges and conversation within the management organisation and beyond. Although one person was in charge of filling in the questionnaire, in a number of cases, compiling the response entailed dialogue with others. According to respondents, this work helped enhance their consciousness about the sites they are responsible for and about their way of working and conducting management activities.

It was also interesting to learn that questions were found straightforward and relevant to respondents, but complex in terms of data to be collected. Most of the respondents found the sections useful, with varying preference for one or another; perhaps the most appreciated ones were those related to understanding communities and stakeholders and on the issues raised by managing simultaneously natural and cultural heritage.

Pico Island
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Saloum Delta
©2018 Maureen Thibaut



The questionnaire was conceived as another experimental activity to complement the preferred on-site experience well before the explosion of the Covid-19 pandemic, so we were not aware to what extent this exercise could acquire relevance for future work. Indeed, the pandemic context of travel and physical contact restrictions makes this working method an up-to-date option for Connecting Practice to continue its engagement with sites and its practical exploration of the interconnections of natural and cultural values at heritage places. Further efforts will need to be deployed in order to improve the questionnaire itself and develop around it a system to utilise its full potential and mitigate its shortcomings: for instance, the wider use of information technologies makes it possible to carry out structured interviews.

Recognising the complexity of terms and concepts in use

We were uncertain of how the Commentary on Nature-Culture Keywords would be perceived outside the Connecting Practice core team: we were aware that the document that was compiled was an intermediate product, not oriented in itself to practical application, although directed to build a proper and usable glossary in the future. The positive feedback we have received from a variety of commentators has shown that this commentary has addressed an unexpressed understanding and an implicit need. On the one side, recognising the complexity and multidimensionality of the phenomena and processes we work with and of the terminology used to describe and manipulate this reality and, on the other side, unfolding the multiple layers of meanings, lineages of these families of words, to orient professionals in this intricate conceptual world. The Commentary raises awareness about the many facets of the analysed terms and of the potentially unwelcomed consequences that may derive from their uninformed use in the heritage field. It has also developed a preliminary basis that enables a better understanding of the meaning and origins of this terminology and a clearer exchange across disciplines and professionals.

4.2 What challenges we encountered on the way

Fully harnessing the potential of experiential learning Field visits are brief and intense experiences that rely on the expertise of professionals involved and on their ability to extract information and knowledge from their sensorial experiences of the object they examine. The knowledge we gain from the senses is 'synthetic' more than analytical and much time is necessary to extract all its informative potential and to document the new knowledge generated by the interaction of our senses with previous knowledge, experience and expertise. As a matter of fact, field visits and field teams are capacious repositories of information, which, however, require much time, concentration and exercise to yield their fruits. Developing ways to ensure that the information and knowledge collectively produced during the field visits is fully made explicit and accessible is of great importance for Connecting Practice, in order to optimise this working method.

The short duration of the field visits does not allow for diving deep into the analysis of many aspects of the site. Whilst ambitions, expectations and enthusiasm are obviously high, being realistic of what can be achieved in one visit (or two) and focusing on key aspects make the

best use of this working method and ensure reaching meaningful, although more focused results. It is not always easy to understand for each visit what are the most promising findings that need to reach an adequate level of maturity to bring forward the work usefully. Equally difficult is to choose which ones can remain at an early stage of elaboration and the further development of which can be postponed, carried out in a different context or put in the hands of the local team partners in their work at the site.

Participants in Phase III of the project have provided useful feedback on how to further improve field visits (these are discussed below in Chapter 6).

Establishing meaningful dialogue without field visits

Carrying out the survey proved to be a useful experimental exercise, however, we have realised that the structure and the type of questions turned the questionnaire into a different instrument than one for simply gathering information and made it more similar to a self-learning instrument. We also acknowledge that we could have gathered more information, by using some foresight and 'tricks of the trade' in framing some of the questions and by reducing their number to the ones really needed.

Some initial vagueness on the aim of the questionnaire and consequently on its scope has possibly determined the hybrid nature of the questionnaire and the challenges of answering some of the questions posed. Perhaps the involvement of a sociologist with extensive experience in surveys in several fields would have assisted us to streamline the questionnaire and make it more targeted for our purpose. Furthermore, surveys and questionnaires are progressively becoming more and more pervasive in the heritage management profession, especially as they are used for monitoring purposes by many institutions, and therefore any new survey is often perceived as an additional burden and time-consuming exercise. This could perhaps help justify why no property from the Arab Region that we contacted expressed interest in participating in our survey, considering the overlap with the Periodic Reporting exercise being carried out in this region, which is also based on an extensive and complex questionnaire.

A survey is supposed to be carried out independently to avoid the respondents being influenced by the petitioner. However, in this case, given the overarching aim of the survey to engage further World Heritage sites in Connecting Practice, finding ways to establish communication with and among site managers that agreed to respond to the questionnaire would probably have enhanced the overall outcomes of the exercise, for it would have allowed for clarifying the intentions behind the questions and thus ensured more consistency in understanding the questions. A phased approach with focus groups has been suggested as a way to use more effectively the questionnaire and to guarantee a more qualified interaction with respondents from the field.

Exploring the multi-layered meaning of keywords

The challenges posed by the keywords progressively surfacing in Connecting Practice unfolded only when we started working more systematically on them. Initial efforts in trying to explain to outsiders the terms and concepts in use in one sector has revealed a much less firm ground, populated with ambiguous or multiple definitions, shifting or conflicting meanings or disconnections between use in the academic realm and in practice. Therefore, the emerging complexity of preparing a glossary of these terms became evident in the middle of our journey. Therefore, we redressed our route in order to address the potential risks that a too simplified approach to the terminology entailed. The document we have prepared is indeed very dense and complex and cannot be considered definitive; it can be used essentially as a resource for professionals rather than a dissemination glossary, as commentators have observed. Further work would be needed for a usable glossary to come out of this initial explorative exercise. The analysis was limited to a few terms, covering only some of the recurrent terminology in heritage and environmental protection and management; we are also aware that some of the missing terminology (i.e., landscape/ cultural landscape) has a long history of academic, institutional and practical use and would require an individual study in its own right.

Another challenge for bringing forward the commentary toward becoming a glossary lies in selecting the relevant key terms, those which have demonstrated being used for quite some time and promise to 'stay on the billboard' in the mid- and long-term. In other words, we need to exercise strong intellectual discipline and restrain from the temptation of collecting fashionable words and giving them more relevance than what they may deserve through their inclusion in a glossary.

Only literature and sources in English have been consulted, thus limiting for the time being the spectrum of terms, meanings and uses that other languages and research streams may offer and that can enrich our understanding of these clusters of concepts. The expansion of the Commentary to other languages and research fields is matter for future work.



Hani Rice Terraces
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Pico Island
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4.3 Unexpected outcomes

When the project began, it occupied a tiny niche in the geography of initiatives around the world addressing the divide between natural and cultural heritage. Created with the concrete objective to bring ICOMOS and IUCN working methods and practices on World Heritage closer and where possible to streamline them, Connecting Practice has aroused since the beginning much interest among the membership of the two organisations. While proceeding in its journey, it has received more and more attention and several initiatives have grown around the nature–culture theme, also thanks to the efforts made within the two organisations to popularise the spirit and outcomes of the project. However, more unexpected has been the site managers' and professionals' positive reaction towards the project and the impact of the project, itself, at the individual professional and personal level. We understand this positive response as an indication that Connecting Practice has addressed a deep and shared need for overcoming the artificial separation between culture and nature which has been generated by disciplinary perspectives and further crystallised by bureaucratic and institutional divisions.

An unexpected outcome, confirmed throughout the three phases of the project, has also been the lively engagement at the site level during the field visits and with the international team. Active, fruitful exchanges on equal terms have nurtured the joint understanding of the site, its values, its challenges and possible improvements. This common work has also generated a proactive response to findings and insights, showing efforts to implement promptly suggestions and recommendations emerging from the fieldwork.

Another cross–cutting finding is that site management staff have demonstrated, explicitly and implicitly, an extreme need for guidance and for practical instruments. Many of the comments made during the workshops confirmed a high expectation that the project can generate applicable tools, models and protocols that can be used on site. Even the proactivity in applying the results of the fieldwork can be read in this perspective: the mere experimentation that a tool or a method can generate applicable findings fostered its eventual implementation.

Managing these expectations is a challenge and a task for future phases of the project.

5. Lessons learned from the implementation of the project

5.1 Lessons learned from the activities

Field visits

The observations that emerged during the discussion on the outcomes of the field visits have made evident that they need careful preparation in advance, not only from a technical or logistical perspective, but also to clarify reciprocal expectations about what the fieldwork can offer and achieve and what it cannot. Connecting Practice fieldwork is experimental in the sense that it tests ideas, methods, approaches in the format of probing exercises, but it is not designed to conduct extensive field research or technical assistance, and this needs to be explained clearly to all actors. Field visits are intense experiences as they go beyond the professional and touch upon personal spheres and, for this very reason, they cause some perturbation to the system in which they enter. These perturbations, the elements of newness they bring to the site and the expectations they trigger, need to be foreseen in advance and managed throughout the fieldwork: before, during and after the visits. This means further developing the 'model' outlined in Phase II and incorporating guidance and tips that can assist in obtaining the most from the fieldwork and reduce possible unwelcome consequences, particularly at the site level.

For field visits to deploy fully their potential, a much longer engagement than the one possible within this project would be necessary to ensure the appropriation at the local level of the outcomes and their integration into the management practice. During Phase II, two visits were organised for each site, with a view to provide for a more in-depth exploration: in both cases the second visit proved useful, as it enabled the consolidation of initial achievements, but could not be considered as a 'game-changer' in terms of a leap in understanding the site or in interiorising the fieldwork outcomes. In most instances, the interval of time in between two visits that is possible within one phase of the project is too short to ensure the full transposition of the lessons from the fieldwork into the management. On the other hand, suggestions or improvements that can be implemented in the short-term have been acted upon promptly in most cases, as a response to the first field visit. Considering a second visit to sites that have received only one after a few years might offer the opportunity to reconnect with the site and its management staff, to review together the outcomes of the fieldwork and of the way and extent to which they have been incorporated into the management practice at the site.

Each site has its own specific needs and tailoring the preparation, including adapting the duration of the visit, the communication and the way in which activities are implemented are crucial factors for the success of the visits. These considerations need to guide the project phases since their inception, as sound visit planning depends upon a preliminary understanding of the local context and a careful exchange among project coordinators, national and local authorities and the selected international field team.

The expanding multi-disciplinarity of the team has proved to be an asset for the fieldwork carried out in Phase III. It has opened up new perspectives, has significantly enriched the discussions on values, attributes of the natural and cultural heritage and their interconnections, and has helped to build a composite and dynamic picture of the place. The multidisciplinary approach needs to be sustained in future work.

Field visits confirm their crucial importance for understanding places, generating connections and modifying practices. However, we must recognise that the current pandemic challenges our reliance on this working method, at least in the short- and medium-term, and different ways of engaging with sites will need to be conceived.

The Questionnaire

Apart from remarkable exceptions, the feedback gathered during the workshop as well as the quality of a number of responses made us understand that the questionnaire has been a complex and lengthy exercise. It included many questions which required a considerable amount of time to be addressed properly due to their complexity and others which demand some deeper reflection. Some guidance and explanation therefore would be needed to clarify the aim of the question and the scope of the response. As mentioned before, the questionnaire has developed more into a learning tool and an instrument to raise awareness among site managers about aspects of their sites that might not be given due emphasis in the management system than a way to seek information. Providing comments and written guidance to respondents would indeed be helpful, but even more useful would be ensuring adequate time for opportunities to exchange with respondents. For instance, using the questionnaire in a phased approach could favour exchanges with the authors of the questionnaire and among selected respondents. If its further use is to be pursued, the questionnaire will need to be adapted and shortened and the phrasing of the questions and the vocabulary tested to ensure its accessibility.

The Commentary on Nature–Culture Keywords

The value of the Commentary lies primarily in being an open document, able to evolve and expand as Connecting Practice proceeds and new words and concepts enter its realm. At its current stage, it is an intermediate document that can be enriched with additional references and enlarged to cover at least some key terminology already in use in the field. Turning it into an applicable and more accessible instrument or a glossary would require significant work and reflection on how to structure it so as to maintain the thematic connections among the terms and the links to the fully referenced document in order to navigate through the different concepts. We consider that such work is beyond the scope of this phase of Connecting Practice. Nevertheless, clarifying the nature of the document, such as its aims and structure, would help guide the reader and modulate its expectations; this is a feasible task for the finalisation of this version of the Commentary.

5.2 Cross-cutting lessons learned

The working methods of Connecting Practice have put an emphasis on the human dimension, putting the value of experience and the senses on equal standing with intellectual and disciplinary scholarship in contributing to building knowledge. This form of knowledge however differs from the one developed by focussing on disciplines due to its complexity and its distinct processes of development. Indeed, disentangling the synthesis of experience into layers and threads that make it intelligible, communicable and transmissible requires time, method and creativity, particularly in the instruments used to communicate this knowledge. The encounter with intangible cultural expressions and their intertwining with traditional knowledge and how this is transmitted and regenerated offers much food for thought to Connecting Practice. It also offers the opportunity to reappraise narration and poetry as generators of links among the world, the senses, the emotions and the way we build our knowledge.

The project has shown the potential but also the challenges of trying to integrate empirical with scientific knowledge and has indicated that substantial work is necessary to understand how to achieve and operationalise this integration in an effective and relevant manner for the purpose of Connecting Practice. The needed efforts pertain to the field of applied research but also of policy making.

In exploring the nature–culture duality, Connecting Practice has uncovered a number of other dichotomies: some have been in the international conversation for some time, such as tangible and intangible, particularly following the Convention for the Safeguarding of Intangible Heritage, other ones tend to remain implicit in our discourse and need to be explicitly investigated. Connecting Practice has in fact the possibility to contribute to question the relevance and origin of the contraposition of some of these dualities, such as ‘western–eastern’, ‘empirical–scientific’, ‘traditional–modern’, ‘mind–body’, and find ways to neutralise their setbacks to free thinking and the ideologies behind them.

Participants in the project have recognised that Connecting Practice has been a transformative experience for them. Its experimental working methods have given them a sense of ownership of the project and its results, and in this way, the project has a long–lasting impact on their way of thinking that continues to operate even after time has passed.

After seven years of implementation and three phases, Connecting Practice continues to expand its community and to multiply connections among professionals and organisations. In moving forward, ways to maintain the connections with sites and site managers are to be sought. For both ICOMOS and IUCN, the engagement with World Heritage sites after their inscription is not frequent. When it does occur, it is because problems have arisen and so the dialogue happens in a more formal and bureaucratic framework, which does not favour free exchanges between the Advisory Bodies and the site representatives. Connecting Practice has facilitated a less restrictive environment than statutory missions to reconnect Advisory Bodies with the sites and their communities. Strategies to maintain this dialogue and communication alive are necessary in order not to lose the patrimony of knowledge, mutual understanding and trust that has been built through Connecting Practice.



Saloum Delta
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Traditional Building (Pico Island)
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Extending Connecting Practice to involve other partners has proved a successful step which has yielded positive results. The dialogue initiated with the GIAHS programme and the Stockholm Resilience Centre is promising and shows that it is worth being continued and deepened, so as to get to the heart of the rationale of each framework, of its aims, missions and practices. The positive outcomes of this experience also suggest that engaging with other organisations and international programmes, such as the Ramsar Convention, the Convention on Biological Diversity, water- or climate change–related institutions, will accrue the value of the project and enrich significantly its perspectives, findings and possible operational proposals for converging practices.

In relation to the findings of the implementation of the project itself, a key lesson learned is that, in most cases, the barriers for an effective integration of management considerations, arrangements and activities of natural and cultural heritage emerge particularly at the higher level of specialised institutions. In a number of cases we engaged with, staff and managers of the site seem aware that a more aligned and coordinated approach to natural and cultural heritage conservation and management would prove beneficial and more effective. However, this awareness is not widely shared among management structures and, in any case, site managers struggle to overcome the administrative and bureaucratic division of mandates, responsibilities, and instruments, and they are often not encouraged by their respective top management to find paths to reach a more collaborative and integrated way of working across institutions at the site level. This issue has emerged throughout all phases and both from the fieldwork and the questionnaire. Overcoming this problem seems to require a strategy for raising awareness among high–level decision-makers about the need for more flexibility and interinstitutional collaboration as well as a rethinking of how bureaucracies organise themselves.

The Covid–19 pandemic has dramatically limited our ability to visit places and meet people. Travel and meeting restrictions have made us acutely aware that the key working method of Connecting Practice – based on physical and collective experience – is being challenged and

will have to be re-thought and compensated by other activities. The current situation requires careful reflection on how our thinking can continue to develop and how an alternative design can support learning processes and ensure that the experiential dimension of the project is sustained throughout this crisis.

5.3 A re-appraisal of Connecting Practice and its role

After several years and three cycles of implementation, we have thought appropriate to look at how the project has started and how it has evolved over the years, what are its strengths and specificities and whether an underlying 'identity' could be outlined. Connecting Practice has begun as a small venturesome, pioneering project with a low-rate energy consumption but with a high-rate of ingenuity, creativity and dedication. Its key message and initial results have attracted wide interest around it, although the initial funding challenges have not been completely overcome yet. Throughout the years and the phases, the project has expanded its experimental approach, perhaps because it has maintained an agile format and people gathered around it implicitly share the idea that Connecting Practice offers a platform for free thinking, as a think-tank and laboratory for generating and testing new ideas, methods and initiatives. The profile that Connecting Practice has built over the years is the result of a combination of factors: necessity, circumstances and aspirations. This agile and flexible profile has proved to be successful and able to achieve much in relation to the resources deployed. Compared to other, much bigger platforms, Connecting Practice has been efficient and has generated ideas that have fertilised other initiatives and projects. The initial conceivers of this initiative and the growing community of Connecting Practice concur that bringing the identity of the project into the future should not alter its essential experimental character. Its main features to be maintained include:

- experiential learning deeply rooted in fieldwork;
- the capacity to innovate and to accept new challenges, where these promise to be rewarding;
- the importance given to human dimensions and collective equal exchange;
- no fixed roles for its members; and
- space to see the Connecting Practice community grow judiciously.

This choice requires economic and rigorous thinking when defining the scope of future action of the project, the selection of feasible and interesting activities and a clear vision for involving new partners. First and foremost, maintaining the identity of the project is about learning to manage expectations – both internal and external – so as to ensure that what has commenced can yield results. Our and outsiders' enthusiasm will have to be modulated by realistic considerations and channelled to obtain the most from what we will engage with.

6. Future perspectives and steps forward for Connecting Practice

In this chapter we provide an account of the outcomes of the final workshop and of the orientations we have gathered on how to move forward Connecting Practice. Appraising the nature and role of this project is useful to clarify what steps and activities can be developed and what initiatives will need to be implemented through other platforms or projects.

The main points that emerged during the final workshop are summarised below.

6.1 Taking stock of the outcomes of the project in the long term

Connecting Practice has accumulated much experience, information and many lessons that can inform a wide variety of future activities within and beyond the project itself. It can also help design future strategies to ensure its sustainability and confirm its function as an incubator of ideas on converging nature–culture practices and to disseminate the message of the project. The online workshop have tried to tease out thematic threads for further investigation and action. However, additional analysis of the extensive material produced throughout the three phases will provide further matter for reflection and proposals for future work. This analytical work is indispensable to appreciate in full the contribution of Connecting Practice in advancing the journey towards a more integrated practice for safeguarding and sustaining nature and culture but also to transform the lessons learned into strategies and proposals for future steps.

The conversation at the workshop has highlighted the following areas for future attention.

Perspectives on improving ICOMOS and IUCN working methods

Connecting Practice began with the idea of exploring ways to make ICOMOS' and IUCN's actions more effective and to approximate their approaches and working methods. The journey of Connecting Practice has brought to light a number of nodes and interfaces in our reciprocal institutional traditions and cultures that did not facilitate collaboration. The project has helped both organisations know each other's work better and has improved significantly our collaboration. The outcomes of the experimental work carried out within the project have fed into projects aimed at improving the working methods and instruments used by both organisations. The adaptation of the Enhancing our Heritage Toolkit to cultural heritage has been the first step, followed by the launch of the World Heritage Leadership Programme within which a joint knowledge framework and resource manual for managing natural and cultural World Heritage are being developed, alongside the revision, update and integration into one document of the two guidance documents for assessing impacts on natural and cultural World Heritage properties. This ongoing work has also allowed to explore more in depth the way in which certain concepts are understood and used within the cultural or

natural heritage sectors and whether and to what extent they can be relevant or problematic in the other sector, e.g. governance, ecosystem services, authenticity. The introduction of the Preliminary Assessment³ in the nomination process - the changes in the Operational Guidelines will be effective following decisions made by the 44th World Heritage Committee session - envisages a joint ICOMOS – IUCN evaluation process with one joint IUCN and ICOMOS panel and one single report being produced when relevant. This offers an extensive possibility to further develop working methods tested in Connecting Practice and to refine the evaluation approaches of ICOMOS and IUCN.

Efforts to integrate the findings of Connecting Practice into the World Heritage framework might be expanded to provide advice on the integration of nature-culture management practice at sites with multiple designations, building on the work initiated by IUCN and taking into account the aims of the Convention on Biological Diversity.

This work could assist in the development of tools and guidance documents, and is further discussed in the section on future action.

Delineate and disseminate ideas for possible activities strengthening nature-culture practice

As a testing platform, Connecting Practice has carried out various experiments of approaches, methodologies and tools, gathering insights on their possible adaptations, developing intermediate products and identifying further lines of applied research and potentially useful instruments. Compiling a commented summary of these activities, of what has been achieved and what further work would be necessary to translate tested ideas into operational tools, as well as identifying possible lines of future research and practical work would be equally useful to Connecting Practice itself but also to other programmes. It would assist to ensure continuity to the action of the project and to fertilise other sectors and platforms. It would also help consolidate the positioning of Connecting Practice as a laboratory for innovation which focuses on new horizons while ensuring that its results are not lost but are further developed to support practice improvement.

6.2 Ensuring the sustainability of the project

Connecting to other programmes and organisations is essential to promote the message of the project and to increase the relevance and influence of Connecting Practice. These linkages can also help map more effectively other initiatives that have been working on similar or complementary objectives so as to avoid duplication in our action to identify areas that have not been explored yet: so far Connecting Practice has been successful in doing so but, as initiatives multiply, the challenge is maintaining the capacity to seek unexplored waters.

³ Preliminary Assessment will be a mandatory desk based process for all sites that may be nominated to the World Heritage List and will be undertaken following a request by the relevant State(s) Party(ies). The Preliminary Assessment will help to establish the feasibility of a potential nomination and will provide guidance on the potential of a site to justify Outstanding Universal Value.

Communicating effectively to the outside world the achievements, next steps and horizons of Connecting Practice will improve the visibility of the project but also cement its position among other initiatives and strengthen its role. Envisaging a joint ICOMOS-IUCN-ICCROM summit on nature–culture to discuss cross–cutting issues based on the outcomes of the project would give the project visibility and strengthen its potential for networking. In the medium and long term, establishing a permanent group that maintains connection with people and assist in communicating and networking would reinforce the continuity of the project.

Guaranteeing intergenerational dialogue and transmission of knowledge between experienced and younger professionals constitutes an essential sustainability factor. The inclusion of young professionals in the different activities of the project ensures continuity and also generates a much larger wave of influence of the project. Expanding the participation to more diverse language groups is essential to harness the richness of languages and traditions – this also requires strengthening the language skills of team members within the project.

6.3 A roadmap for future action

Discussions on the lessons learned and on the future of the project have generated several proposals on ‘what to do next’. They can be grouped around three main points:

- Developing learning and capacity building activities on the integration of nature and culture
- Reinforcing the networking of sites
- Developing tools and guidance

Not all of the proposed activities can be developed within Connecting Practice. Some would require a different and more structured framework to be implemented. For this reason, we have tried to highlight what the project can reasonably work on and what might require the development of other formats. Indeed, the boundaries between this subdivision are blurred and variable; where opportunities arise to develop actions that we initially thought were beyond the scope of the project, we might reconsider our priorities and plans.

What Connecting Practice can do

Many of the proposals that emerged in our discussions relate to the possibility to augment the effectiveness and to improve the work of Connecting Practice. For instance, consolidating and strengthening the principles and the guidance for conducting the field visits would improve this essential component of the project. The body of experience and recommendations already defined in Phase II have been further implemented by further expanding the advance preparation of the visit, with Zoom meetings, discussions, exchanges of documents and information in advance; whenever possible, this has included providing the documents in the language most used at the site. This experimentation can be further developed and help consolidate the ‘format’ for field visits. A post-visit process which continues the dialogue with the site’s actors, for instance to discuss further the preliminary findings of the visit, would

also be an important follow-up to consolidate fieldwork results. Involving site managers from previous phases in Connecting Practice activities has proved helpful: this practice is worth being continued and, where possible expanded, for instance by inviting some site managers involved in previous phases also to take part in the field visits. This would help create connections and encourage networking among site managers. Fostering opportunities for horizontal cooperation among site managers would also be an important goal, which could be pursued more effectively through other platforms.

In order to explore further the potential of fieldwork, engaging with one site at a deeper level and for a longer period of time would probably be beneficial to cover the whole array of topics included in the Terms of Reference in addition to the specific theme selected for each phase. tying the fieldwork with other activities and means of exchange, such as online meetings, workshops, and engaging with a wider group to explore more targeted aspects would allow for testing another way of using the fieldwork and seeing what results could be achieved.

In this sense, turning parts of the questionnaire into tools for follow-up or activities complementary to the fieldwork might be a valid way to further work with the questionnaire at an experimental level. This might also help to simplify its language and clarify what questions should be changed or dropped.

Further work at site management level to operationalise some concepts included in the Commentary is a feasible action of Connecting Practice, which can be accompanied by examples and possible case studies where these concepts have been at the core of the management approach to see with site managers what has worked or not (e.g. in conjunction with revision of management plans).



Meeting at the Al Ain Oasis
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Water division wood
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Gathering more feedback on the Commentary from other organisations and from professionals with different cultural and educational backgrounds, for instance those involved in the fieldwork throughout the various phases of the project, will contribute to improve this document and to ensure a more robust basis towards the formulation of a glossary. This could be achieved also through the publication of the Commentary as a stand – alone document made widely available through the websites of ICOMOS, IUCN and ICCROM.

What goes beyond the scope and capacity of Connecting Practice

Implementing Connecting Practice has revealed that sites would benefit from a stronger collaboration with the World Heritage system and the Advisory Bodies after their inscription and that site managers are eager to engage with an international team in order to receive guidance on a number of issues. While appreciating these needs and considering that they deserve full attention, we also recognise that Connecting Practice cannot become a capacity building or a technical assistance platform; rather, the project could link with other existing fora to ensure that these needs are addressed. Some of the ideas and proposals that have emerged through the discussion suggest strengthening the collaboration with other organisations, platforms and initiatives to ensure that the findings of Connecting Practice can generate benefits elsewhere.

We have realised in implementing the fieldwork that there is a need for further guidance to understand and describe better the interrelation between values and attributes and between Outstanding Universal Values and other important values of a heritage place. The difficulties of dealing with values and attributes are a recurrent finding in the work of ICOMOS, IUCN and ICCROM on technical assistance and capacity building activities. Understanding the difference between values and attributes when working in the World Heritage system is very important to 'get things right', even more when it comes to sites which demonstrate a close intertwining of natural characteristics and processes with cultural practices and outcomes.

Developing a specific guidance that could assist to understand better and describe more effectively values, attributes, including processes and intangible dimensions, as well as their relations and interconnections with other values and related processes would be a valuable service to the World Heritage system. The findings and experimentation carried out in Connecting Practice prove very useful and promising but would need further impetus, time and resources to reach the stage of a mature guidance.

As an experiment, the questionnaire has been quite successful and the feedback gathered is reassuring. However, it is clear that turning the whole questionnaire into an instrument for learning and capacity building will require further thinking and development. Some probes of operationalisation can be made within Connecting Practice, but transforming the questionnaire into a fully-fledged learning exercise would need time and resources; on the other hand, utilising it to enrich other learning instruments being developed might be more promising and would avoid the proliferation of separate instruments to approach the same matter. A number of other proposals were received, such as developing the questionnaire into material for an online workshop or a self–assessment and independent learning tool; they demonstrate the interest in this product but also that its future needs to be further discussed and clarified.

The Commentary on Nature–Culture Keywords also has great potential for further development and transformation into a functional instrument but also for expansion to consider other languages, research fields and cultural traditions. Producing other versions of the *Commentary* – for example, in a less academic form (with visual aids or diagrams) suitable for a broader range of audiences and in a fully referenced version for specialists – would increase its usability. Developing further the analysis of additional keyword ‘families’, taking into account those emerged during the 2019 worksop would also represent a useful development of the Commentary. In this regard, the contribution of the ICOMOS International Scientific Committees and IUCN Specialist Groups would be welcome.

Creating links with organisations and researchers that document and safeguard traditional and indigenous knowledge and languages will open other lines of work and reveal terms used in local languages that reflect aspects of the nature-culture-people interlinkages which are not captured by the international English or French. Also, compiling research and publications that have examined empirical/ traditional practices in using natural resources and in agriculture through a scientific lens would be a very useful exercise with a view to influence policies in the future. Depending on the scope of the work, the last two points might be large-scale projects involving research institutions which have been working on these themes.

The need for networking and communication that has been expressed strongly by site managers in all phases of Connecting Practice requires strategies and actions that go beyond the project itself. Some activities to support this need have been envisaged as potentially part of the future work within Connecting Practice, but other more structured platforms are needed to sustain the dialogue across sites and their managers.

The World Heritage Site Managers’ Forum, which is held annually since 2017 immediately before the World Heritage Committee, has become a well-attended event and represents the ideal platform for reinforcing the network of World Heritage site managers. One concrete proposal would be to dedicate one edition of the Forum to nature-culture interconnectedness to disseminate the message and achievements of Connecting Practice and possibly to test a revised questionnaire for site managers.

The inclusion of the consideration of nature–culture interlinkages in capacity building activities is also a way to augment the awareness and interest around this theme within a wider audience, further testing and developing some of the approaches applied in Connecting Practice.

The project has demonstrated the importance of fieldwork and of experiencing the places directly and the great potential embedded in experiential learning. In the medium and long term, conceiving something more ambitious that includes twinning activities and exchanges of staff between peer organisations would respond to the need for exchange, networking, on-the-job training and more robust and long-lasting opportunities for capacity building. A number of programmes and project formats that envisage twinning and peer exchanges already exists at the international and at the European Union levels. Exploring how to connect with these formats and programmes might open new doors to cooperation and better meet the needs expressed by site managers.

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Questionnaire Report

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Workshops and World Heritage Committee Side Event

CULTURAL SITES OF AL AIN (HAFIT, HILI, BIDAA BINT SAUD AND OASES AREAS) (UNITED ARAB EMIRATES)

Fieldwork Report





Report of fieldwork at the Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas)
(United Arab Emirates)

18 - 22 November 2018

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Cover page photo: Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) (United Arab Emirates) ©
Leanna Wigboldus

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List of Acronyms

AAM – Al Ain Municipality

DCT – Abu Dhabi Department of Culture and Tourism

DoT Department of Transport

DPM – Department for Urban Planning and Municipalities

EAD – Environment Agency

1. Introduction

This report presents the findings of the fieldwork for the Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) World Heritage serial site as part of the Connecting Practice Project, Phase III.

Following the successes of Phase I and II of Connecting Practice, Phase III continues to “explore and to implement lessons learned into practical interventions and new mechanisms for achieving positive results for agricultural and biocultural practices” (CPP Concept Paper). Phase III “focuses specifically on organically-evolved cultural landscapes and explores how to best support and sustain traditional management practices within the processes of the World Heritage framework to achieve long-term conservation and to maintain biocultural resilience” (CPP Concept Paper).

The objective of the fieldwork and case study of the Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) (hereafter referred to as the Cultural Sites of Al Ain) is primarily based on the goal of Phase III of Connecting Practice, namely:

To strengthen policy frameworks and management arrangements for the protection of highly significant landscapes and seascapes that will achieve a more genuinely integrated consideration of natural and cultural heritage.

As part of this goal, the project partners were asked to directly engage with local management authorities to further assess the interconnections and inter-relatedness of cultural and natural values and practices at the site, in order to further their understanding of traditional management frameworks and biocultural practices within the landscape, and to review levels of acceptable site change (see Terms of Reference (Annex 3), 2018; ICOMOS, 2018).

The Terms of Reference (hereafter “ToRs”) (Annex 3) were structured around three main elements:

1. *The interconnected character of the cultural, natural and social values of the property and associated biocultural practices;*
2. *How to strengthen the socio-ecological resilience of the property;*
3. *The management system of the property.*

For the Cultural Sites of Al Ain, as part of Phase III’s focus on biocultural practices and agricultural systems, one additional element was added;

4. *The designation of “Al Ain and Liwa Historical Date Palm Oases” as a GIAHS (Globally Important Agricultural Heritage Systems) site (a Programme of the Food and Agriculture Organization of the United Nations (FAO)).*

The Cultural Sites of Al Ain were selected as a case study for Phase III of the Connecting Practice Project as the site meets two central criteria:

1. The World Heritage Site is listed as a Cultural Landscape on the World Heritage List by UNESCO and its Outstanding Universal Value (OUV) is directly related to the interaction between people and their environment (criteria (iii), (iv) and (v)); and
2. The site provides an example of a Globally Important Agricultural Heritage Systems (GIAHS) and was selected as such by the FAO.

The importance of the interconnection between nature and culture at the Cultural Sites of Al Ain can be seen in both its status as a UNESCO cultural landscape designation and the GIAHS designation. Both designations were nominated and selected by separate entities and identify substantially the same oases systems and areas as the basis for their inscription. Although the Cultural Sites of Al Ain is made up of 17 component sites, including a number of related relict landscapes throughout the surrounding area, the oases are of the most interest for this report, as they illustrate the interconnections between traditional cultural/agricultural systems and agricultural/biodiversity practices within these compact areas of date palm cultivation. The interplay of cultural and natural elements within this site, and particularly within the oases areas, provides an invaluable example of the connection between traditional practices and management of natural areas. As part of an evaluation of values and the importance of the interaction of cultural and natural elements at the site, the management practices for sustaining these biocultural practices and values are of paramount importance to consider.

This report provides information gathered from fieldwork, literature reviews and meetings with a range of stakeholders at the site. The field visit to the site took place from 18 to 22 November 2018 and participants included IUCN and ICOMOS representatives, as well as a representative from FAO, in addition to World Heritage Site managers/coordinators and other representatives from the Abu Dhabi Department of Culture and Tourism (DCT), the Khalifa International Award for Date Palm and Agricultural Innovation, the Abu Dhabi Farmers Services Centre, the Environment Agency, the *Aflaj* and Oases Section of Al Ain Municipality, and other relevant stakeholders. This final report is a collaborative effort by the team of representatives. The authors of this report acknowledge that there are certain limitations associated with the amount that can be learned during a week-long site visit, which could influence perspectives on the site, information gathered, literature reviews completed and individual interpretations.

The report provides first a brief history of the Cultural Sites of Al Ain World Heritage Site as a serial site and cultural landscape (Section 2). Section 3 reviews the Outstanding Universal Values that supported the inscription to the World Heritage Site, and provides a further in-depth review of the interconnected values and attributes at the site, as well as the interlinkages between cultural, natural and social characteristics. In relation to this, the site's resilience will also be examined (Section 4). The GIAHS designation will be considered, and management approaches and the management plan will be identified and addressed at the site (Sections 5 and 6). The report will conclude with a section on opportunities and recommendations, as well as lessons learned from the site for conservation and management approaches (Section 7).



Fig. 1: Oases paths in Al Ain (Wigboldus, 2018)

2. Description and History of the World Heritage Site

This section gives a brief description and history of the World Heritage property of the Cultural Sites of Al Ain. The site is a serial property consisting of 17 components comprised of groups of buildings and oases landscapes that show a variety of cultures relating to the development of a desert landscape. The importance of this site directly relates to the successful

adaptation of resources and landscapes by humans to create fertile and settled areas in harsh desert environments, as is more particularly described in the nomination document as follows:

These sites represent a culture that evolved over time, but was characterized by its ability to overcome the challenges and limitations of a harsh natural environment with scarce resources, and manage to develop a distinctive culture with unique and exceptional achievements at the level of human subsistence, agriculture and irrigation, long distance trade, cross-community relationships, architecture and funerary traditions.
(United Arab Emirates, 2010)

The inscribed property of the Cultural Sites of Al Ain is 4,945.45 ha with a buffer zone of 7,605.46 ha (total area of 12,550.91 ha) and the various components are grouped under four main headings which divide the individual sites by historical/cultural type, physical characteristics and/or geographic positioning within the city (United Arab Emirates, 2018).

It should be noted that while this description will include all sections and components of the site, the focus of the report analysis will be on the oases systems and the importance of their biocultural practices and the traditional knowledge structures that have evolved with them over time.

History

The oldest archaeological evidence within the Cultural Sites of Al Ain dates from the Neolithic period (8000 to 4000 BCE) when the area may have been used by nomadic herders to raise goats and sheep in the Jebel Hafit region. The area has been occupied continuously since the Bronze Age, although evidence shows that it was during the Late Islamic I period (1500-1800) that the oases developed as we know them today (United Arab Emirates, 2018).

By the early Bronze Age (4th millennium BC), a sedentary lifestyle had been established in the area, partly due to the underground water reserves found in the area and partly because of the site's location on piedmont plains along the 'copper road', a crossroads of ancient land trading routes between Oman, the Arabian Peninsula, the Persian Gulf and Mesopotamia (ICOMOS, 2011). Excavations in the area show that plant and tree species originating from as early as the Bronze Age were cultivated, and evidence has been found of domestic animal breeding, the emergence of the first agricultural settlements of date-palm, wheat and barley cultivation, and that the region was part of a caravan and trading system between the Gulf of Oman and the Persian Gulf. Almost 500 round tombs from the Hafit culture have been discovered, and the retrieval of funerary offerings (engraved stones, bronze objects and pottery) indicate local and foreign trade with large ancient powers. This is also evidenced by cuneiform tablets from the 3rd millennium BCE that link Mesopotamia and the Umm an-Nar culture that settled in the area around 2700 to 2000 BCE (ICOMOS, 2011). By the middle of the 3rd millennium BCE, towers had become part of the oasis settlements, with excavations indicating that the towers may have been used for water control and access. During the Umm an-Nar period, crops such as dates, barley, wheat, peas and melons were used by the settlements for food production (United Arab Emirates, 2018; ICOMOS, 2011).

Around the 1st millennium BCE, a new technological development allowed water to be channelled to the area through long, inclined tunnels that provided a continual flow of underground water from the foothills of the Al Hajar Mountains into the desert regions. These additional water sources augmented water obtained from wells and seasonal rain flow to meet water needs in the area. The *falaj* (or *afraj* in plural form) provided an irrigation system for the entire community and created both an engineering and social structure for people sharing the water in the region. The introduction of these systems also allowed for the creation of agricultural expansion during the Iron Age from 1300-300 BCE, resulting in the development of a hierarchal and regulated society for the management of irrigation, which allowed agriculture to be developed further throughout the region (ICOMOS, 2011).

Component Parts at the Site

As previously mentioned, the Cultural Sites of Al Ain are divided into four main sections that are based on individual historical/cultural period, geographic/physical characteristics and geographic distribution and location in Al Ain. The following table (United Arab Emirates, 2018) provides an overview of the components, and each group is explained further in the following section.

Table 1: The component sites of the Cultural Sites of Al Ain World Heritage Site. This table has been adapted from the Site Management Plan for the Cultural Sites of Al Ain World Heritage Site (United Arab Emirates, 2018).

Site No.	Component Name	Component Code
Component Group 1		
Hafit Assemblage		
001	Jebel Hafit Desert Park	Component 1.1
002	Jebel Hafit North Tombs	Component 1.2
003	Al Ain Wildlife Park Tombs	Component 1.3
004	West Ridge Hafit Tombs	Component 1.4
005	Al Naqfa Ridge	Component 1.5
Component Group 2		
Hili Assemblage		
006	Hili Archaeological Park	Component 2.1
007	Hili 2	Component 2.2
008	Hili North Tomb A	Component 2.3
009	Hili North Tomb B	Component 2.4
010	Rumailah Site	Component 2.5
Component Group 3		
Bidaa Bint Saud		
011	Bidaa Bint Saud	Component 3.1
Component Group 4		
Oases		
012	Al Ain Oasis	Component 4.1
013	Hili Oasis	Component 4.2
014	Al Jimi Oasis	Component 4.3
015	Al Qattara Oasis	Component 4.4
016	Mutaredh Oasis	Component 4.5
017	Al Muwajji Oasis	Component 4.6

Component Group 1: Hafit Assemblage

Jebel Hafit is a single desert mountain to the west of the Hajar Mountain range that rises approximately 1250 metres above sea level and is 29 km long and 5 km wide. While evidence indicates that the mountain was formed around 25 million years ago, there is additional evidence of marine fossils found throughout the site, which date to a much earlier period, approximately 135 to 70 million years ago. It provides an exceptional natural heritage to the area with specific flora and fauna situated in a distinct red sand dune landscape (United Arab Emirates, 2018). It also provides the setting for the Hafit Assemblage. Some of the components of this group date from the Neolithic period (8000-4000 BCE) and provide the oldest archaeological remains within the region. Evidence has been found of desert camps, flint tools and relics, which indicate the presence of pastoral nomadic communities within the area.

Around 3200 BCE, these pastoral nomadic communities began to bury their dead in the areas of Jebel Hafit, which resulted in the Hafit funerary tradition. This has been evidenced by over 120 tombs dating from between 3200 and 2700 BCE, with many burials providing evidence of over five centuries of development and history within the region. The individual Hafit tombs are the oldest known monuments in the Arabian Peninsula. Their general structure is often made of local stone and is a single oval chamber with one-, two-, or three-ring walls surrounding it and gradually sloping in to form a dome-like roof over the chamber. The tombs range from between 6-8 metres in diameter, usually contain 2-5 people and provide evidence of imported Mesopotamia pottery and small faience beads from the 3rd and 4th millennium BCE (United Arab Emirates, 2018; United Arab Emirates, 2010).



Fig. 2: Reconstructions of Hafit tombs at the base of Jebel Hafit (Wigboldus, 2018)

The Jebel Hafit Desert Park (component 1.1) makes up the largest part of the Jebel Hafit cultural landscape. The area includes a necropolis of Hafit graves (122 tombs spread over 2 km²) and the Mezyad Fort. Other tomb components in this portion of the WHS include the Jebel Hafit North Tombs (component 1.2), the Al Ain Wildlife Park Tombs (component 1.3), the West Ridge Hafit Tombs (component 1.4), the Al Naqfa Ridge (component 1.5) (MP). A large portion of the Jebel Hafit Desert Park was listed as a nature reserve in 2017 and current projects aim to develop the full area (including the Mezyad Fort, Bronze Age tombs and the overall cultural landscape) so that people can better understand the ancient cultural landscape (United Arab Emirates, 2018).

Component Group 2: Hili Assemblage

The Hili Assemblage is made up of numerous archaeological sites with very specific palaeoecological and palaeobotanical evidence indicating that the area was inhabited from about the 3rd millennium BCE until 300 BCE (the end of the Iron Age). The Hili Assemblage includes evidence of sedentary communities from the Bronze Age (c. 3000 BCE) with burials, evidence of irrigation structures and water wells throughout the area (United Arab Emirates, 2018). In addition, excavations also found evidence of increased trade between Hili and groups from areas of Mesopotamia, Persia, and the Indus Valley, which could also explain why people settled at this crossroads, as the route linked the coastal and inland sites (United Arab Emirates, 2018). Eventually, these settled groups created cultures such as the Umm an-Nar culture (2700-2000 BCE) with monumental architecture and tombs. In approximately 1000 BCE, the appearance of the *falaj* system “challenged the limitations of the scarce desert environment and expanded the potential use of water resources, allowing an unprecedented settlement expansion” (United Arab Emirates, 2018). The *falaj* systems consist of man-made underground tunnels which used gravity to carry water across great distances from the aquifer source to low-lying agricultural areas. Once the *falaj* water reached these areas, it was distributed to land-owners by water allocation plans (United Arab Emirates, 2018).

The increase in agriculture and vegetation, and the resulting increase in population altered the social framework, and contributed to developments in economy, architecture, religion and art. The Hili Assemblage provides an evolutionary model of small-scale agricultural irrigation and large-scale engineering which allowed running water to be accessed by various agricultural communities, influencing settlements, funerary architecture and traditions.

The Hili Archaeological Park (component 2.1) is a central part of this site component and includes evidence of Bronze Age and Iron Age cultures currently presented within an archaeological garden containing burial and settlement sites. Aside from the central archaeological garden, additional sites (Hili 8, 14, 15 and 17) also exist outside the central ensemble and remain in the core zone of the area. Two settlements (Hili 1 and 8) have been discovered through excavation, with Hili 1 providing a large settlement area from the Umm an-Nar period which shows early development of agriculture and irrigation within fortified settlement complexes (United Arab Emirates, 2018). Hili 8 is considered one of the most important settlement sites in the UAE as it provides the earliest evidence of agriculture found in the country from the Bronze Age settlement and tombs (United Arab Emirates, 2018). The Park also includes Hili 14 and 15 which were the *falaj* irrigation systems and the administrative buildings where water distribution was controlled providing a view into the social and administrative structure of these areas. Two tombs from the Umm an-Nar period stand within the Hili Garden Area (the Hili North Tomb A – component 2.3 – and Hili North Tomb B – component 2.4) have been restored and provide evidence of collective burials from both the Bronze Age (3rd millennium BCE) and the Iron Age (1st millennium BCE) (United Arab Emirates, 2018). Tomb A reaches approximately 10.50 m in diameter and housed over 20 skeletons, pottery, stone vessels, ornaments, beads and copper rings.

Other components include an Iron Age village as component 2.2 (Hili 2) and the Rumailah Site (component 2.5) which was a settlement with rectangular buildings showing two phases of occupation (United Arab Emirates, 2018).



Fig. 3: Photograph of Hili 10 at the Hili Archaeological Park (Wigboldus, 2018)

Component Group 3: Bidaa Bint Saud

Bidaa Bint Saud is an archaeological site from approximately 3000 years ago, north of the Hili Assemblage. Cemeteries and tombs with corbelled roofs, hollow chambers and ring walls dating from the Bronze Age were discovered in 1970. Inside each individual tomb, the remains of multiple skeletons were found along with discoveries such as pottery, dagger blades, bronze arrowheads, beads and stone vessels. The area was important during the Iron Age for communal farming and lies on the more recent caravan route which linked Al Ain northwards to other sites

such as Dubai. The site could also have been a place where there was collective storage of water and crops for management and distribution (United Arab Emirates, 2018).

Component Group 4: Oases

Oases are unique geological and ecological settings that can be exploited for the natural resources they provide in an otherwise inhospitable environment. The oases forming part of the Cultural Sites of Al Ain provided the means for human settlement and expansion, creating opportunities for a new desert culture to emerge with sophisticated forms of cultural expression, whether it is through architecture, funerary traditions, agriculture and engineering, trade and the arts.

(United Arab Emirates, 2018)

There are six oases around the city core. Although the landscape of Al Ain has been occupied and cultivated since the 3rd millennium BCE, the present forms of the oases were established in the 17th and 18th centuries and today the oases are large date palm gardens surrounded by the urban structure of city streets and constitute part of the urban landscape.

The oases are extremely important heritage assets, both for their ecological and cultural value, with the practice of harvesting dates lasting as it has for generations through the continued use of the ancient *falaj* system for irrigation (United Arab Emirates, 2018). The agricultural practice of harvesting both dates and additional oases crops is ongoing, and it is noted that “the active cultivation of the oases is integrated into the urban fabric of the city” (United Arab Emirates, 2018) as part of the current community and urban structure. Historically, water was brought to the oases by the *falaj* irrigation systems in two distinct ways: one which gathered water from the ‘mother wells’ which were tapped into the groundwater and aquifers, and the other from surface water and seasonal streams throughout the areas. Most of these systems are, unfortunately, no longer functioning in these ways due to both a lack of seasonal water streams, and a depleting aquifer. Most of the water that supplies the *falaj* system today is pumped in from the city network and is mostly the result of desalination plants along the coast (United Arab Emirates, 2018). Another key component of the oases areas are the historic architecture which exists, including forts, defensive towers, fortified houses, souks and mosques, with many of the buildings using traditional building techniques of Al Ain (thick mud walls, small light openings, palm logs and mats for roofs, mud plaster floors/walls).

Al Ain Oasis (component 4.1), located in the centre east of the city, is the largest and oldest oasis. It includes important architectural structures, including Al Murab’a Fort (an excellent example of traditional Emirati vernacular mud brick construction techniques), the eastern Sultan Fort from the early 20th century, and the Al Jahili Fort which symbolizes the traditional architecture and cultural heritage of Abu Dhabi and was awarded the Terra Award in Lyon in 2016 at the XIIth World Congress on Earthen Architectures. Hili Oasis (component 4.2) rests in the northern part of the city and includes the Hili Watchtowers which are defensive structures that protected the villages surrounding the oasis. Additional oases, such as the Al Jimi Oasis (component 4.3), the Al Muwaiji Oasis (component 4.6), and the Al Qattara Oasis (component 4.4) are situated throughout the urban areas of Al Ain. The Mutaredh Oasis (component 4.5) includes the Sheikh Mohammed bin Khalifa House, an example of traditional palace architecture from the mid-20th century, illustrating an important blending of traditional architectural elements of stone with newer construction technology in concrete, and provides a view of the changing cultural traditions taking place in the UAE within the pre-oil period (United Arab Emirates, 2018).

Table 2: Table showing the individual oases, the number of palm trees in the area (m²) and the number of historic buildings (in the central oases areas as well as the buffer zones. This table was adapted from the Site Management Plan for the Cultural Sites of Al Ain World Heritage Site (United Arab Emirates, 2018).

Oasis	Number of Palms	Area (m ²)	Number of Historic Buildings
Al Ain Oasis	147,120	1,308,578	15
Hili Oasis	54,145	1,123,457	17
Al Jimi Oasis	70,740	1,053,937	27
Al Qattara Oasis	40,880	704,495	29
Mutaredh Oasis	40,860	507,089	12
Al Muwajji Oasis	20,950	304,447	3
Total	374,695	5,002,003	103

3. World Heritage Recognition

a. History of nomination

The Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) was nominated in January 2010 and inscribed onto the list in 2011 as a serial property with 4 assemblages comprised of 17 components. Initially, the nomination was proposed under criteria (i), (iii), (iv), and (v), but ultimately the site was only inscribed under (iii), (iv), and (v), (emphasis added in italics indicating those aspects which directly relate to the biocultural practices and the Connecting Practice Project) as follows:

Criterion (iii): The Cultural Sites of Al Ain provide exceptional testimony to the development of successive prehistoric cultures in a desert region, from the Neolithic to the Iron Age. They establish the existence of *sustainable human development, bearing testimony to the transition from hunter and nomad societies to the sedentary human occupation of the oasis, and the sustainability of this culture up until the present day.*

Criterion (iv): The tombs and architectural remains of the Hafit, Hili and Umm an-Nar cultures provide an exceptional illustration of human development in the Bronze Age and the Iron Age on the Arabian Peninsula. The *afaj* system, introduced as early as the 1st millennium BCE, is testimony to the *management of water in desert regions.*

Criterion (v): The remains and landscapes of the oases of Al Ain appear to testify, over a very long period of history, to the capacity of the civilizations in the northeast of the Arabian Peninsula, notably in the protohistoric periods, *to develop a sustainable and positive relationship with the desert environment. They knew how to establish the sustainable exploitation of water resources to create a green and fertile environment.*

It is interesting to note how the justification for the criteria changed from the initial nomination to the final determination of Outstanding Universal Value (OUV). In the original nomination, the focus of criterion (iii) was placed on the evolution of settlement types in Al Ain from the Neolithic to the Iron Age, in the characteristic funerary practices of the Bronze Age, and on the origins of the *falaj* system of irrigation which allowed more permanent settlement systems to be established. However, in the final nomination, criterion (iii) focused on the “development of cultural traditions and their adaptations to the environment” but removed reference to the Bronze Age burials and Iron Age irrigation systems (United Arab Emirates, 2018). Criterion (v) was substantially modified as well, originally emphasizing how the oasis had helped the development of a complex social and economic system which is challenged today by urban development generated by the oil economy, but in its final form, focusing more directly on how early civilizations were able to create a positive relationship within a desert environment (United Arab Emirates, 2018). This has caused the Statement of OUV to be focused mainly on archaeological evidence from the area with less emphasis on the economic and social systems created by the oases.

Although the property of the Cultural Sites of Al Ain is classified as an organically evolved landscape with elements of both continuing and relict cultural landscapes, the site nomination emphasised only the component sections as a serial site, and little emphasis was placed on the area as a cultural landscape (United Arab Emirates, 2018). Within the Operational Guidelines for

the Implementation of the World Heritage Convention (hereafter the Operational Guidelines) (UNESCO, 2019), organically evolved landscapes are classified as “landscapes [which] reflect the process of evolution in their form and component features” and they are classified into two sub-categories, namely relict or fossil landscapes and continuing landscapes.

“A relict (or fossil) landscape is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form.”
(Operational Guidelines, 2019)

and

A “continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time.”
(Operational Guidelines, 2019)

Both these elements can be found within the Cultural Sites of Al Ain, as human activities have previously, and continually, shaped all components of the site, as many of the traditional management, agricultural and cultural practices are still being performed. Subsequent archaeological work (see Power, Sheehan et al. from 2012-2018) has refined this understanding and shown that “each oasis forms part of a complex and fluid historic landscape with a great potential for further archaeological investigation” (Sheehan, 2018). In addition, such work has found that many relict landscapes, from prehistory onwards, were incorporated within one continuing cultural landscape, which is still present today.

The oases of Al Ain can be seen as some of the ultimate interactions between humans and nature, with modifications being made to both sides: humans interact with and adapt the land, but they also must adapt to the land. The modern city of Al Ain is a direct result of humans working with their environment to create a natural and cultural landscape that could sustain them.

b. OUV Criteria:

The following is a review of the interconnected character of the cultural, natural and social values of the property and associated biocultural practices¹ at the Cultural Sites of Al Ain World Heritage Site.

(1) The landscape as a multidimensional space

At complex serial sites such as Al Ain, attempts to define the Outstanding Universal Value (OUV) of the World Heritage property by looking at these individual and specific elements, can result in a limited understanding of the holistic complexity of the site. When considering the diversity of aspects and particular features that create its physical, ecological, social and economic characteristics contributing to the OUV, not every aspect or feature of a site is a constituent of the OUV as an attribute, but each aspect has its place in the multidimensional manifestation of a site (Gómez-Sal, Belmontes and Nicolau, 2003). The complexity of the Cultural Sites of Al Ain is partly rooted in the time span the site represents within the World Heritage context (as human history can be traced here for over 6,000 years), and partially in the fact that the World Heritage Site is comprised of seventeen components, including their related buffer zones. The World Heritage Management Plan (2018) and personal communication with the stakeholders at the site during the site visit from 18 to 22 November 2018, have articulated the need to further understand the site as a continuing cultural landscape, rather than as a static archaeological landscape comprised of a collection of the components of the serial site. The definition of the cultural landscape of the Operational Guidelines (UNESCO, 2019) states that:

¹ The World Heritage Management Plan includes a chapter on values (chapter 3). Its approach is very different from this summary. This study focuses on the primary features and values, not elaborating secondary values derived from primary ones, like educational value.

“cultural landscapes are cultural properties and represent the ‘combined works of nature and of man’ designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal”.

(2) The nature/culture of the landscape

Cultural landscapes can be understood as the interface of the natural and the man-made, and as such, their mutual influence has to be emphasized (Cuerrier *et al.*, 2015). More specifically, it is the “...close attachment of a group of people to a given locale, cemented by historical ties, sense of identity, associated cultural practices, affiliated communities of plants and animals, particular geographical features, and the human role in shaping landscapes in a dynamic process of reciprocity” (Cuerrier *et al.*, 2015). In the case of both the past and present landscapes of Al Ain, the area is the result of the constant interaction between the natural environment and humans, with the natural environment shaping human history and culture as much as humans have shaped the natural environment. The effect of humans on the environment is particularly pronounced within the man-made habitats of the oases where these conditions attracted various species of wildlife, some of which can be beneficial for crop production (e.g. pollination of fruit trees or vegetables) in the oases. Prime examples of the use of natural elements by humans include use of the date palm, which was once a wild species that had previously adapted to the desert conditions, as well as some native medicinal plants that have been valued and used for centuries (Sakkir, Kabshawi and Mehairbi, 2012). A study carried out by Norfolk *et al.* (2013) in the Sinai region, is likely applicable to Al Ain as well. It found that traditional agricultural practices of the oases have no negative effect on the regional flora, and rare wild plants can benefit from the indigenous farming practices, resulting in small-hold farming being valuable tools in conservation, and helping to maintain healthy local ecosystems.

(3) Managing attributes for the Outstanding Universal Value

Identification of the key aspects and attributes of the site has major pragmatic implications in terms of site management. The issues and challenges that the site faces can be identified in relation to the various attributes, and then translated into needs for the site. Based on well-defined needs, management actions can be planned and implemented. Finally, the identification of key indicators for the state of conservation is indispensable in the monitoring of both the tangible and intangible aspects of the site. A certain level of dynamism also must be taken into account, as it is clear that the location and the size of the oases and settlements have changed throughout history (Power and Sheehan, 2012, Power *et al.*). A key aspect of the site was the shift from a basically nomadic to a sedentary lifestyle, which was the result of dynamic processes and changes, and might have happened several times, as Power and Sheehan (2012) have stated.

The development of the irrigation system was a result of the need to find reliable water sources in an increasingly arid environment paired with social and economic drivers. The technological progress and socio-economic changes resulted in this highly resourceful and effective water management system: the *falaj*. Historically, the *falaj* provided an additional water source to the local wells and use of seasonal rainfall for winter crops. Today, unfortunately, a full *falaj* system in its entirety is no longer in working order nor forms a part of the World Heritage Site (United Arab Emirates, 2015), the majority of water for irrigation is desalinated water provided from the coast. While this situation raises conservation and management concerns for authenticity, it also supports the recurring theme at the site that humans have always been resourceful in finding and using water (and other) resources and have capitalized on the achievements of technology and engineering within the boundaries of economic possibilities. Sourcing water from the coastal desalination plants is a controversial concept: on the one hand it is not a traditional method of irrigation at the oases, but on the other, the technology involved does in fact serve the purpose of providing a reliable water supply, particularly given the depletion of local water sources (United Arab Emirates, 2015), and represents an effective solution in irrigation of the date palm oases. In addition, while a number of historic boundary walls still exist in the oases and are the focus of conservation programmes by DCT, and while the design of the structures used for is largely the same as it has been for the past six millennia, the construction materials in today’s oases have generally changed from mudbricks and stone to concrete and other non-traditional materials. However, the question is whether these modern methods are as

amenable to the environment, and whether they will be as enduring as their traditional counterparts.



Fig. 4: Ancient technology with modern materials – concrete walls of the tributary channels (*awamid*) and plastic sluices for today's *afraj* (Wigboldus, 2018).

The advantage of the values-based approach that will be used in this analysis, is to understand the site in a holistic fashion and provide a firm base for addressing the questions of authenticity and integrity. These two aspects are key in the management of World Heritage Sites but are fairly abstract terms and can be interpreted differently from culture to culture (UNESCO, 2019). With regards to an analysis of Al Ain, most, if not all aspects of authenticity listed in the Operational Guidelines under point 82 (*ibid.*) are present at the site: form and design, materials and substance, use and function, traditions, techniques and management systems, location and setting, language, and other forms of intangible heritage, spirit and feeling, and other internal and external factors. In terms of integrity, the Operational Guidelines state that:

“the physical fabric of the property and/or its significant features should be in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the value conveyed by the property should be included. Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained.”

(UNESCO, 2019, emphasis added)

The analysis of the Al Ain World Heritage Site in terms of authenticity and integrity needs to consider the different (and known) layers of the millennia-long history of the site in a holistic manner to cope with the challenges of the time span from the prehistoric era to the present day.

(4) Temporal and thematic scope of the designation in relation to values and attributes

In the analysis of attributes of the site, it is particularly important to continually revisit the statement of the Outstanding Universal Value, and the justifications that support OUV under the three relevant criteria, that have formed the basis for the inscription of the site, and as are further defined in Section 2: World Heritage Recognition, History of Nomination.

The following is an interpretation of these criteria of the OUV from two complementary viewpoints, temporal and thematic:

Temporal scope

Time scale plays a pivotal role in the identification of the fundamental features of the OUV of the Cultural Sites of Al Ain, as this ancient landscape has been inhabited by humans for several millennia. While the site is recognized as a serial site and cultural landscape, the three criteria approach the OUV from slightly different perspectives. In the case of both criteria (iii) and (iv), the historic period from the Neolithic to the Iron Age was defined as relevant. However, criterion (iii) also suggests that the emergence of oases is the key and continuous aspect that connects the ancient and modern landscape, while criterion (iv) also recognizes that the *falaj* appeared in protohistoric times and has provided a viable water management system up until recent times. Criterion (v) puts further emphasis on the protohistoric periods.

This large time span is particularly challenging, since:

- a) There is evidence that the natural environment has changed throughout this period, for example, with increasing aridity (Madsen, 2017) resulting in an increase in the scarcity of rainwater, and changes to vegetation and related wildlife. It also implies that the present oasis landscape cannot be projected to the early stages of human history and their everyday practices (Charbonnier, 2018). To claim otherwise, would be a grave mistake, and archaeological evidence would prove it wrong (Power and Sheehan, 2017).
- b) Archaeological findings provide only partial information about the people and their land use methods of different cultures (*ibid.*).

Thematic scope

The core message of the cultural landscape of Al Ain is how people were able to find ways and means to utilize the natural resources and adapt to the desert environment. The transition from hunter and nomad societies to the sedentary human occupation of the oasis can be traced back to the early Bronze Age (Méry, 2013). After this fundamental change, oasis cultures continued to prevail up until the oil boom of the past half century (Charbonnier, 2018). Criterion (iv) emphasizes the structures of the periods and defines two key aspects of the sites, being, (1) the tombs and architectural remains of the Bronze Age and the Iron Age on the Arabian Peninsula, and (2) the *afraj* system, while criterion (iii) is focused on the successive cultures of the Al Ain site. And finally, criterion (v) acknowledges the land use and resulting landscape of the oases, and the human capacity to adapt to the desert environment sustainably as key aspects of the OUV.

Each of the three criteria gives a justification that results in a complex character of the attributes and values that constitute OUV. The oases themselves have evolved and been developed “over millennia” into a very complex ecological, social, and economic infrastructure (United Arab Emirates, 2015). It seems to be **more valuable to consider the three justifications as complementing each other, rather than creating a divide between them**, as setting demarcation lines between the three justifications and corresponding OUV could adversely affect the understanding of the site as a whole. This holistic approach to, and understanding of the site, is critical because the seventeen units form a serial World Heritage property, where “each component part should contribute to the Outstanding Universal Value of the property as a whole in a substantial, scientific, readily defined and discernible way, and may include, inter alia,

intangible attributes” (UNESCO, 2019). As such, the individual components of the serial site, together with their specific values and attributes, can be interpreted as directly related to the organically evolved landscape and its specific phases of evolution (*ibid.*). It also means that this cultural landscape embodies both multiple relic landscapes as well as a continuing landscape with 17th/18th century roots. These two types of landscapes are distinguished and defined in the Operational Guidelines (2019), as distinct aspects of the category of the organically evolved landscape².

(5) Values, Features and Attributes

The following framework of features attempts to reflect a values-based systematic approach which may assist in incorporating findings separate from the World Heritage Site and buffer zone to help in further understanding the evolution of the landscape. The analysis uses the term “traditional” to refer to the pre-oil age practices given that “the present oasis landscape is of broadly eighteenth-century inception” (Power *et al.*, 2017). From the previous sections, it is clear that when considering key features, there is a fine line between attributes that comprise and contribute to the OUV, and the additional values which are important aspects of the site but which do not qualify as OUV in their own right.

The analysis below considers the multidimensional nature of the Cultural Sites of Al Ain World Heritage Site and its environment, in the context of the definition above. The order of the elements does not reflect any priority but rather begins with the natural environment (as the basic and largely determining aspect of the site) and moves to the various human aspects such as cultural, social and economic factors. This is an attempt to translate the “multidimensional” understanding of the site into a “linear” framework while, wherever possible, referencing other relevant aspects in order to reflect the entangled and overlapping character of the various aspects and features.

In the following list of attributes and additional values, **bold typesetting indicating aspects/features that are understood as attributes** and those in *italics are considered as additional values* outside of the OUV guidelines for this analysis.

- **Key geological elements and soil properties:**
 - o *Al-Hajar Mountains* (→ climatic effect and precipitation; → effect on trading routes and defence; → use of rock as building material)
 - o **Jebel Hafit** (a key geological element defining the site, and the westernmost section of the Al-Hajar Mountains)
 - o *gravel plains* between the Al-Hajar Mountains to the east and north-east, and the stone outcrops and sand dunes to the west result in favourable hydrological conditions
 - o **clay deposits** (→ essential building material as they possess a water retaining quality that is key in irrigation)
 - o **relatively fertile soil** (of alluvial origin (Madsen, 2017), but traditional oasis cultivation methods also contribute to improved soil fertility (LabOasis, 2019))



Fig. 5: The setting of the World Heritage Site: the mountain of Jebel Hafit, desert landscape of the gravel plain, oasis, and the ever-growing city of Al Ain (Tolnay, 2018)

- **Hydrological features:**

² See above for full definition (pg. 11).

- **natural underground aquifers relatively close to the surface**
- *wadis* (water gushing from the mountains percolates into groundwater reserves)
- **Natural biota:**
 - *wildlife* of the Jebel Hafit and the desert
 - *wildlife* supported by the oases, as a man-made habitat
- **Climate characteristics:**
 - **desert climate**
 - extreme heat
 - low level of precipitation
 - occasional extreme wind
 - **microclimate of the oases** or ‘the oasis effect’ (United Arab Emirates, 2015)
 - change of climate (*increased aridity*) over the past 7000 years induced changes to land use and the introduction of irrigation (Al Tikriti, 2011; Méry, 2013)
- **Key landscape elements:**
 - **Jebel Hafit, desert, oasis (dynamic extension), city (dynamic extension)**
 - **Skylines: mountain-desert, desert-settlement, desert-oases, oases-settlement, skyline of the oases and traditional settlements** (Garibaldi and Turner, 2004)
- **Phenomena contributing to the site’s atmosphere:**
 - *undisturbed night sky*
 - *tranquillity*
 - *contrast of the man-made and natural ecosystems* (i.e. oasis vs. desert)
- **Biocultural and land use practices of the oases:**
 - **irrigation system:**
 - as water sources:
 - *wadi* water (partially stored)
 - **local wells**
 - **falaj** (three types depending on the water source)
 - regulated flooding of plots (based on solar and stellar observations); channels and sluices coupled with sunken irrigation basins
 - **traditional land use patterns resulting in a form of “permaculture” of the oases:**
 - **vertical stratification of cultivation within the inner (date palm) oases:** a high canopy of date palms, a second layer of other fruit trees and a third level of vegetables → three-storey structure contributes to the oases microclimate (United Arab Emirates, 2015). The presence or absence of cultivars and the density of date palms also relates to *economic viability*, influences *agro-biodiversity* and assists with the oasis effect of date palms by creating cooler and moister microclimates and shade, which in turn produces positive humus balance and stabilizing soil (Abul-Soad, 2017). These can be listed as ecosystem services in an agricultural system³ (Altieri, 1999).
 - **inner and outer zones of the oasis** and adjacent areas determined by the level of irrigation, and consequently the types of cultivated crops, and animal husbandry: inner oasis (most irrigated) – date palm oasis, outer oasis (lower level of irrigation) – fields of cereals and animal fodder, surrounding arid areas (no irrigation) suitable for grazing.
 - **traditional agro-biodiversity, i.e. traditional crop varieties and livestock breeds:**
 - **varieties of dates:** quality, yield, time of harvest (the time of domestication of the date palm is uncertain, but it has been the staple food source of the nomads and caravans for time immemorial in the Arabian Peninsula) (Abul-Soad, 2017).

³ “...because biodiversity mediated renewal processes and ecological services are largely biological, their persistence depends upon the maintenance of biological integrity and diversity in agroecosystems” (Altieri, 1999)

- Dates are the “keystone species”⁴ of the oases both in ecological and cultural sense (Grenade, 2013). The term originally used in ecology can easily be paraphrased for culture.
- **diversity and ratio of crops other than date:** fruits such as lemon, orange, mango, banana, grapes, figs and pomegranate; vegetables including eggplant, onion, tomatoes, carrots, cabbage and cucumber (United Arab Emirates, 2015); garlic, parsnip, fenugreek, rocket (Arrashash, 2018, pers. comm.); other crops – alfalfa, wheat, barley (United Arab Emirates, 2015)
 - **diversity and number of domestic animals:**
 - beasts of burden (primary: role in the operation of the irrigation system, field work, local transportation; secondary: long distance trade and transportation)
 - food and/or material source including manure for soil fertilization
- **Protohistoric archaeological sites**
- **Settlements** – dynamic in size and location, and including buildings of dwelling, defence, and public use
 - traces of **Neolithic settlements**
 - **fortified Bronze Age settlements** of the Umm an-Nar period (2600-2000 BCE) – testifying the early development of agriculture using irrigation from wells:
 - three settlement sites at Hili 1 (based on the principle of a well at the centre of a fortified ensemble: mud brick fort, a well, a tower, dwellings and a moat), Hili 8 (vast, round mud brick tower surrounded by a moat, and a well in the centre), Hili 10 (circular mud brick tower and well)
 - **Iron Age settlements** (1200 – 300 BCE):
 - Structures of different sizes and functions (dwelling, community, administration): Hili 2 (village – remains of mud brick dwellings), Hili 14 (single squarish building with sizes more than 50 metres – administrative building), Hili 17, (Qattara Arts Centre/Bayt Bin Ati site) (evidence for agricultural and industrial hinterland of settlements) (village)
 - Rumailah – two phases of occupation
 - reoccupying structures built in former times, e.g. Hili 10
 - Bidaa Bint Saud – collective storage house and likely to have housed the administration of water management (major post along a caravan route)
 - **burial sites:**
 - **early Bronze Age** (3200-2700 BCE) **burial cairns of the Hafit culture** (oldest known stone monuments on the Arabian Peninsula): a) Hafit culture necropolises (122 tombs) in the Jebel Hafit Desert Park; b) tombs to the north of Jebel Hafit near Wadi Tarabat; c) tombs in Al Ain Wildlife Park; d) West Ridge Hafit Tombs; e) Al Naqfa Ridge Tombs; f) Bidaa Bint Saud

⁴ The term “cultural keystone species” has been defined by Garibaldi and Turner (2004) as “culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices”.

- a) **Sheikh Zayed Bin Sultan Al Nahyan Tower; b) Khalifa Bin Nahayah Al Darmaki Tower** (Hili Oasis)
- Qattara Oasis: **Al Murayjib Fort and Tower** (Qattara Oasis)
 - **palaces:** Sheikh Zayed/Al Ain Palace (Al Ain Oasis), House of Sheikh Mohammed Ben Khalifa (Mutaredh Oasis),
 - **fortified houses (*murabbas*):** e.g. **Bin Hadi al Darmaki House** (Hili Oasis)
 - **mosques**
 - **markets** (i.e. *souk*)
 - **paths bordered by walls** (their construction material and structure, mostly the width have changed substantially)
 - **sunken cultivation plots**
 - **wells**
 - **irrigation channels**
- ***falaj* and its sections** – (appeared around 1000 BCE):
 - mother well (*Umm al falaj*)
 - underground channel and manholes
 - cut and cover channel
 - water outlet (*Shari'a*)
 - open channel (head, branches, sluices)
- **traditional homes in villages (*harat*)** of mud brick and *arish* (of palm branches & leaves)



Fig. 7: Original mud walls and narrow paths in Qattara Oasis (Tolnay, 2018)

- **Intangible heritage:**
 - **knowledge of the natural environment** (rock, soil, weather, source of water, astronomy, medicinal plants, etc.)
 - **biocultural knowledge and know-how, including tools:**

- **rearing and harvesting of the date palms** (still considered as an “art”)
 - propagation methods, cultivation actions in the crown of the date palm (pruning, pollination, bunch tie-down, covering of bunches, harvesting dates at different ripening stages),
 - **rearing and harvesting different cultivars other than dates**
 - **breeding, rearing and use of domestic animals**
- **processing of available resources (natural and domestic) and use of products:** e.g. mudbricks, variety of date palm products using every bit of the palms (Abul-Soad, 2017; United Arab Emirates, 2015)



Fig. 8-9: Date palms have been used in a variety of ways throughout this historic area (Tolnay, 2018).

- **terminology of the date palm oases** (in date palm cultivation, *falaj*, social and management system, etc.)
- **trading** – with the coast, long distance: historic trading route “between Oman and the Indian Ocean coast of the Persian Gulf and Mesopotamia” (United Arab Emirates, 2018) – date palms and oases were key factors (source of food, trading posts, stopover stations), and facilitated the adoption of common crops (El-Saied, 2015), dromedary caravans
- **engineering and construction** – particularly of the *falaj*, as well as the oases structures and buildings, and burial structures.
- **traditional measurement and water distribution system used in irrigation**, particularly within the *falaj* system (based on solar and stellar observations, and other timing methods, e.g. water dripping instrument)
- **social structure - changes**
 - pre-oasis cultures
 - oasis cultures before the 17th century – several historical ages
 - pre-oil oasis culture after the 17th century – tribal system
 - linked to the water distribution system within the community, particularly with the *falaj* – customary rules and collectively shared agreements (LabOasis Foundation, 2019)
 - land ownership and land transmission
 - labour structure: big enterprises required community effort – today mostly government interventions → recent shift of responsibilities; daily cultivation used to be largely a female job → recent shift to paid labourers; tasks requiring special skills and knowledge – experts and/or specialized teams
 - auxiliary features: e.g. festivities, songs and music including musical instruments, oral traditions – legends and stories, cuisine, falconry and other hunting methods, camel racing, costumes and their making, etc.

- modern oil culture – transition from traditional tribal system to state management
- **religious connotations** (Muhammad, 2014)
 - the role and meaning of the date palm in Islam (appears in the Koran, and in the teachings by the Prophet, etc.): e.g. consuming dates is part of religious feasting rituals (during Ramadan), cutting down productive date palms is a sacrilegious deed, etc.
 - date palm associated with Islam and the Muslims self-identity and an interpretation outside the Islamic world
 - the role and management of water as included in the Koran

It is surprising that the role of Islam was not included in many conservation aspects of the date palm areas. The Holy Koran mentions dates and the date palms in countless chapters and verses. The most prominent vegetative backdrop of Arabia is the date palm and its shade and fruit are a gift from Allah. In the *hadiths* (the sayings of the Prophet Muhammad) he often mentions the benefit of eating dates and the need to conserve the flora and fauna of arid regions. It is therefore no surprise that date cultivation became a sacred symbol of fecundity and fertility, and had great spiritual and cultural significance. In addition, many references are made in the Holy Koran regarding the importance of water and its management.

The interconnected character of the cultural, natural and social values of the property and associated biocultural practices makes Al Ain a Cultural Keystone Place, as Cuerrier *et al.* (2015) define such sites: “a given site or location with high cultural salience for one or more groups of people and which plays, or has played in the past, an exceptional role in a people’s cultural identity, as reflected in their day to day living, food production and other resource-based activities, land and resource management, language, stories, history, and social and ceremonial practices”.

4. Socio-Economic Resilience

Oases are examples of man-made productive agro-systems adapted to address challenges created by extreme conditions: high temperatures, water scarcity and salinity, cultivable soil rarity and quality. They represent complex agro-ecosystems that have demonstrated and proven their efficiency for centuries as being among the most resilient of productive systems (Fassi, 2017), and they enabled civilisations to rise, develop and thrive in spite of adverse climatic conditions. In Saharan climates characterized by very low rainfalls and extreme temperatures, agricultural production was made possible by the development of oases created by water mobilization and distribution and arable land management testifying to efforts of organization and cultural assets of the local communities. Six different oases comprise one component of the Cultural Sites of Al Ain World Heritage Site and this analysis of improved socio-economic resilience can be applied to their conservation and management.

a. Water mobilization

Water, the source of life, is almost absent in desert regions, yet oases civilizations were able to identify water resources necessary for their subsistence and channel them from their source to where soil was available or made available (for in certain instances, in addition to water, soil was also imported from alluvial sites to fields dedicated to crop production). Water mobilization was achieved through different practices. Depending on its source, it could be diverted from a perennial river upstream of the oasis, captured from a spring within or close to the oasis, or drawn from a well using a pendulum system powered by animal or human force. However, the most challenging method of water mobilization developed was the horizontal system for groundwater abstraction consisting of a network of underground channels and vertical wells (Zella and Smadhi, 2006; Antequera Fernández *et al.*, 2014). The process involved identifying a reliable source of underground water, which was channelled towards the fields to be irrigated. To achieve this goal, wells were dug at regular intervals with the aim of aerating the underground galleries and retrieving the excavated earth during construction and maintenance. This impressive network is known by different names, depending on the region: *Falaj* in the Arabian Peninsula, *Foggara* in Algeria, *Galería* in Andalucía, *Khettara* (Arabic) and *Tasfelt* (Berber) in Morocco, *Qanat* in Iran, to mention only a few of the countries where this technology was used. Although some systems date back to the Iron Age over 3000 years ago (Al Tikriti, 2011), most were developed in Islamic countries during the early Islamic era, and later, were

adopted as far as afield as Central and South America (Barnes and Fleming, 1991; Hamidiana *et al.*, 2015) and Japan (Al-Ghafri *et al.*, 2003). The development of this system and construction of such structures was possible as a result of a strong sense of community and solidarity, often reinforced by religious convictions.

b. Water distribution

Once water was mobilized, it was distributed among certain entitled persons (right holders) based primarily on their contribution to the construction of the network system, but which may also have reflected a balance of power among the population (Zella and Smadhi, 2006; Al-Ghafri *et al.*, 2003). Given the sacred value of water, the management of water distribution in oases was achieved through strict regulations accepted by general consensus of the local community and enforced by a trustworthy person designated for this purpose whose role was to ensure compliance with the established rules. This person had different titles, depending on the location: *Arrif* (Arabic) in the United Arab Emirates and Oman (Al-Ghafri *et al.*, 2003), *Kial l'ma* (Arabic) in Algeria (Zella and Smadhi, 2006), *Alim* (Arabic) *Amghar n'Waman* (Skouran, 2006) or *Amazzal* (Berber) in Morocco (Ouhajjou, 1996).



Fig. 10: Cement channels are now used for water distribution (Harrouni, 2018)

Right holders were granted water shares with specific periods of time during which they could use and manage the water provided as they thought suitable for the irrigation of their cultivation plots. Before the use of the clock, such time periods were generally measured using a copper bowl with a small hole in the bottom placed at the surface of a bucket full of water. This bowl acted like a sandglass as water filled it progressively until it sank, indicating one share of water (Janty, 2013). It is important to note that, given the continuous flow of water in the oases, it was available for use around the clock, so the water share of a right holder could be granted for any time of the day or night. This was among the constraints of the laborious work in the oases.

As water shares were considered to be private property, right holders could manage, rent or sell some or all of their water shares for cash, at their discretion (Arrashash personal communication, 2018). This created social issues within the community, for landowners who sold

their water shares were left with less valuable land, and often then selling it for very low prices, resulting in the pauperization of certain families among the oasis communities. However, water shares only applied to distribution and use for irrigation systems, since water for human and animal consumption was considered an inalienable right of all members of the community.

c. Crop production and animal husbandry

Given the significant value of water and land in these communities, the oasis agro-system needed to be very efficient. Crops were, therefore, cultivated in three complementary layers: the upper section was composed of date palm trees, the intermediate level consisted primarily of fruit trees, and the lower area was dedicated to cereals, vegetable crops and fodder production.

Date palm trees provided a broad range of benefits and uses. In addition to the fruit produced, the trunks and palm rachises were used as building materials to build roofs and fences, and also for the production of various handicrafts. Lignified trees were used in carpentry to make doors and other wooden furniture and objects. Any lignified biomass not suitable for building material or handicrafts was used as domestic fuel for cooking and heating when necessary.

Fruit trees grown were dependent on the local climate and while they were generally olive, fig, apricot and pomegranate, other fruit trees such as citrus and mango could be found in some oases. Cereal crops in these areas often consisted of barley, wheat and corn, while vegetables were more diverse and included carrots, turnips, kale cabbage, broad beans, peas, onions, garlic, okra, squash, pumpkin, melon, eggplant, fenugreek, and herbs such as parsley, coriander, celery, cumin and fennel, with alfalfa or clover grown for fodder. Another important crop in the oases was henna (*Lawsonia alba*), which was used as a natural dye for wool and other fabrics and by women for ephemeral body ornamentation. All these crops were primarily used for self-sustenance, but surplus harvest produce could be sold to provide cash for the family with any leftovers from human consumption fed to domestic animals. Animals bred in the oases included sheep, cows, goats, camels, donkeys, mules and horses, and small ruminants were bred for sale to meet cash requirements. Manure was introduced into the soil to maintain its fertility and improve its nutritional properties (Srairi *et al.*, 2018).

The oasis agro-ecosystem was a productive system where sustainability was achieved through the rational and efficient use of resources and the reduction of waste. Most crops grown in oases are genetically fixed species and have evolved and adapted to the local environment, thereby representing important genetic resources that must be conserved in order to avoid genetic erosion of local crops⁵.



⁵ The changing economic and social conditions, i.e. affordable goods from the international market, and theft of fruits and vegetables have contributed to the decline in their local production, and consequent loss of agrobiodiversity of the oases (Arrashash, 2018).

Fig. 11: Banana and mango trees are sometimes still grown today in the oases, although they are not as widespread as during previous time periods (Al Qattara Oasis, Al Ain) (Wigboldus, 2018)

d. Social organization and habitat

Social organization in oases was based on respect for the rules of cohabitation (Fassi, 2017), with communities built in compact villages located on the edge of the arable land. Houses and community walls were built with local materials, often provided by the oases - mud bricks (adobe) or *pisé* (rammed earth), depending on the local technology. Within the community, inhabitants generally maintained a high degree of privacy, reflected in the use of small windows in the houses. They were also strongly supportive of private property, with private agricultural plots carefully delineated and protected by walls. In the Al Ain oases, inhabitants worked collectively (in these oases the term used was *Attafazoue*) in order to ensure that important tasks were completed regarding the *falaj* maintenance, crop growth and date palm cultivation (Arrashash personal communication, 2018).

e. Challenges facing the oasis agro-ecosystems

The oasis agro-ecosystem clearly provides an efficient productive system based on effective mobilization and distribution of water for irrigation, as well as good land management and agricultural practices, made possible as a result of strong values shared by local communities: solidarity, respect for hard work, adaptation to the environment and a simple lifestyle. However, the oases are facing a variety of challenges to their continued success. In many cases, crops produced in oases have lost their economic value and do not ensure enough income to local farmers, as farmers try to compete with crops produced on a mass scale in highly productive areas that can be sold cheaper. Animal husbandry is an important component in the oasis agro-ecosystem, but keeping and maintaining animals requires hard work and continuous care.

In many areas, these agro-ecosystems are becoming less attractive to the younger populations because of the evolution of society in general. Young people, especially from marginal areas, often aspire to leave their villages and go to big cities to find work rather than living under the climatic constraints of the oases, or taking on the hard manual work required there. Without the interest and involvement of younger generations, the oasis agro-ecosystem could degrade, and the land would return to desert.

Today, oases and their projects require large amounts of water pumped from the underground, often resulting in overexploitation of the aquifer. In the context of climate change, with less rainfall, higher evaporation rates and other effects, the availability of water is declining almost everywhere, especially in desert regions. Oases are feeling the effects of reduced water directly, as underground channel systems (*Falaj, Foggara, Khettara, Qanat*) are drying up as a result of both a decline in the water table and due to the lack of continuous maintenance required for the network to continue functioning. Building and maintaining the oases water systems require strict discipline and a high sense of community commitment and involvement, and as these close-knit societies decline, the maintenance of underground channels or any collective building is not considered a priority and the infrastructures are abandoned, resulting in lower productivity and sometimes a reduction in the size of the oases, or even their total disappearance.

In order to address this threat, it is necessary to provide appropriate management measures to maintain the resilience of these man-made, centuries-old agro-ecosystems. Mobilizing young people in the oases areas to generate an interest in these systems from both an economic and ecological perspective is key, as this will increase the likelihood of receptiveness to new technologies and practices.

f. Resilience improvement in oases

The oasis agro-ecosystem has shown its soundness and sustainability through centuries of use. As each oasis has unique assets and circumstances, it is important to investigate how they have developed and thrived in the extreme dry climate under adverse conditions, for understanding the characteristics of an oasis and the management practices related to its functioning may be of great significance in ensuring that these resilient agro-productive systems are capable of coping with climate change. While international digitization and globalization may give the impression that local actions are increasingly irrelevant, community support from oases

inhabitants for sound productive systems continue to provide critical guidance in terms of ensuring organic crop production while promoting the best possible use of available water resources and recycling waste.

In understanding and considering ways to maintain or improve “resilience” in the oases, it is important to define the meaning of resilience for this project on two distinct levels: ecological and human.

According to the Encyclopaedia Britannica, **ecological resilience** is:

*“the ability of an ecosystem to maintain key patterns of nutrient cycling and biomass production after being subjected to damage caused by any disturbance. The term **resilience** is a term that is sometimes used interchangeably with **robustness** to describe the ability of a system to continue functioning under stresses or pressures”.*

(Encyclopaedia Britannica, 2019)

Human settlement resilience is defined as:

“the ability of any urban system to maintain continuity through all shocks and stresses while positively adapting and transforming towards sustainability. Therefore, a resilient city is one that assesses, plans and acts to prepare for and respond to all hazards, either sudden or slow-onset, expected or unexpected. By doing so, cities are better able to protect and enhance people’s lives, secure development gains, foster an investible environment and drive positive change.”

(UN Habitat, 2012)

Understanding the term of ‘resilience’ from an ecological and human definition, a theme emerges with resilience being connected to both the ability of a system or culture to undergo and adapt to changes and transformations while also continuing to maintain the continuity of function. This concept of ‘resilience’ is further explored within the Connecting Practice Glossary.

g. Maintaining the Resilience of the Oases of Al Ain

The following elements consider how resilience can has been maintained and improved at oases locations, such as at the oases of Al Ain:

1- Better water mobilization

Improved maintenance of existing water networks and the restoration and consolidation of collapsed galleries can improve water mobilization and channelling toward cropping plots. Water supply can be improved by taking steps to prevent unnecessary pumping, thereby enabling aquifer recharge with better infiltration of rainwater. With new technological developments, underground channels may be expanded or deepened to reach more inaccessible sources of water, and incorporating impervious irrigation distribution canals will save water and increase its flow velocity. In some oases in Morocco, for example, infiltration dams have been built upstream of oases to enable water to percolate and feed the aquifer downstream. In Al Ain (UAE), over-pumping of ground water was reduced, resulting in improved water flow to the adjacent *Aflaj*.

2- Improved water distribution

Water distribution in oases is very complex and requires a good understanding of water shares granted and the transactions to which they have been subject. In most oases, traditional water rights often represent a hindrance to development since a substantial proportion of the population may not have water shares and therefore, no access to water for irrigation. The oases of Al Ain have resolved this problem by making water state-owned and requiring it to be evenly distributed among landowners. In addition, the municipality is responsible for dedicating workers to ensure irrigation of the cultivated plots, thereby relieving farmers from the burden of having to

irrigate at any time of the day or night and supporting the site's sustainability. It is important that both of the foregoing actions continue to be maintained and developed throughout the oases to support resilience structures at Al Ain.

3- *Better water use*

Water must be used as efficiently as possible, and water requirements of crops should be determined and assessed in terms of prevailing climate conditions at each oasis to ensure the requirements are met with minimal waste. This allows more land to be cultivated with comparable amounts of water. In Al Ain, this process is now under the management of the *Aflaj* management team as part of the Al Ain Municipality.

4- *High value-added crops*

Crops produced in the oasis ecosystem should be of high value so that they are not in competition with regular crops cultivated with more modern practices and industrial methods. Emphasis should be on organic farming practices and local produce, and dietary properties and benefits of peculiar oases crops should be highlighted to improve their marketing. The best and most valuable varieties of date palms should be promoted, as they are more likely to improve the income of farmers. In addition to choosing the best and most profitable types of crops, fruit and vegetable processing and packing should be included in the chain of value. In all cases, it is critical to identify specific crops traditionally grown and valued at oases and establish gene banks to conserve native crops to maintain the agrobiodiversity that is unique and important to oases.

5- *Better land management*

The soil is an important component in crop production, especially in oases, and while soil adaptation is a traditional practice, it needs to be improved based on scientific evidence and emerging knowledge and technology. As in many such environments and cultures, land ownership is regarded as a sign of wealth. However, with the small land area in oases due to inheritance distribution, the properties become increasingly fragmented, resulting in plots being too small to allow any substantial crop production. Consolidation is, therefore, an important aspect of land management for maintaining the sustainability and resilience of oases, and innovation through the invention of new organizational models adapted to the present situations should be encouraged.

6- *More efficient animal production*

Animal breeding is a complementary activity in oases, as livestock consumes biomass and leftovers from human consumption, provides manure for soil enrichment and provides a source of cash flow for farmers. For example, some local breeds of sheep are prolific, and their breeding should be encouraged as this will improve the income of farmers while ensuring the recycling of organic waste. The selection of animals best adapted for the oases is essential to sustainable grazing practices, as is the way they are fed. The market awareness and demand for quality meat and dairy products requires oases farmers to be trained in the field of animal breeding and dairy product preparation to meet organic qualifications, and meet generally accepted health and safety conditions.

7- *Promote ecotourism*

International and national tourism is growing rapidly, and the interest in discovering other cultures and different ways of life offers great potential opportunities for oases. Ecotourism (ecological, agricultural and cultural tourism) is becoming particularly attractive to travellers. The oasis agro-ecosystem is especially appealing to city dwellers in search of authenticity in terms of social and community relations and links to the land, and visitors have the additional benefit of being able to appreciate local products, organically cultivated. Integration of agro- and ecotourism is an important component of the oasis agro-ecosystem for future development that will contribute to its resilience. In addition, oases, as contrasting green exceptions in barren landscapes of sand dunes and mountains, provide exceptionally contrasted landscapes that are attractive to tourists in search of breath-taking panoramas. The Al Ain municipality is an example of this potential, as it has already developed an ecotourism culture, including activities promoting the oasis agro-ecosystem in terms of history, ecology, agriculture and culture.

8- *Build attractiveness to inhabitants*

While oases agro-ecosystems are of great interest to agriculture and ecology specialists, they are increasingly of little attraction to their own local communities, particularly the youth. Oasis agro-ecosystems are currently in decline due to the general exodus to big cities, and the depreciation of the value of work in the fields, as well as the competition between local crops and those crops being imported from other productive regions. Youth originating from oases areas want to leave for big towns or cities where they think there is an opportunity for higher education and more job opportunities. Efforts should, therefore, be made to improve productivity of the system and living conditions for the local population with the aim of encouraging the youth to stay in these areas, providing opportunities for them to optimally and sustainably work with the local resources. Keeping the educated young generation *in situ* with better living conditions is an important component to ensure the future sustainability of these agro-ecosystems, as they are the best guarantee for the survival of this farming system.

Efforts should also be made to better understand the traditional types of relationships that were at the basis of the close-knit oases societies to identify the factors that have transformed the inhabitants of oases from a communitarian society into more individualistic societies. In many instances within the oases, these resulting individualistic communities are often much less interested in communal affairs, and seem to be uninterested in possible social changes that may have played a role in the fragmentation of the oases communities. By investigating the oases ecosystems at various levels - ecology, agriculture, sociology and culture – and identifying the major factors that enabled oases to exist and stay resilient in spite of water scarcity, extreme temperatures and reduced natural resources, there may be a better understanding as to how to improve resilience to climate change and adaptation to potentially more adverse climatic conditions today. Such research must be undertaken as soon as possible, since the social composition of oases is changing and individual resources, such as the older generation of oases inhabitants, are naturally disappearing.

Oases living systems are unique, entirely man-made agro-ecosystems that have proven to be effective in spite of the adverse conditions they endure, and they have prevailed because their management was based on practices that ensured this ability: water collection, mobilization and distribution; informed land layout and improvement; biomass production with multiple appropriate crops and multi-level growing system; effective animal husbandry and waste recycling; local democracy, strong collective community spirit and maintenance work; and openness to adaptive innovation.

The resilience of oases agro-ecosystems is due to specific management practices based on community solidarity and continuous maintenance. Challenges of societal changes that have induced labour devaluation, and globalization that has changed economic considerations must be faced, for in the absence of efforts to make life in the oases more profitable, and attractive, people may leave these areas and the ecosystems will eventually degrade and return to their desert origins. Local groups and politicians are aware of the situation but require innovative approaches to initiate economic development in these territories. The exchange of information, management practices and experiences among different oases agro-systems existing at the edge of the Sahara from the Atlantic Ocean to central Asia will enable stakeholders to compare their managerial choices and methods with the aim of improving the resilience of the oases. In this respect, the Al Ain oases is an example of innovation as to how to maintain the system. The nationalization of water and its redistribution has resulted in a better water supply provided to farming plots. *Falaj* maintenance and the installation of cement in distribution channels have improved water availability. The establishment of a government service responsible for the irrigation of cultivated plots is a crucial step to reduce the workload of right holders.

Understanding the functioning of the broad range of oases agro-ecosystems and the threats facing them in the context of social forces and climate change are essential steps to protecting areas like the Al Ain Oases. By visiting sites like Al Ain, the goal is to learn from and take advantage of the opportunities that science, technology and the changing market can offer, to develop and implement innovative management approaches for the maintenance of the resilience of this unique and important farming system, both at Al Ain and at other oases around the world.

5. Globally Important Agricultural Heritage Systems (GIAHS) Designation

Globally Important Agricultural Heritage Systems (GIAHS) are defined by FAO as remarkable land use systems and landscapes that are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development.

The overall goal of the GIAHS global initiative is to identify and safeguard Globally Important Agricultural Heritage Systems and their associated landscapes, agro-biodiversity and knowledge systems through catalysing and establishing a long-term programme to support such systems and enhance global, national and local benefits derived through their dynamic conservation, sustainable management and enhanced viability.

a. Traditional agricultural practices supporting inscription

Al Ain and Liwa Date Palm Oases were designated as a GIAHS site in 2015. Although the Al Ain Oases were visited by the group, due to time and transportation constraints, Liwa Oasis was not part of the site visit undertaken by the ICOMOS Connecting Practice Project. GIAHS sites must meet the following criteria, which are based on agricultural production and have both tangible and intangible effects:

1. Food and Livelihood Security – The proposed agricultural system contributes to food and/or livelihood security of local communities. This includes a wide variety of agricultural systems such as self-sufficient and semi-subsistence agriculture where provisioning and exchanges take place among local communities and which contribute to rural economy.
2. Agro-biodiversity – Agricultural biodiversity as defined by FAO is the variety of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries. The agricultural system should have globally significant levels of biodiversity, and genetic resources for food and agriculture (e.g. endemic, domesticated, rare, endangered species of crops and animals).
3. Local and Traditional Knowledge Systems: maintain local and invaluable traditional knowledge, ingenious adaptive technology and management systems of natural resources, including biota, land and water, which have supported agricultural systems.
4. Cultures, Value Systems and Social Organisations: cultural identity and sense of place/social organisations, value systems and cultural practices associated with resources management and food production. These concepts may assist in conservation practices and the promotion of equity in the access to, and use of, natural resources. Such social organisations and practices may take the form of customary laws and practices as well as ceremonial, religious and/or spiritual experiences.
5. Landscapes and Seascapes Features: GIAHS sites represent landscapes or seascapes that have been developed over time through the interaction between humans and the environment and appear to have stabilized or to evolve very slowly. Their forms, shapes and interlinkages are characterized by historical persistence and a strong connection to the local socio-economic systems that created them. Their stability is evidenced by the integration of food production with the environmental systems and the cultural structures within a given area or region. They may include complex land-use systems, such as land-use mosaics, water and coastal management systems.

It is important to note that these five selection criteria work in symbiosis and cannot be considered independently. The oasis agro-ecosystems of the Cultural Sites of Al Ain have developed and evolved over years into complex ecological, social and economic systems. The country has experienced rapid development and socio-economic transformation, and while the oases no longer retain their traditional significance for food security and rural livelihoods, date palm production remains very important to the UAE which is the seventh major date producing country in the world, producing 6% of the world's total date production (Government of the United Arab Emirates, 2015). Date palm accounts for 15% of total area of crop cultivation, with Al Ain occupying the central position for national date production. It has been reported by Abu Dhabi authorities that the number of palm trees have increased in the last years in Al Ain. Al Ain historical date palm oases also contribute to *in situ* repositories of date palm genetic resources. In the past, in addition to date palms, Al Ain also produced a range of fruit species such as lemon, orange,

mango, banana, grapes, figs and pomegranate, as well as herbaceous crops such as alfalfa, wheat, barley and vegetables.

Al Ain is also home to ancient irrigation systems or *falaj*, which are traditional man-made channels which collect ground water and surface water, and channel it by gravity to the oases. These irrigation knowledge systems and structures are the core element informing the GIAHS agricultural system designation. Developed over the centuries and valued by the local people, the oasis retains a strong symbolic value for national and local identities within the UAE. Through the maintenance of this type of irrigation system and its associated traditional knowledge structures, the water resources and the landscape of Al Ain oases have been retained and conserved over time⁶.



Fig. 12: Participants in the field visit to Al Ain, UAE discussing the date palm oases (Wigboldus, 2018)

b. Dynamic Conservation Plan

Al Ain Oasis agro-ecosystems are fragile systems that face a number of climate and socio-economic challenges, increasing risks of water scarcity and environmental degradation. Without conservation efforts, oasis agro-biodiversity will erode, and water and land resources degrade. Proactive policies and programmes are needed in order to protect and revitalize these agro-ecosystems.

Dynamic conservation aims at conservation and adaptive management of the GIAHS site and agricultural, social/economic development through various measures implemented by major stakeholders. These actions are formulated in Action Plans that attempt to maintain the balance between conservation and development.

There are a wide range of measures that should be carried out for dynamic conservation, such as technical support to local farmers in productivity improvement, quality improvement and soil improvement, niche market development, branding of local agricultural products, promotion of agro-tourism, diversification of income sources, involvement of female farmers and local farmers in the decision-making process, control of development around the GIAHS sites and a management programme of agricultural resources and biodiversity. Dynamic conservation

⁶ For more information on the GIAHS proposal, please see 'Government of United Arab Emirates (2015)'

strategies and processes promote the maintenance of biodiversity and essential ecosystem services through continuous innovation, transfer between generations and exchange with other communities and ecosystems. The wealth and breadth of accumulated knowledge and experience in the management and use of resources is a globally significant treasure that needs to be promoted and conserved while, at the same time, being allowed to evolve.

The Al Ain dynamic conservation plan is outlined in current development policies (i.e. Plan Al Ain 2030) which devote great efforts to recover the cultural identity and traditions linked to the oases, as well as the rehabilitation of the associated agro-ecosystems.

The Al Ain dynamic conservation plan seeks the restoration, rehabilitation and preservation of Al Ain oases agro-ecosystems in the framework of sustainable development. It addresses a number of threats and challenges:

- *Urban development pressures:* urban development around Al Ain oases is increasingly intense. Thanks to government efforts, the Al Ain oases territory has been protected and private owners continue to grow date palms. However, climate change risks and competition for land and water resources are emerging pressures that need to be considered.
- *Sustainable water management and rehabilitation and maintenance of aflaj irrigation systems:* The environmental heritage, which is the major wealth of the productive activities in the oasis agro-ecosystems, has been weakened by recurrent periods of drought, and is subject to an arid climate that is being further degraded due to unsustainable modernization and excessive water pumping. The survival of the oases depends entirely on water resources. Sustainable water resources management in oasis agro-ecosystems is crucial to ensure their capacity to provide services such as food production. The Abu Dhabi government is promoting sustainable use of water resources in the country, including groundwater table recharge. The government is also rehabilitating, maintaining and upgrading the traditional channels of *falaj* systems in Al Ain to ensure the availability of water and the conservation of traditional infrastructure.
- *Management of date palm plantation and loss of biodiversity:* Sustainable agricultural practices through agro-ecological approaches should be promoted. As a refuge for biodiversity, climate regulation, and agricultural products, oases are the last line of defence against desertification, and are considered a critical source of agro-biodiversity. However, a decline in biodiversity is apparent in Al Ain, with the principal threats to biodiversity being habitat transformation to agricultural and urban uses and unsustainable uses. Efforts are needed to conserve and promote sustainable use or agricultural biodiversity.
- *Loss of traditional knowledge:* Traditional knowledge of oases management is being lost to the younger generations. The conservation of oases should be linked to the promotion of traditional practices and local knowledge.

c. WHS and GIAHS relationship

The WHS and GIAHS programmes are substantially complementary, and there is great potential for establishing synergies and mutual benefits. The designation of the Cultural Sites of Al Ain as a UNESCO World Heritage Site provides some of the protection the oases require against development pressures. WHS designation has brought, for instance, the necessary protection of water resources to the traditional *falaj* systems. The concept of Globally Important Agricultural Heritage Systems (GIAHS) complements the conventional heritage site or protected area/landscape by integrating the concept of living and evolving systems of human communities. GIAHS represents the intricate relationship of humans with their territory, cultural or agricultural landscape or biophysical and wider social environment. The humans and their livelihood activities have continually adapted to the potentials and constraints of the environment and also shaped the landscape and the biological environment to varying degrees. The resilience of many GIAHS sites is shown by how they have been developed and adapted to cope with climatic variability and change, natural hazards, new technologies and changing social and political situations, so as to ensure food and livelihood security and alleviate risk. Despite the connections between these

designations, during the site visit and workshop discussions, it became apparent that there was little interaction between the separate groups responsible for the WHS nomination (i.e. the members of the World Heritage Site authority working at the Cultural Sites of Al Ain) and the GIAHS nomination (organised by the Khalifa International Award for Date Palm and Agricultural Innovation).

A number of activities have been identified that would strengthen complementarities of both programmes in Al Ain:

- Update the GIAHS dynamic conservation plan and World Heritage Site management plan (recently submitted to UNESCO) to establish linkages between the two programmes and enhance synergies.
- The GIAHS focal point should be part of and/or participate in the National Commission of the UNESCO cultural site, and representatives of the UNESCO National Commission should be part of the GIAHS Committee.
- Develop and promote joint dissemination activities.

d. Scientific Research

Although the ICOMOS/IUCN team did not meet any researchers from the UAE University in Al Ain, the GIAHS inscription proposal identifies testing the use of date pits to replace the antibiotics administered to chickens, and UAE University researchers have calculated that pits could be used to replace up to a fifth of the corn in chicken feed. This would cut both feed costs and the use of growth-enhancing drugs. In addition, several secondary (non-fruit) products of the date palm result from annual pruning and include frond bases, midrib, leaflets all of which are used as ruminant feed. Palm trunks being hewed for building purposes were seen in Al Qattara Art Centre. This type of recycling initiative is needed for a degree of self-sufficiency in agriculture.

6. Management of the Property

a. Introduction to the Structure

The Cultural Sites of Al Ain are characterized by the complex heterogeneity of the individual components included in the site. The date palm oases and the traditional irrigation system, as well as the historical and archaeological testimonies located in different contexts are elements that strongly affect the management strategies used for the conservation and enhancement of the site.

For all serial properties, in order for the management system to be effective, it is crucial that there is communication and coordination among all component parts, especially where different managers and management systems may apply (UNESCO, 2013). This is particularly important in relation to:

- The harmonisation of management relating to all the attributes, values and component parts in order to meet a set of shared objectives for conserving and monitoring OUV;
- The identification of and response to threats to the property;
- The coordination of monitoring and reporting, particularly in relation to the requirements of the World Heritage Convention.

The resulting impression from visiting the sites, which was confirmed during the on-site workshop, is that the most effective approach to managing the Cultural Sites of Al Ain as a World Heritage property is to consider it as a *cultural landscape* formed by components with different but intertwined tangible and intangible values.

This is clearly presented in the Management Plan, which emphasizes that Al Ain can be best interpreted and understood as a continuing cultural landscape, especially in terms of the role the oases play in the contemporary city and context of Al Ain. In accordance with the OUV of the site, such a landscape “retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress.

At the same time, it exhibits significant material evidence of its evolution over time” (UNESCO, 2019).

The continued existence of traditional forms of land use, as is the case at the Al Ain oases, supports biological diversity in many ways. Rural landscapes, especially when universally recognized as cultural landscapes, can be considered an effective tangible examples of the added values of ecological systems and the benefits of maintaining biodiversity. As a result, an understanding of the oases relates directly to an understanding of the ecology that has been deeply influenced by agricultural activities and conditions. In these cases, continual human actions throughout the centuries, combined with natural events and driving forces, have created unique landscapes with specific features and their own identities. The protection of traditional cultural landscapes is therefore helpful in maintaining biological diversity through an integrated approach that recognizes humans as the key factor in maintaining the values system in Al Ain since the Bronze Age. The concept of maintaining biocultural diversity must also be recognized and further emphasized at the site. The culture of the *falaj* as the basis of the economy and social systems of the rural community within the oases area, and the importance of maintaining the *falaj* network is one of the aims and tasks of the management system. The conservation and the strategies for their enhancement must be continually adapted to the rapidly and ever-changing conditions of the socioeconomic development of the communities that exist.

b. Management Plan

In accordance with the requirements of the World Heritage Convention, the Management Plan for World Heritage Sites is to incorporate the objectives and measures to ensure preservation of the Outstanding Universal Value, the authenticity and the integrity of the World Heritage property. It is the result of a collective and participatory process, and should provide:

- Opportunities for all stakeholders to be involved and have a shared understanding of the property;
- A clear description of the property as the basis for assessment of its values, particularly its OUV;
- A transparent description of how the existing system functions in terms of responsibilities and how it can be improved;
- A Statement of OUV of the cultural property with the identification of the attributes and conditions of authenticity and integrity;
- An assessment of the other values of the property;
- An overview of the current condition of the property and various factors that may have positive or negative effects on attributes, authenticity and integrity;
- A collective vision for the management of the property;
- An implementation strategy, including monitoring and review and integration of other plans.

The creation and elaboration of the Site Management Plan (2018) for the Cultural Sites of Al Ain was coordinated by the Abu Dhabi Department of Culture and Tourism (DCT), and shared with experts of other partner groups including the Department for Urban Planning and Municipalities (DPM), the Al Ain Municipality (AAM), Environment Agency (EAD) and the Department of Transport (DoT).

It is structured according to official management plan requirements, and clearly illustrates the components of the site, the OUV and the conditions of the attributes, the institutional and legal framework, and the vision and the actions that must be undertaken to achieve the aims and to assist in the implementation and governance of the Management Plan within the site.

The management system of the Cultural Sites of Al Ain is governed by the law regarding the Cultural Heritage of the Emirate of Abu Dhabi (Law n.4/2016). It defines tangible and intangible heritage, identifies specific concerns for cultural landscapes and, together with various specific laws in place for oases protection, can be considered a key element for the values conservation.



Fig. 13 – Entrance to the Al Ain Oasis (Wigboldus, 2018)

c. Implementation

(1) Overview

During the Connecting Practice visit to the Cultural Sites of Al Ain, the team was able to interact with a variety of stakeholders, managers and organizations in an on-site workshop setting. During the workshop, it was stated that the stakeholders support the management of the site according to the *Historic Urban Landscape* Approach (HUL), which allows a constructive dialogue between all stakeholders in the adoption of cultural heritage as an engine for the city's economic and social development (United Arab Emirates, 2018), and integrates a holistic view of the goals of urban heritage conservation with those of social and economic development. Such a HUL workshop was held in Al Ain from 4-5 February 2019.

The active use of a HUL Approach for site management could be the key to facing some of the challenges discussed during the site visit, such as how to reconcile the relationship between the urban, cultural and natural environments in a balanced and sustainable way, how to manage the physical and social transformations and ensure that contemporary interventions are harmoniously integrated with heritage in a historic setting, and ways to take into account regional contexts and support the needs of the communities for development and adaptation while retaining the characteristics and values linked to their history, collective memory and environment.

(2) Stakeholders

The main public stakeholders currently involved in the management of the Cultural Sites of Al Ain are:

- The *Department of Culture and Tourism* (DCT): the governmental body in the Emirate of Abu Dhabi in charge of the study, conservation, development and promotion of the tangible and intangible heritage of the Emirate. DCT's Culture Sector provides the basis for the protection and preservation of Al Ain's cultural resources, including sectors responsible for: Historic Environment, Collections and their conservation, Museums, Art Centres, Intangible Heritage, Education and Professional Development, Programmes, as well as the Operations Management of Cultural Sites, Cultural Planning and Policy Setting, Exhibition Design, etc. Within the Historic Environment sector, there are several sections: Archaeology, Coastal Heritage & Palaeontology, Conservation, Historic

Buildings and Landscapes, World Heritage Sites Management Section, and Technical Support.

The Archaeology Section is in charge of surveys, excavations and documentation of archaeological sites. The Conservation Section is in charge of the conservation of the Historic Environment of Abu Dhabi, while the Historic Buildings and Landscapes Section conducts investigations, site enhancements and stakeholder management of historic buildings and the oases. The World Heritage Sites Management Section is responsible for the implementation and monitoring of activities related to the Cultural Sites of Al Ain and any future site in the Emirate inscribed as a World Heritage Site.

- *Al Ain Municipality, and specifically its Town Planning and Aflaj & Oases Departments:* The latter is in charge of services related to the oases, including the management of water distributed in the *aflaj* system, the relationship with the plot owners, garbage removal, patrol and security, monitoring the health of the palm trees, and pest control. All of these services are provided by the Municipality at no cost to the landowners. The Town Planning Department in the Al Ain Municipality is in charge of all issues related to urban planning in Al Ain, in conjunction with the Department of Urban Planning and Municipalities (DPM) and manages the city's GIS system. DPM is in charge of the development of urban plans in the Emirate of Abu Dhabi.

In addition to the stakeholder groups listed above, several other public authorities are responsible for related areas. The Environment Agency (EAD) is in charge of protecting and enhancing air quality, groundwater and biodiversity, and with respect to Al Ain, the EAD is directly responsible for protection of groundwater and biodiversity in the desert areas and in Jebel Hafit National Park.

In order to effectively govern the Cultural Sites of Al Ain with such a range of stakeholders, the Management Plan proposed the creation of various groups to promote elements of the management and governance for the site, including a Steering Committee, a Joint Technical Working Group, a World Heritage Sites Management Section, and an Operations Management function within the Culture Sector of DCT, in accordance with the *Aflaj* section and the Town Planning Department at Al Ain Municipality.

(3) Landowners

Property ownership is classified under one of three types: government-owned, privately-owned, and private property of the Ruling Family. DCT, working under the Government, owns buildings that have been restored and those which have been designated as heritage properties (for example, the Jahili and Mezyad Forts), and the organisation is currently in the process of acquiring other properties (for example, the Sheikh Zayed Palace Museum) (United Arab Emirates, 2018). DCT owns all archaeological sites and provides management for many of the sites within the World Heritage inscription. While DCT owns and manages many of the archaeological sites, there is also an aspect of traditional oases management. Throughout the six oases in the World Heritage area, hundreds of privately-owned farm plots are still in place today and some of these stakeholders continue to work within the oases with the direct assistance of DCT and the *Aflaj* section of the Al Ain Municipality.

(4) The Role of GIAHS

As will be further discussed in the Recommendations section below, there is a distinct lack of communication, collaboration and integration between the World Heritage Site management plan and the GIAHS inscription proposal. To improve future management at the site, this is a key issue that must be addressed. Although the cultural aspects of Al Ain oases are solely managed by DCT, both organisations and plans have a similar focus and goals in terms of the Cultural Sites of Al Ain as a *biocultural landscape*, with the *aflaj* irrigation system, date production, rural activities, and archaeological remains still evolving. As a GIAHS site, an action plan is required, which provides an opportunity to integrate the aims of the GIAHS action plan with the goals of the World Heritage inscription, and address common threats and work toward developing possible solutions collaboratively. This would also provide the opportunity to develop an efficient and effective monitoring system with clear and measurable indicators that could be based on and incorporate the implementation of a WH geographical information system (GIS).

(5) Challenges and Opportunities

While the main goal of the site visit and on-site workshop was not to evaluate the success of the Management Plan of the Cultural Sites of Al Ain, it is extremely informative to the Connecting Practice project to review its effectiveness in terms of how this management system reflects an integrated, holistic approach to the property, incorporating the different attributes and values of each individual component, both tangible and intangible. Challenges and opportunities to such an approach include:

- *Traditional Knowledge:* Of key consideration is the local, technical knowledge that has been fundamental to the oases' preservation and the actions that should be undertaken to encourage these knowledge structures within the site to continue their role in terms of protecting natural and cultural biodiversity. Elders with traditional knowledge for the management of date palm oases are becoming increasingly rare, and there is a general movement of youth from the oases areas to higher paying jobs in larger cities. In order to protect and sustain these traditional knowledge structures and practices, and maintain resilience in the oases areas, there needs to be increased support from local residents, landowners, governmental groups and other stakeholders. Gradual decreases in flora and fauna species varieties within the oases, the disappearance of the traditional oases zones, and the decline of traditional oasis knowledge holders from pre-oil generations, could result in lost opportunities for retaining and rejuvenating these oases areas in the future.
- *Risks:* The Management Plan identifies a variety of risks related to the complexity of the site, including loss of context, isolation of the archaeological and historic sites, urban encroachment, and the risk of losing the physical urban and natural contexts. This last aspect is particularly evident in the case of Al Ain oasis, located in the midst of the city that continues to grow around it. It is clear that the identification and regulation of the buffer zones around the Cultural Sites of Al Ain are of critical importance for the conservation of the site when dealing with building regulations and urban sprawl. Urban Design Guidelines, as identified in the Management Plan, are being developed to address this issue. DCT is aware of the risk that each component of the Cultural Sites of Al Ain could be seen in isolation from its historic and contemporary context, and as individual monuments rather than as an integral part of the whole. This could lead to a lack of understanding of the evolution and significance of human settlement, less stakeholder interest in integrating these "monuments" into the active life of the city, and a lack of integration with other cultural elements in the area, such as associations focusing on the intangible heritage. Other risks identified and discussed during the site visit and workshop included the absence of the GIAHS approach from the management plan, the weak interconnection between the various stakeholders involved in the implementation of the management system, and the absence of representatives of the agricultural community from decision-making processes. Although the Management Plan confirms that actions to engage farmers and the other stakeholders are planned, it emphasizes that a "top-down" approach continues to be used, with institutional requirements being imposed for management of the sites, rather than having active involvement and input of locals with traditional knowledge that would contribute to a holistic and biocultural approach to natural and cultural heritage within the oases.
- *Relationships of Stakeholders:* As has previously been discussed, the management and governance of a serial property involves intricate relationships among the separate, distinct elements and values, and requires collaborative approaches from a variety of stakeholders, according to a value-based management approach, focusing on the attributes of the OUV and consideration of other supporting values, and the creation of coherent monitoring strategies.

As with many sites, there are always challenges in obtaining sufficient and knowledgeable staff to carry out documentation, inventory, and conservation activities and a lack of training programmes to encourage new staff to take on these roles. In the presentation and subsequent discussion of the Management Plan for the Cultural Sites of Al Ain during the on-site workshop, possible negative consequences can result from: a lack of understanding of the evolution and significance of human settlement and landscape development by focusing on the component

units of the WHS; low stakeholder interest in integrating these “monuments” (the oasis) in the active life of the city; a lack of integration with other cultural aspects such as intangible associations; a disconnection from natural and urban setting and context; and possible urban encroachment. It is critical to assess the site in terms of its entirety as a single cultural landscape. Other areas important to holistic management are the incorporation of mechanisms such as HUL and GIAHS approaches, heritage interpretation, involvement of the local community and transparent management structures.

While the city and the surrounding areas have several sites of interpretive value related to the OUV, due to the diversity of the managing bodies, there is a lack of cohesion both in heritage interpretation and in marketing communication. Heritage interpretation is a particularly challenging area due to the extensive historical timeline of the WHS and the scattered location of the component units of the WHS.

7. Lessons Learned and Recommendations

A variety of lessons were learned from the workshop and site visit to the Cultural Sites of Al Ain World Heritage Site, which led to a list of suggested recommendations for further consideration.

One of the main lessons learned was the importance of the integration and incorporation of the GIAHS designation into current management frameworks, policies and the existing WHS Management Plan for the site. During discussions with local stakeholders, it became apparent that the GIAHS designation and the World Heritage Site had little to no interaction, and the nomination and designation processes of GIAHS and the WHS were completely separate. This divide became especially apparent during the presentations by the representative from the Khalifa International Award for Date Palm and Agricultural Innovation (the group in charge of the GIAHS nomination and designation) and the representatives from the World Heritage site and the management plan (those who worked on the nomination, designation and management plan for the World Heritage site). There was clearly no collaboration between these two groups on nominations, actions for future work, or areas of focus for conservation practices.

The second main lesson learned is that the governmental groups involved in the site visit seemed quite divided in their approaches and ideas regarding the site, as there was little collaboration among the individual government departments, especially the Environment Agency that works with the natural characteristics within the World Heritage site and buffer zone boundaries. Although there is a section in the Management Plan recommending the creation of a Steering Committee to be “composed of DCT, AAM, DPM, DoT, and EAD representatives, and an elected representative of the Oases plots landowners” (United Arab Emirates, 2018) to monitor implementation of various Management Plan aspects, and a Joint Technical Working Group, no such groups have been established to date. This lack of establishment of governing committees could negatively affect the future goals and aims provided in the Management Plan framework and could affect their implementation and success.

A number of recommendations were developed by the team as a result of the field visit discussions and an analysis of the current Management Plan, including:

1. *Integration of natural heritage:* Increased inclusion of environmental groups, such as the EAD, could be very beneficial to the integration of nature and culture at the site, and various tools can be used to further develop the importance of natural heritage at the site. For example, the use of the “Enhancing Our Heritage Toolkit”, as one of the most comprehensive and well-recognized tools to assess the success of management of natural World Heritage properties could be extremely helpful for implementing new management frameworks and practices.
2. *Operational improvement:* The Management Plan stresses the need for better facilities, services and infrastructures such as signage and graphics, “branding” the WHS components of Al Ain, and improving operational and business plans and retail/marketing opportunities across the sites.
3. *Monitoring activities:* A comprehensive monitoring strategy should be further developed, as this section of the Management Plan currently provides only introductory ideas. A holistic approach should be followed here including a close

scrutiny of the attributes and supporting values of the OUV, their state of conservation, and additional aspects related to the site conservation such as management systems and tourism opportunities.

4. *Use of GIS and Remote Sensing:* It may be useful to apply GIS and remote sensing for further development of the WH and GIAHS GIS system databases in order to create an effective indicator system with baseline readings for aspects like urban encroachment and desertification. A well-structured knowledge of all the diverse aspects of the property, both natural and anthropic, is fundamental to address the decision-making process with an integrated view. Gathering, managing and analysing data can help create a better understanding of the relationships between all elements at the site. This approach can be particularly significant in the case of a serial site, and could assist in further understanding related to resilience and dynamics of the site, and future monitoring practices.
5. *Promotion of the World Heritage Site inscription:* The designation of the Cultural Sites of Al Ain World Heritage Site has been instrumental in Abu Dhabi Authority for Culture and Heritage (DCT) efforts to educate and protect the historic environment in Al Ain, and increase awareness for various stakeholders (especially government agencies and local populations) in efforts to control development trends better.
6. *Promotion of the Al Ain oases as an attractive option for youth:* The oases agro-ecosystems must be made more attractive to younger generations, as they are the best guarantee for the survival of these types of farming and agricultural systems. To achieve this goal, it is important to innovate in all aspects of the oasis by augmenting water collection and mobilization, improving water management, introducing additional high value crops, ameliorating the food chain for better value added, communicating on local crops and organic farming, integrating ecotourism in the farming process, and introducing organisational models enabling better management of the low resources.
7. *Tourism:* If managed properly, the continuing socio-economic dynamics in the area could provide opportunities in a variety of areas, especially with respect to increasing tourism (one example being the Jebel Hafit National Park projects). While this has not been a focus of the site, interesting work has recently been done to develop the visitors' centre in Al Ain Oasis and Al Qattara, and future work could focus on creating carrying capacity studies and analysing tourism trends at the individual World Heritage and GIAHS sites.

One possibility would be to create a type of "interpretive landscape" for the planning and coordination of heritage interpretation at the Al Ain oases. By analysing existing interpretive sites, improvements could be made to address the needs contained in the "interpretive triangle", namely, to combine and balance: 1) management and conservation objectives; 2) visitors' interests and needs; and 3) the sense and meaning of the place.

- a. *Interaction with other attractions around the sites and creating the interpretive landscape with respect to the attributes and values of the OUV and a hierarchy of interpretive messages:* Al Ain is well known for its zoo (established in the early 1970s) and its ambitious expansion of a wildlife safari park, museum and resort, which attract large numbers of visitors. In addition, the museum at the site provides ample room for exhibits of the geology, ecology and land use of the Al Ain area using the most modern technology available. Working with the zoo on additional tourism frameworks could be helpful for the Cultural Sites of Al Ain WHS as a whole. Another connection to this could be the inclusion of camels at the WHS, as they were a basis for nomadic and sedentary desert life. It was suggested that they could be included in an interpretive programme at the site. Other interpretive sites should also be analysed, specifically on how they can contribute to the interpretation of the OUV and reveal gaps in topics and themes. To do this, a certain level of coordination and cooperation between the various interpretive sites and related managing bodies is essential.

- b. *Setting up a model oasis to showcase traditional cultivation structure and cultivars*: such a project could not only provide interpretive benefits at the site to promote tourism, but would also support other aspects of site conservation. These could include featuring *in situ* cultivar collections (varieties of date palms native to Al Ain, various fruit trees, vegetables, herbs, possibly cereals), domestic animals connected to the oases, and serve as a gene and knowledge pool for next generations by offering services to farmers (tree nursery, technical training, etc.), and truly authentic and high value programmes for visitors. This would enhance not only the agro-biodiversity but would also enrich natural wildlife.

ANNEX 1: Statement of Outstanding Universal Value

Brief Synthesis

The serial property of The Cultural Sites of Al Ain, with its various component parts and the regional context in which it is situated, provides testimony to ancient sedentary human occupation in a desert region. Occupied continuously since the Neolithic, the region presents vestiges of numerous prehistoric cultures, notably from the Bronze Age and the Iron Age. Al Ain is situated at the crossroads of the ancient land routes between Oman, the Arabian Peninsula, the Persian Gulf and Mesopotamia. Very diverse in nature, the tangible elements of the property include remains of circular stone tombs and settlements from the Hafit and Hili periods, wells and partially underground aflaj irrigation systems, oases and mud brick constructions assigned to a wide range of defensive, domestic and economic purposes. This expertise in construction and water management enabled the early development of agriculture for five millennia, up until the present day.

Criterion (iii): The Cultural Sites of Al Ain provide exceptional testimony to the development of successive prehistoric cultures in a desert region, from the Neolithic to the Iron Age. They establish the existence of sustainable human development, bearing testimony to the transition from hunter and nomad societies to the sedentary human occupation of the oasis, and the sustainability of this culture up until the present day.

Criterion (iv): The tombs and architectural remains of the Hafit, Hili and Umm an-Nar cultures provide an exceptional illustration of human development in the Bronze Age and the Iron Age on the Arabian Peninsula. The aflaj system, introduced as early as the 1st millennium BC, is testimony to the management of water in desert regions.

Criterion (v): The remains and landscapes of the oases of Al Ain appear to testify, over a very long period of history, to the capacity of the civilizations in the northeast of the Arabian Peninsula, notably in the protohistoric periods, to develop a sustainable and positive relationship with the desert environment. They knew how to establish the sustainable exploitation of water resources to create a green and fertile environment.

Integrity

Constituted by 17 satisfactorily identified components, the Cultural Sites of Al Ain form a serial property of sufficient integrity to express exceptional values of prehistoric and protohistoric cultures in relation to the development of the oasis landscape. The proposed sites cover sufficiently extensive areas, and include many diverse archaeological vestiges, which are generally well preserved and adequately protected. Integrity would however be reinforced by a systematic inventory, and a deeper knowledge of the nominated ensembles and their environment. The history of the oases from the protohistoric period until the 19th century remains very fragmentary and must be scientifically studied. The environment close to the ensembles forms landscapes which are associated with the desert, mountains and existing oases, and this also applies to their urban dimension, but in some cases their urban setting features anachronistic elements nearby, resulting from contemporary development (leisure park, modern buildings, road and hotel infrastructures, etc.). Environmental integrity must be carefully monitored to ensure these developments do not proliferate to adversely affect their setting.

Authenticity

The prehistoric sites of Al Ain, and particularly the Hafit and Hili ensembles, and the associated moveable artefacts, have high levels of authenticity. Several of the archaeological sites recently excavated present built vestiges which are fully authentic.

Since their discovery in the second half of the 20th century however, there has been a tendency to reconstruct certain circular tombs in an effort to make them emblematic, which necessarily limits their authenticity. The presence of aflaj systems dating from the Iron Age has been authenticated, most notably in the case of Hili 15 falaj, which presents intact all units of the system (cut-and-cover section, shari'a and the open channels) and where there has been no intervention except sandbag barriers for protection and draining rainwater. The aflaj of Al Ain do not all date from the Iron Age, but include new additions to the system throughout later centuries. Recent studies have filled some gaps in the continuity of the system. Further efforts toward more systematic documentation will aid the evaluation of their authenticity as a system forming the basis of today's oases.

The restoration work on buildings and mud-brick constructions in the oases, which took place from the 1980s onwards, was dominated by reconstruction taking precedence over conservation of the physical fabric. This tendency has been corrected over recent years, to ensure greater respect for authenticity (in forms, structures and materials), as considerations of authenticity have been at the core of conservation activities by ADACH. The conditions of authenticity of the oases in terms of utilization seem essentially in place, as the efforts of the national and local authorities and the farm owners. Together, they aim to ensure the continued flourishing of oases. However, threats posed to their authenticity due to the impact of the changing economy on the sustenance of agricultural activities, the changing water supply and the pressures of urban proximity need to be monitored closely.

Protection and Management Requirements

The property has been protected legally by the Abu Dhabi Authority for Culture and Heritage (ADACH) Establishment Law of 2005 and the Oasis protection laws of 2004 and 2005, as well as the Law of Archaeology and Excavations of 1970. Building regulations of Al Ain Municipality's Town Planning Department forbids the construction of new buildings of more than four storeys and a maximum height of 20 metres. The sites within the property and its buffer zones are registered on the inventory managed by ADACH, which also administers the Preliminary Cultural Review, the cultural heritage component of the emirate's Environmental Impact Assessment process. Two draft laws, the emirate-level Law for the Protection, Conservation and Management of Cultural Properties, and the Federal Archaeological Resources Protection Act, are both in the final stage of review by government agencies. These laws will improve the existing protective framework for the sites.

The property's protection is provided by numerous sectorial arrangements reflecting the complexity of the property's definition. The Abu Dhabi Cultural Heritage Management Strategy provides the overarching management framework for the Cultural Sites of Al Ain. It has an implementation plan consisting of 19 action plans, some of which have been completed already, and which have informed the Entity Strategic Plan of the ADACH. The ADACH Entity Strategic Plan has been a live document reissued on a rolling basis, and its 2010-14 cycle is completed. The Heritage Management Strategy is currently being reviewed and updated, to incorporate specific management plans and other projects for specific sites. ADACH has been merged with the Abu Dhabi Tourism Authority in February 2012 to create the Abu Dhabi Tourism & Culture Authority (ADTCA). Work has been ongoing since then to ensure continuity of strategic policies and achieved milestones for the management of heritage resources within the institutional restructuring process.

Disclaimer concerning the text of the Statement of Outstanding Universal Value of the site 'Cultural Sites of Al Ain' (Hafit, Hili, Bidaa Bint Saud and Oases Areas), United Arab Emirates

With reference to the text of the Statement of Outstanding Universal Value of the site 'Cultural Sites of Al Ain'(Hafit, Hili, Bidaa Bint Saud and Oases Areas), United Arab

Emirates, it should be noted that, according to the United Nations directives of 15 May 1999 (ref.ST/CS/SER.A/29/Rev.1) the term 'Persian Gulf', 'Gulf' and 'Shatt-al-Arab' shall be referred to and used in all documents, publications and statements emanating from the Secretariat as the standard geographical designation of the sea area between the Arabian Peninsula and the Islamic Republic of Iran.

ANNEX 2: List of Participants for Fieldwork

Name	Institution
Abdulrahman Al Nuaimi	DCT – World Heritage Site Manager
Omar Alkaabi	DCT – Al Ain Oases Manager
Pierre Hadi Saliba	DCT – Consultant
Peter Sheehan	DCT – Head of Historic Buildings and Landscapes
Mubarak Ajlan Ala Moemi	Al Ain Municipality – Aflaj and Water Section Head – Oases and Aflaj Section
Mubarak Alketbi	Al Ain Municipality – Aflaj and Water Section – Oases and Aflaj Section
Mohammed Salmeen Al Alawi	Abu Dhabi Farmers Services Centre Extension – Section Manager Al Ain
Rajeyah Binkulaib	Environment Agency – Abu Dhabi
Ahed Karkouti	Khalifa International Award for Date Palm and Agricultural Innovation
Faisal Abu-Izzeddin	IUCN
Cherif Harrouni	ICOMOS
Francesco Marchese	ICOMOS
Patricia Mejias	GIAHS Programme – Food and Agriculture Organization of the United Nations (FAO)
Zsuzsa Tolnay	IUCN
Leanna Wigboldus	ICOMOS

ANNEX 3: Terms of Reference**TERMS OF REFERENCE****Fieldwork - Cultural Sites of Al Ain
(Hafit, Hili, Bidaa Bint Saud and Oases Areas)****United Arab Emirates**

The members of the team will:

- as part of the IUCN/ICOMOS Connecting Practice project, participate in the fieldwork to the **Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas)** from **18-22 November 2018**, with the overall objective of strengthening policy frameworks and management arrangements that will achieve a more genuinely integrated consideration of natural and cultural heritage of the property;
- participate fully in all activities during the mission as part of a team composed of representatives from: IUCN; ICOMOS; the GIAHS Programme (FAO); and the Abu Dhabi Department of Culture and Tourism (United Arab Emirates).
- adequately prepare for the fieldwork by reviewing the documents provided, including those that supported the nomination process of the property, the GIAHS designation as well as other documents that can inform a better understanding of the context, in order to exchange views with the other team members and reach a common approach;
- be willing to work closely together with the other team members as well as with representatives of communities and government authorities (including responding to any questions they may have concerning World Heritage processes and practices), in a spirit of shared learning;
- work collectively with the others in the mission team to develop and implement an on-site programme of activities that will enable the key questions of the mission (below) to be advanced, including an exploration of the inter-relatedness of cultural and natural values and practices, biocultural understandings of the landscape, and the value of the agricultural systems;
- in so far as possible, and while always keeping in mind differences between the objectives of the Connecting Practice project and the official IUCN and ICOMOS evaluation and reactive monitoring processes, engage in a meaningful and open dialogue with representatives from the government, management authorities and other stakeholders on ways to sustainably and effectively manage the World Heritage property and its wider context;
- collectively prepare a Fieldwork Report that documents the visit, provides a holistic view of the World Heritage property for its cultural and natural heritage, reflects a collective view of all those involved in the writing the report, and provides recommendations addressing the following points:
 - *The interconnected character of the cultural, natural and social values of the property and associated biocultural practices:*
 - explore the relationships between the attributes and values that supported the inscription on the World Heritage List with other significant cultural and natural features and values, including considerations of the cultural value of nature and how cultural systems help or are necessary to sustain natural values;
 - identify the natural attributes/features and values upon which the cultural values depend and how they are interconnected;

- explore the relationships between nature-driven and human-driven processes that produce the natural and cultural values;
- *How to strengthen the socio-ecological resilience of the property:*
 - analyse the socio-ecological system embedded by the property;
 - provide an understanding of the dynamics of changes at the site level and of desirable and undesirable change in the socio-ecological system in which the property is situated;
 - identify changing variables and thresholds that should not be exceeded;
 - identify and discuss possible indicators that could be developed to measure the resilience of the property;
 - provide guidelines on how the management plan could be further enhanced to incorporate adaptive measures in the face of change;
- *The designation of “Al Ain and Liwa Historical Date Palm Oases” as a GIAHS (Globally Important Agricultural Heritage System)*
 - investigate and discuss the condition of the traditional agri-cultural practices, characteristics of the system and values that supported the designation of Al Ain and Liwa Historical Date Palm Oases as a GIAHS site;
 - investigate the status and impacts of the dynamic conservation plan detailed in the proposal together with the identification of the main stakeholders and their respective roles
 - identify the relationship between the World Heritage and GIAHS designations and how they could reinforce each other in terms of supporting dynamic conservation of the agricultural system of the property.
- *The management system of the property*
 - identify and engage with key stakeholders (to the extent possible during the mission programme)
 - explore how policies and management arrangements provide an adequate framework to protect the cultural and natural values of the property;
 - explore how the management system could be improved to take into account the interconnected character of natural and cultural values and to respond to pressures of urban encroachment, modernisation and changes in traditional exploitation of the property.
- Provide a reflection on the experience of the fieldwork, including a brief summary of the challenges encountered when writing the report (if any) and your reflections on whether the biocultural approach has enabled you to gain new or different insights.
- The report should provide specific recommendations for fieldwork based on Year One for field visits to other sites planned in Year Two.

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DELTA DU SALOUM (SENEGAL)

Rapport de la visite de terrain





Rapport de la visite de terrain du Delta du Saloum (Sénégal)

9 - 14 décembre 2018

Cosme Kpadonou, Carlo Ossola, Bakonirina Rakotomamonjy, Maureen Thibault et Gretchen Walters
Avec les contributions de Mahécor Diouf, Youssouph Diédhiou et Abdoul Sow

Photo de couverture : Delta du Saloum (Sénégal) © Cosme Kpadonou

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Liste des abréviations :

DPC	Direction du Patrimoine Culturel
GIE	Groupement d'Intérêt Economique
ICOMOS	Conseil international des monuments et des sites
OCB	Organisation Communautaire de Base
ONG	Organisation Non Gouvernementale
SSE	systèmes socio-écologiques
VUE	valeur universelle exceptionnelle
UICN	Union internationale pour la conservation de la nature

1. Introduction

Ce rapport présente les résultats de la visite de terrain du site du patrimoine mondial du Delta du Saloum (Sénégal), dans le cadre de la troisième phase du projet *Connecting Practice*, qui a pour objectif d'explorer, d'apprendre et de créer de nouvelles méthodes de reconnaissance et de soutien du caractère interconnecté des valeurs naturelles, culturelles et sociales des sites du patrimoine mondial. Les travaux proposés pour la phase III du *Connecting Practice* concernent les pratiques agricoles et bioculturelles et explorent les meilleures façons de soutenir la gestion des changements auxquels elles sont confrontées.

L'objectif de l'étude de cas du site du patrimoine mondial du Delta du Saloum était tout d'abord d'explorer la meilleure façon de soutenir et de maintenir les pratiques de gestion traditionnelles et la gestion de leur changement dans le cadre du patrimoine mondial. La visite de terrain était l'occasion de rassembler des informations utiles permettant une analyse holistique des valeurs naturelles et culturelles interconnectées du site, ainsi que de mieux comprendre comment renforcer la résilience du bien en étudiant les changements intervenant à son niveau.

Deux points principaux ont servi de structure pour les Termes de Référence (TDR) de la visite sur le terrain (Annexe 2) :

- i. Le caractère interconnecté des valeurs culturelles, naturelles et sociales du bien et des pratiques bioculturelles associées
- ii. Comprendre la résilience socio-écologique du bien

En outre, afin de contribuer directement à la protection et à la conservation du bien, un troisième élément a été identifié :

- iii. Le système de gestion du bien

Le choix du Delta du Saloum comme étude de cas se base sur son inscription sur la Liste du patrimoine mondial en tant que paysage culturel ainsi que sur sa valeur universelle exceptionnelle qui témoigne d'une synergie entre les peuples du delta et leur environnement naturel (critères (iii), (iv) et (v)).

Ce rapport présente les renseignements recueillis lors de la visite de terrain, complétés par la documentation mise à la disposition de l'équipe. La visite de terrain a eu lieu du 9 au 14 décembre 2018.

Ce rapport est le fruit d'un travail collectif de l'équipe composée des représentants de l'ICOMOS et de l'UICN ainsi que des représentants des différents acteurs impliqués dans la gestion du site. Il est structuré en cinq parties à savoir i) l'introduction, ii) la description du bien et justification de son inscription sur la Liste du patrimoine mondial, iii) le caractère interconnecté des valeurs culturelles, naturelles et sociales du bien et des pratiques bioculturelles associées, iv) la résilience socio-écologique du bien, v) le système de gestion du bien et enfin vi) les conclusions et recommandations.

2. Description du bien et justification de son inscription sur la Liste du patrimoine mondial

Le Delta du Saloum se trouve à environ 150 km au sud de Dakar, à environ 50 km au sud-ouest de Kaolack et à 20 km de Banjul, en Gambie. Le delta s'étend sur 5000 km² et est formé par les bras de trois fleuves : le Saloum, le Diombos et le Bandiala. Ces fleuves sont entourés de bolongs très denses qui sont des chenaux d'eau salée qui fractionnent les terres du delta pour créer un dédale de plus de 200 îles recouvertes d'une végétation généralement luxuriante de mangroves, palétuviers, baobabs, fromagers. Les innombrables bolongs sont bordés par des vasières plus ou moins colonisées par la mangrove où se mélangent l'eau salée et l'eau douce. Ainsi, trois principaux écosystèmes composent le bien à savoir la mangrove, un environnement maritime Atlantique et une forêt sèche.

Le ramassage de coquillages et la pêche en eaux saumâtres sont pratiqués par les communautés humaines au sein d'un milieu naturel d'une grande diversité biologique. Les 218 amas coquilliers du bien résultent de l'activité humaine au cours des âges. Des sites funéraires en forme de tumulus sont présents sur certains amas coquilliers et témoignent de l'ancienneté de la culture humaine le long des côtes de l'Afrique de l'Ouest (ICOMOS, 2010 ; UICN, 2010).

La proposition d'inscription sur la Liste du patrimoine mondial concernait un bien mixte, et une mission conjointe a été effectuée par les experts de l'ICOMOS et de l'UICN en septembre-octobre 2010.

Suite aux analyses des caractéristiques du site par la mission conjointe et le Comité du Patrimoine Mondial, le Delta du Saloum a été inscrit sur la Liste du patrimoine mondial en 2011 sur la base des critères culturels (iii), (iv) et (v) :

Critère (iii) : Par ses nombreux amas coquilliers, par les paysages qui leur sont associés et par la présence d'un ensemble rare et bien conservé d'amas à tumulus funéraires, le Delta du Saloum apporte un témoignage exceptionnel d'un mode de vie littoral, en milieu subtropical sahélien, aux eaux saumâtres riches en coquillages et en poissons.

Critère (iv) : L'ensemble des amas coquilliers accumulé tout au long d'un processus culturel bimillénaire a formé une structure physique d'îlots stables et de terres émergées au sein du Delta du Saloum. Les paysages culturels formés sont exceptionnels et ils illustrent une longue période de l'histoire des peuplements humains le long des côtes de l'Afrique de l'Ouest.

Critère (v) : Le Delta du Saloum constitue un exemple éminent d'établissement humain traditionnel. Il représente un mode de vie et de développement durable basé sur la cueillette des coquillages et sur la pêche, dans une interaction raisonnée avec un milieu naturel d'une grande biodiversité mais fragile (ICOMOS, 2010).

L'ICOMOS a recommandé que le Delta du Saloum soit inscrit en tant que paysage culturel car il témoigne d'interactions majeures entre les hommes et le milieu naturel.

L'inscription sur la Liste du patrimoine mondial avait été proposée également sur la base des critères naturels (vii) et (x), mais l'UICN a considéré que le bien ne remplissait pas ces critères et a décidé de ne pas recommander son inscription au titre de ces critères pour les raisons suivantes :

Critère (vii) : Phénomènes naturels exceptionnels ou beauté naturelle et importance esthétique
Ce bien revêt une grande importance nationale pour le Sénégal, tant pour sa beauté naturelle (la mangrove, l'île sableuse tropicale et les habitats marins) que pour les phénomènes naturels (la colonie nidificatrice d'oiseaux marins la plus importante de la côte d'Afrique de l'Ouest). Toutefois, au niveau mondial, ces habitats et phénomènes (bien qu'il ne s'agisse pas des mêmes espèces) se retrouvent ailleurs et à plus grande échelle. L'UICN considère que le bien proposé ne remplit pas ce critère.

Critère (x) : Biodiversité et espèces menacées

Le bien est d'importance internationale en tant que colonie de nidification importante pour les oiseaux marins avec un quart de toute la population nidificatrice de la sterne royale africaine. C'est toutefois le troisième site d'hivernage en importance pour les échassiers migrateurs du

Paléarctique, après le Banc d'Arguin en Mauritanie et l'Archipel des Bijagos en Guinée-Bissau. Il se différencie de ces deux sites par une association d'îles sableuses et de mangroves. Le bien sert d'habitat à plusieurs espèces menacées, notamment six espèces de tortues marines et le dauphin à bosse de l'Atlantique, mais sa contribution à la conservation globale de ces espèces dans leur aire de répartition est limitée en raison de la zone marine restreinte et des impacts de l'utilisation anthropique. Les forêts sèches assurent l'un des derniers habitats pour le colobe bai en danger, avec plusieurs réserves de la région. Le niveau d'intégrité, de protection et de gestion du bien n'est pas suffisant pour assurer la protection de ces valeurs à l'heure actuelle. L'UICN considère que le bien proposé ne remplit pas ce critère (UICN, 2010).

3. Le caractère interconnecté des valeurs culturelles, naturelles et sociales du bien et pratiques bioculturelles associées

3.1 Les relations entre les attributs et les valeurs qui ont soutenu l'inscription du bien sur la Liste du patrimoine mondial

Cette section du rapport a permis d'explorer les relations entre les attributs et les valeurs qui ont soutenu l'inscription du bien sur la Liste du patrimoine mondial avec d'autres valeurs culturelles et naturelles importantes, y compris la valeur culturelle de la nature et la manière dont les systèmes culturels permettent ou sont nécessaires pour soutenir les valeurs naturelles. Comme expliqué précédemment, le Delta du Saloum a été inscrit sur la Liste du patrimoine mondial comme bien culturel uniquement alors qu'il a été présenté comme bien mixte.

La déclaration de la valeur universelle exceptionnelle se trouve à l'Annexe 3 du présent rapport. D'autres valeurs sont présentées dans la documentation liée au processus de nomination, comme le dossier de proposition d'inscription et dans l'analyse faite par les organisations consultatives. D'autres publications sur le Delta contiennent aussi des éléments très utiles pour définir les valeurs du site.

Sur le terrain, nous avons pu avoir un très bref aperçu des attributs qui soutiennent les valeurs du site pendant la visite. L'appréciation de ces attributs a été faite surtout en discutant sur place avec les experts et les acteurs du bien. Une source très importante d'information pour l'identification des valeurs a été le savoir des personnes qui travaillent pour la gestion du bien ou qui vivent dans le bien.

Ainsi, nous avons réuni tous les acteurs importants pendant une demi-journée dans le but de lister et essayer de définir au mieux les valeurs du bien de façon collective. Le groupe avait une dimension interdisciplinaire et interculturelle très forte, ce qui a permis de récolter énormément d'informations diverses en peu de temps tout en arrivant à une définition commune des valeurs.

Ci-dessous sont résumées les principales valeurs identifiées à la suite de cette première évaluation préliminaire, vu l'insuffisance du temps imparti pour la réalisation de cette tâche. Un travail plus approfondi concernant les attributs du bien et valeurs associées est toutefois nécessaire pour obtenir une base utile pour la gestion du bien.

Valeur universelle exceptionnelle (VUE)

La région du Delta du Saloum témoigne de manière remarquable de la synergie entre un milieu naturel d'une grande biodiversité et un mode de développement humain toujours présent bien que fragile. Des pratiques durables du ramassage des coquillages et de la pêche en eaux saumâtres, ainsi que les techniques de traitement de ces récoltes en vue de leur conservation et exportation s'y sont développées. Les amas coquilliers et les tumulus forment des paysages culturels spécifiques et exceptionnels.

Les nombreux amas coquilliers du Delta du Saloum sont généralement bien conservés et ils ont parfois des dimensions imposantes. Ils témoignent directement de pratiques socioéconomiques durables et très anciennes. Au fil des siècles, ils ont permis de constituer de nombreux îlots artificiels contribuant à la stabilisation des terres et des bras d'eau du delta. Avec leur végétation caractéristique au sein du milieu naturel du delta, les amas coquilliers forment des paysages culturels typiques. Certains amas comportent des tumuli et forment avec leur végétation de baobabs et leurs formes collinaires, des sites funéraires aux paysages spécifiques.

Valeurs liées à la biodiversité des trois écosystèmes principaux du delta

Même si les valeurs naturelles liées à ces attributs n'ont pas été considérées comme remplissant les critères naturels définissant la valeur universelle exceptionnelle, certains de ces attributs ont une importance internationale (p. ex. : la biodiversité liée aux oiseaux), régionale et nationale.

La biodiversité marine : six espèces de tortues marines fréquenteraient le Delta du Saloum et quatre espèces s'y reproduiraient : la tortue olivâtre (vulnérable), la tortue verte et le caret (en danger) et la tortue luth (en danger critique d'extinction). Deux autres tortues marines en danger critique d'extinction

(la tortue imbriquée et le Ridley de Kemp) ont également été signalées. L'écosystème marin présente également une diversité élevée avec des poissons cartilagineux (80 espèces de 30 familles) et des poissons osseux (470 espèces de 110 familles).

La biodiversité liée à l'écosystème estuarien et à la mangrove : dans le secteur estuarien du bien, on a recensé 114 espèces de poissons appartenant à 42 familles, y compris une espèce de carpe (*Lisa bandialensis*) considérée comme endémique dans le Delta du Saloum. L'écosystème représente les différentes espèces des mangroves. Six espèces ligneuses de mangroves y sont rencontrées. Il s'agit de *Rhizophora mangle*, *Rhizophora racemosa*, *Rhizophora harissonii*, *Lagunculariaracemosa*, *Avicennia germinans* et *Conocarpus erectus*. La diversité de mollusques est aussi très riche.

La biodiversité liée aux zones boisées sèches : il y aurait 36 espèces de mammifères terrestres de grande taille et de taille moyenne dans les zones boisées sèches du Delta du Saloum. Presque toutes ces espèces ont une distribution relativement vaste. Dans cet écosystème est représentée une forte biodiversité végétale, importante au niveau national (environ le 20% des espèces recensées au Sénégal y seraient représentées).

La biodiversité liée aux oiseaux : le site est le lieu de nidification de très grandes populations d'oiseaux, en particulier de la sterne royale (*Thalasseus maximus*). Le site abrite en effet la plus grande colonie nidificatrice de sternes royales du monde. Le site est reconnu au niveau international comme Zone Importante pour la Conservation des Oiseaux (ZICO) définie par BirdLife International, et on y trouve un nombre élevé d'échassiers et d'oiseaux de mer, souvent en énormes congrégations. Les îles sableuses, en particulier « l'Île aux Oiseaux », accueillent d'importantes populations nidificatrices de sternes royales africaines (*Thalasseus albididorsalis*), de sternes caspiennes (*Hydroprogne caspia*), de goélands railleurs (*Chroicocephalus genei*) et de mouettes à tête grise (*Chroicocephalus cirrocephalus*). Le site se trouve sur la voie de migration de l'Atlantique Est.

Valeurs liées aux écosystèmes

Les écosystèmes du delta sont encore peu dégradés et se développent sur une grande surface. Ces écosystèmes riches en biodiversité, nutriments et matières organiques assurent le maintien d'un milieu marin et littoral suffisamment riche et diversifié pour entretenir d'importantes communautés de poissons, de mollusques, d'oiseaux et de mammifères marins sur une surface très étendue. Le site est une zone de frayère importante pour les poissons et sert d'habitat à de nombreux crustacés et mollusques (crevettes, huîtres et différents autres coquillages).

Valeurs paysagères

La vaste étendue de forêts de mangroves et le système du Delta très peu modifié, ponctué par les amas coquilliers qui marquent le paysage horizontal grâce à leur élévation et la présence de grands baobabs, créent un paysage caractéristique et iconique.

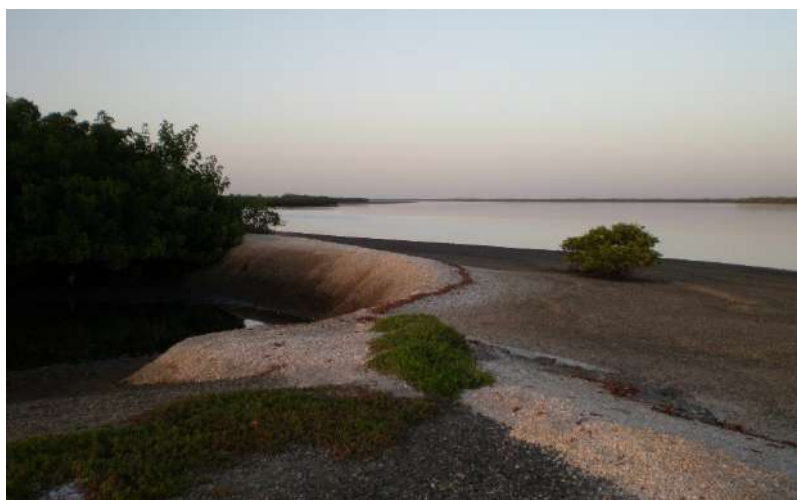


Fig. 1 : L'amas coquillier de Diorom Boumack (Thibault, 2018)

Autres valeurs culturelles (en dehors de la VUE)

Valeurs liées à la connaissance

Les habitants et les acteurs du territoire possèdent une très grande connaissance de l'écosystème. Cette connaissance est d'une part liée à la gestion des ressources de l'écosystème et d'autre part aux facteurs de dégradation de l'écosystème et les bonnes pratiques de restauration de la mangrove. Un exemple est le fait que les femmes, qui ont été très actives dans les actions de reboisement des mangroves dans le delta, ont développé une connaissance permettant de différencier les sols adaptés à la croissance de jeunes plants des sols qui ne le sont pas. Cette connaissance a été reconnue par plusieurs experts.

La population locale a également une grande connaissance des plantes médicinales de la mangrove et des îlots. Cette connaissance non-écrite est transmise de génération en génération dans les familles et aussi à l'intérieur des villages.

Le Delta du Saloum est une source d'informations énorme pour la recherche scientifique, notamment dans les champs liés à l'étude des écosystèmes, de la biodiversité, de la diversité génétique, de l'archéologie des pratiques traditionnelles liées à un écosystème côtier et de la résilience.

Valeurs liées aux ressources

La situation du delta dans la région a créé des sols agricoles très fertiles. La région de Fatick présente une diversité pédologique caractéristique de la zone tropicale à climax climatique (sols ferrugineux tropicaux) avec l'existence de sols intrazonaux à climax stationnel (sols hydro morphes, sols halomorphes).

La situation particulière a aussi permis la présence de sources d'eau douce dans le delta, même à proximité d'eau salée.

Les coquillages sont un important matériel de construction. Ils sont présents de façon importante dans les bâtis de la région du delta.

Valeurs économiques

Les valeurs liées à l'exploitation des ressources halieutiques : la ressource halieutique est la base de subsistance de plusieurs communautés du delta, ainsi qu'une source d'alimentation importante. Le potentiel de commercialisation de cette ressource est très grand et il existe plusieurs projets innovants sur l'exploitation, la conservation et l'exploitation de cette ressource.



Fig. 2 : Elevage d'huîtres dans le Delta du Saloum (Kpadonou, 2018)

Les valeurs liées à l'exploitation des produits de la forêt : le bois est une ressource importante, même si le bois de mangrove n'est pas la meilleure solution pour le bois de chauffe ou de construction. L'habitat des mangroves donne d'autres ressources, notamment la production de miel.



Fig. 3 : Centre de production de miel (Thibault, 2018)

Les valeurs liées à l'exploitation des produits de l'agriculture : même si la production arachidière est dominante, le maraîchage est une activité économique très importante dans la région. La culture de fruits est aussi une activité importante, notamment la production de l'anacarde.

Les valeurs économiques liés au secteur touristique : la beauté et le calme de la région du delta, ainsi que la possibilité d'observer facilement l'avifaune sont un attrait certain pour le tourisme. Le festival culturel organisé chaque année dans le delta attire un grand nombre de visiteurs, ce qui constitue un avantage pour nombre d'hôtels qui organisent une diversité d'activités liées au tourisme. Même si le Delta du Saloum n'apparaît pas comme l'une des principales destinations touristiques du pays, elle reste importante au niveau national.

Les valeurs liés à la production artisanale : selon les participants de la visite de terrain, le tissu économique de la production artisanale est important et à valoriser.

Valeurs sociales

La riche vie associative : les associations sont très nombreuses parmi la population des villages. Cela lie les filières, en allant de l'ostréiculture à la production de miel, en passant par la production maraîchère et artisanale. Cette situation crée une grande cohésion à l'intérieur et entre les villages en permettant de donner une organisation et une voix aux différents aspects de la société locale et aux acteurs dans le débat et dans la gestion des ressources.

La responsabilisation des acteurs locaux, le respect mutuel, la responsabilité partagée : la dense vie associative crée une cohésion sociale et une intégration des acteurs dans la protection des ressources. Cela a comme conséquence une forte responsabilisation de la population dans la protection du site et de ses valeurs.



Fig. 4 : Rencontre avec les femmes ostréicultrices et apicultrices du village de Dassilamé Serrer (Kpadonou, 2018)

Les valeurs liées à la présence de sites rituels et aux rituels y relatifs : il y a un grand nombre de sites sacrés qui sont encore aujourd'hui utilisés par la population (pas que locale). Ces sites rituels sont repartis sur l'ensemble du bien, notamment sur les amas coquillers.

Valeurs liées à la gestion

Les interdits et les rites encore associés à certaines zones funéraires participent à la protection des amas à tumulus. Par leur mode de vie traditionnel, les populations locales sont impliquées dans la protection et la conservation des structures topographiques du delta et du biotope naturel.

3.2 Identification des caractéristiques et valeurs naturelles dont dépendent les valeurs culturelles et comment elles sont interconnectées

Après avoir visualisé et brièvement décrit les différentes valeurs du site (voir chap. 3.1), les participants de la visite de terrain ont discuté de leurs interactions. La visualisation des différentes valeurs a été faite en leur donnant un titre spécifique en essayant de les grouper selon leur typologie (VUE, valeurs liées à la biodiversité, valeurs écologiques, valeurs sociales, etc.). Après cette étape, les experts ont commencé par définir leur interaction en discutant et en les visualisant à l'aide de flèches. Les participants se sont concentrés uniquement sur certaines liaisons précises, jugées les plus évidentes ou importantes, vu que le temps imparti pour la tâche était limité. Le fait d'avoir visualisé les valeurs a beaucoup facilité la discussion sur les liaisons et les interdépendances.

En commençant par la VUE, la connexion la plus évidente est celle qui concerne le rôle imparti aux écosystèmes peu dégradés et riches en ressources. Ces écosystèmes soutiennent les valeurs culturelles, notamment les témoignages du mode de vie littoral et ses attributs principaux comme les amas coquillers. Tant que les écosystèmes fonctionnent correctement et soutiennent ce mode de vie littoral de façon stable, la VUE peut être maintenue. Des changements dans l'écosystème, comme on en observe dans les dernières années, par exemple à cause du changement du système hydrique, ont un impact sur les attributs de la VUE, notamment les amas coquillers à cause de l'érosion.

La rupture et l'érosion de la flèche de Sangomar – importante structure sableuse qui joue un rôle de protection pour l'estuaire – a une influence directe sur les écosystèmes, due à une augmentation des courants et de la salinité qui a eu un impact négatif sur la forêt de mangrove, qui a par endroit disparu. La disparition de la mangrove protectrice et l'augmentation des courants ont influencé directement les amas coquillers en les érodant fortement.

La bonne santé et la stabilité des écosystèmes et leur système hydrique est donc fondamentale pour le maintien de la VUE.

Dans les discussions de terrain, nous avons pu aussi constater que les relations et les interconnexions entre les valeurs peuvent être aussi de nature moins directe que celle décrite plus haut. Par exemple,

les changements dans les écosystèmes dus à l'augmentation des courants et de l'érosion et la conséquente diminution des mangroves ont un impact aussi sur les valeurs économiques, notamment celles liées à l'exploitation des ressources halieutiques. Le milieu en effet devient moins riche en ressources et moins accessible. Les habitants des villages ayant à disposition moins de ressources dans cette filière, augmentent les activités maraîchères. Cela a un effet négatif ultérieur sur l'écosystème à cause des engrais, de l'utilisation du sol et des ressources en eau douce. Cette suite complexe d'interactions négatives impacte fortement la VUE, parce que comme nous avons vu, la stabilité et la bonne santé des écosystèmes du delta la soutiennent directement. La Figure 5, développée par les participants de la visite de terrain, décrit une partie de ces interactions et leur complexité. Elle montre les relations entre les différents types de valeurs qui ont été décrits ci-dessus. Il est important de noter le rôle central et pivot des écosystèmes pour le maintien de la VUE et des autres valeurs du site, et donc l'importance de leur stabilité et bonne santé. Les ressources en eau douce ont aussi un rôle central dans le maintien de la plupart des valeurs du bien.

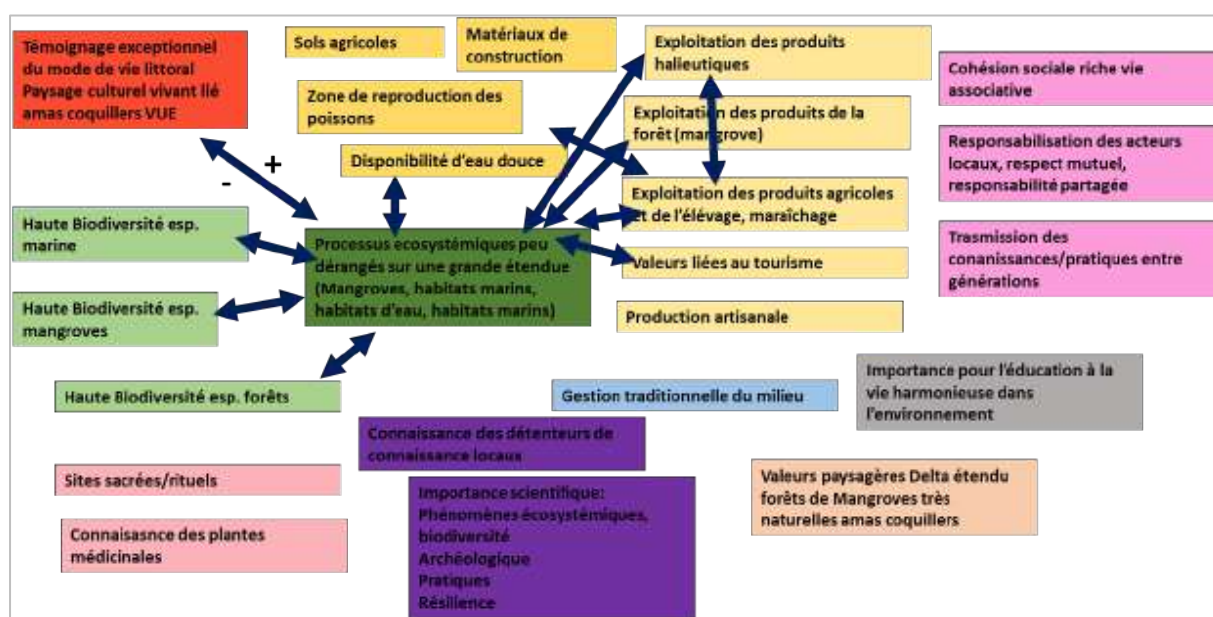


Fig. 5 : Diversité et interconnexion des valeurs du Delta du Saloum (Données de terrain, 2018)

3.3 Conclusions

Le groupe recommande de poursuivre l'identification et l'analyse des valeurs et des attributs associés du bien de façon plus approfondie, en utilisant la méthodologie publiée par le Centre du patrimoine mondial « Trousse à outils : Amélioration de notre patrimoine », et ce afin de les gérer au mieux.

Il est important dans ce cadre de définir aussi les facteurs affectant les valeurs, de façon à pouvoir en tenir compte au moment de l'analyse de leurs interactions.

Ce travail permettra de mieux reconnaître les différentes interactions entre les valeurs et les attributs associés en mettant en évidence les plus importants. En effet, dans un paysage culturel, la plupart des valeurs sont connectées, mais on peut reconnaître des interactions plus importantes que certaines et des attributs « pivots », ayant un rôle dans la plupart des interactions. Dans le cas précis du Delta du Saloum, on peut remarquer le rôle central des écosystèmes et de l'eau douce dans le maintien de la VUE et de la plupart des valeurs du bien. Ces attributs méritent donc une description détaillée ainsi qu'un suivi particulier.

Un tel travail d'analyse doit être la base de la gestion future du bien.

4. La résilience socio-écologique du bien

4.1 Aperçu sur les systèmes socio-écologiques (SSE)

Les systèmes socio-écologiques (SSE) comprennent des écosystèmes liés fortement aux systèmes sociaux (Anderies et al., 2004) et sont donc des systèmes interdépendants. Ces analyses socio-écologiques sont considérées comme une bonne approche pour les aires protégées (Palomo et al., 2014). Pour faire ces analyses, il y a plusieurs cadres (Binder et al., 2013) et selon cette même source, le cadre d'Ostrom (Ostrom, 2009) semble le plus adapté aux objectifs de cette étude grâce à son traitement équitable des aspects écologiques et sociologiques. Ce modèle traite des aspects de la gouvernance, des ressources et des acteurs dans le contexte écosystémique, social, économique et politique, et surtout en prenant en compte les interactions entre les ressources et les utilisateurs de ces ressources (Fig. 6). Cependant, ce modèle ne traite pas des aspects culturels.

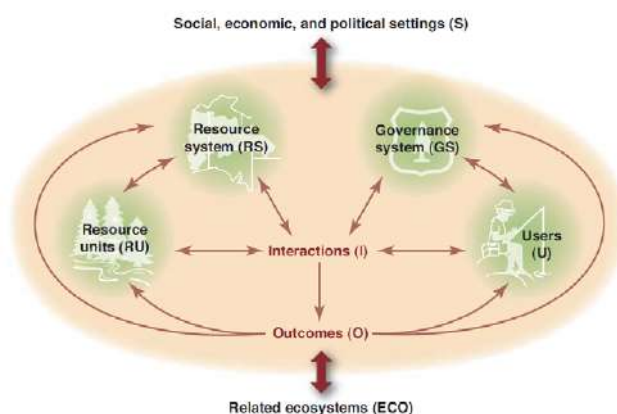


Fig. 6 : Les sous-systèmes qui forment un SSE (Ostrom, 2009)

Ainsi, Poe et al. (2014) nous proposent d'ajouter aux analyses des SSE, les cinq facteurs suivants définis dans le Tableau 1 : l'attachement aux lieux, les valeurs, les identités, les pratiques et les connaissances traditionnelles, les dynamiques des moyens de substances, la gouvernance et l'accès aux ressources, et les interactions culturelles avec l'environnement. Ce cadre nous aidera à bien décrire le système socio-écologique du Delta du Saloum.

Tableau 1 : Aspects culturels dans les systèmes socio-écologiques (Poe et al., 2014)

Systèmes socio-écologiques culturels	
Aspects	Attribut
L'attachement aux lieux, les valeurs, les identités	<ul style="list-style-type: none"> ● Définit une personne/une communauté, comprendre leur mode de vie ● Attribué aux objets, endroits, relations, pratiques, et processus ● Associé aux langues ● Développé à travers des interactions avec des écosystèmes ● Dynamique, hétérogène, changeant avec le temps
Les pratiques et les connaissances traditionnelles	<ul style="list-style-type: none"> ● Les connaissances complètes de l'environnement et ses conditions spatiales et sociales ● Intégrées dans les processus socioculturels ● Régénérées sans cesse, à travers les engagements pratiques avec les écosystèmes
Les dynamiques des moyens de substances	<ul style="list-style-type: none"> ● Les activités formelles et informelles ● La récolte non-commerciale pour l'utilisation quotidienne ou pour l'échange ● Liées à la culture, connaissance, rapports sociaux, et les traditions ● La satisfaction avec le travail, qualité de vie, et les identités
La gouvernance et l'accès aux ressources	<ul style="list-style-type: none"> ● Mécanismes de contrôle, règles d'accès, processus de prise de décision

	<ul style="list-style-type: none"> • Liés aux philosophies, normes, rapports et systèmes de connaissances • Dynamiques variées par échelle spatiale et organisationnelle • Une partie des problèmes politiques, pouvoir et inégalités
Les interactions culturelles avec l'environnement	<ul style="list-style-type: none"> • Impacts variés sur les réseaux alimentaires et les phénomènes socioculturels • Les espèces clés jouent un rôle fondamental dans les systèmes sociaux et les identités culturelles • La restauration des écosystèmes, basée sur les idées culturelles et la gestion des paysages bioculturels • Les changements environnementaux et les impacts sur les connexions culturelles avec l'écosystème et le bien-être culturel.

4.2 Méthodologie

Les résultats de cette cartographie du SSE et l'analyse de sa résilience sont basés sur les discussions avec les participants de l'atelier. Pendant ces discussions, nous nous sommes basés sur la VUE du bien et sur les valeurs identifiées dans la première partie de l'atelier (voir ch. 3.1) et les interconnexions et classifications de ces valeurs.

Dans un premier temps, pour préparer la discussion, l'animatrice de l'atelier a considéré les valeurs et attributs Patrimoine mondial et les a associées avec les aspects écologiques et sociaux du bien. Comme les grandes étendues de mangroves et les processus écosystémiques ont été identifiés comme jouant un rôle pivot (voir Fig. 5) le schéma SSE a utilisé cet élément comme étant le système fondamental, auquel toutes les autres valeurs étaient associées (représenté par le cadre vert dans la Fig. 5). Ce système est basé sur la VUE (en bas du schéma). La partie gauche du schéma est consacrée aux valeurs écologiques, y compris les valeurs de la biodiversité et scientifiques. La partie droite du schéma est consacrée aux valeurs sociales, y compris des valeurs sociales et économiques. Ces éléments ont permis la réalisation du schéma SSE (Fig. 7) lors de l'atelier¹.

Dans un deuxième temps, ce schéma a été utilisé pour discuter de la résilience du système en tenant compte des menaces. En parlant des valeurs et attributs associés, nous avons pu identifier les menaces et chocs qui pèsent sur le SSE du bien, et les actions à amener.

Finalement, ces éléments, les résultats de la discussion sur la gestion du bien et les discussions avec les acteurs sur le terrain, ont été analysés en utilisant les cadres d'Ostrom 2009 et de Poe et al. 2014, après l'atelier et pour l'élaboration du présent rapport. Ces cadres peuvent être également utilisés pendant d'autres ateliers.

4.3 Analyse du système socio-écologique que forme le bien

Le SSE du Delta du Saloum

Le système du Delta du Saloum vu sous ses aspects écologiques et sociaux est présenté à la Figure 7, à la suite des points ci-dessous. Ce système est caractérisé par de grandes étendues de mangroves avec des amas coquilliers. Les valeurs écosystémiques et culturelles forment ensemble la base du SSE (cadre vert). Elles sont soutenues par la biodiversité ainsi que les valeurs sociales, scientifiques et économiques et elles soutiennent la VUE.

Pendant la discussion de l'atelier, les points suivants ont été abordés :

- Les valeurs naturelles et culturelles sont soutenues par l'équilibre de l'écosystème.
- Les valeurs écosystémiques alimentent les valeurs culturelles. Sans l'écosystème, on ne pourrait pas avoir d'amas coquilliers et vice-versa. Par exemple, l'homme a contribué à la résilience du bien en construisant les amas coquilliers car les amas coquilliers luttent contre l'érosion en servant de boucliers contre les intempéries.

¹ Pour faire ce genre d'exercice, il faut absolument avoir identifié des valeurs écologiques et sociales. Autrement, s'il y a seulement des valeurs écologiques ou des valeurs sociales, il sera impossible de représenter le SSE du bien.

- La gestion durable est liée à l'intégrité des mangroves et donc au paysage culturel. Ces mangroves permettent le bon fonctionnement des aspects économiques tel que le tourisme ; la production de miel ; les produits halieutiques et agricoles, et les rizières.
- Il y a un impact positif de la mangrove sur les terres cultivables (de façon biologique) vue la capacité des mangroves à tolérer de hauts taux de salinité, et de faire barrage à l'eau salée en réduisant le taux de salinité à l'intérieur des terres en augmentant la possibilité de culture et de maraîchage.
- Le rôle de la mangrove dans la biodiversité, lieu de reproduction pour certaines espèces, y compris la biodiversité marine (poissons – même à l'extérieur de la mangrove ; zones de reproduction pour les oiseaux). Ceci démontre le lien entre les valeurs de l'écosystème et de la biodiversité.
- Les mangroves contribuent à la réduction de la pauvreté.
- Le rôle de la mangrove dans la lutte contre l'inondation.
- Le lien entre les valeurs culturelles et le tourisme au travers des amas coquilliers.
- Les fouilles archéologiques ont permis de comprendre la valeur des amas coquilliers.
- Malgré des programmes de recherches appuyés par des projets, une vision à long terme n'a pas été définie ; par conséquent le travail fait en amont n'a pas été utilisé efficacement. Il faudrait établir des structures permanentes car les projets temporaires ne sont pas durables.
- Le témoignage de vie littorale, et les paysages culturels vivants.

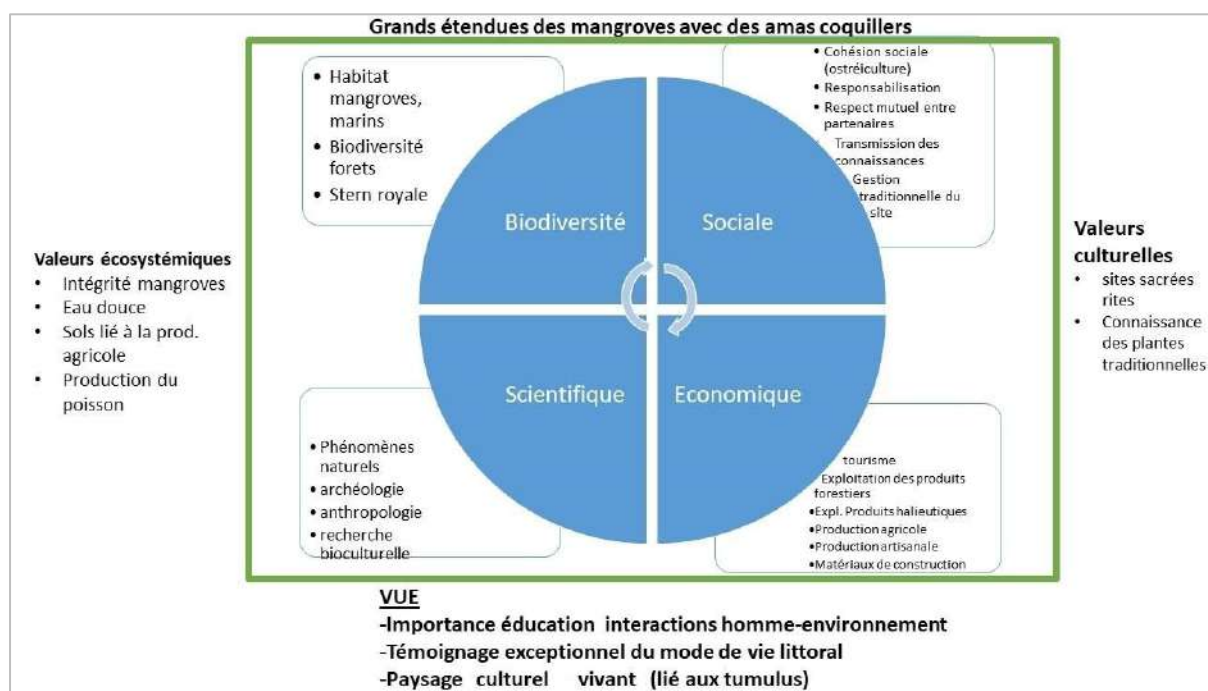


Fig. 7 : Le système socio-écologique du Delta du Saloum, décrit au regard de la VUE et découpé en termes de la biodiversité, la science, l'économie et les aspects sociaux. Le cadre vert représente le système dans son ensemble. (Données de terrain, 2018)

Les acteurs de la gouvernance du delta sont nombreux (voir ch. 5 sur la gestion du bien). Ceci est normal pour une gouvernance à une très grande échelle et qui inclut des acteurs qui sont organisés autour de plusieurs activités, zones et filières (e.g. le tourisme, la gestion des ressources marines, la gestion des déchets des villes, les associations de femmes, des apiculteurs, la gestion traditionnelle des bolongs). D'ailleurs, un plus grand effort de concertation entre ces acteurs serait nécessaire, thème récurrent dans les discussions de la visite de terrain. Pendant les discussions, nous avons répertorié plusieurs acteurs et dans certains cas, évoqué leur rôle. Ceci a permis de mieux comprendre les interactions entre les acteurs et les ressources dans le SSE (Tableau 2).

Gouvernance et interactions entre les institutions et les acteurs

La gouvernance définit les interactions entre des acteurs et la prise de décisions concernant l'utilisation des ressources naturelles et la biodiversité (UICN, 2004). Les interactions entre les différents acteurs dans le delta sont très complexes et le Tableau 2 ne comprend qu'une partie de ces acteurs et des institutions qui sont pertinents pour la gestion du bien. Ces interactions sont expliquées en détail dans le chapitre 5 sur la gestion du site. Ces interactions sont pertinentes pour la discussion sur la résilience du site (voir la partie suivante). De plus, entre ces acteurs, il y a des cadres de concertation.

Tableau 2 : Les acteurs, les ressources et leur gouvernance, suivant Ostrom, 2009 (Données de terrain, 2018)

Ressources	Parties prenantes	Gouvernance	Problèmes/avantages
Huitres	<ul style="list-style-type: none"> Ostréiculteurs Associations de femmes 	<ul style="list-style-type: none"> Gouvernance traditionnelle pour l'accès des bolongs Règles des aires protégées (accès, etc.) Production contrôlée dans les aires protégées 	<ul style="list-style-type: none"> Transmission des connaissances aux générations suivantes Charge de travail excessive des femmes Actives dans la restauration des mangroves et une connaissance développée sur les sites propices pour la restauration Bon rapport entre les agents du parc et les femmes Création d'une nouvelle filière, avec une expansion potentielle à la mise en vente aux établissements touristiques et à Dakar
Poissons	<ul style="list-style-type: none"> Pêcheurs Intermédiaires commerciaux Consommateurs 	<ul style="list-style-type: none"> Gouvernance traditionnelle pour l'accès des bolongs Règles des aires protégées (accès, interdit dans les aires protégées etc.) 	<ul style="list-style-type: none"> Les aires protégées sont des lieux de frayère et de grossissement des poissons Les aires protégées limitent les pressions sur la ressource Les pêcheurs profitent des aires protégées pour avoir de gros poissons
Amas coquillers	<ul style="list-style-type: none"> Gestionnaires Chercheurs Touristes Communautés riveraines Artisans des constructions et de la décoration 	<ul style="list-style-type: none"> Règles des aires protégées (accès, exploitation interdite dans le bien) 	<ul style="list-style-type: none"> Erosion des amas coquillers Les amas ne sont plus construits selon la pratique traditionnelle Difficultés des communautés et des artisans à accéder aux amas coquillers inclus dans le bien Dépenses économiques élevées pour avoir recours à l'utilisation des coquillages dans les constructions

Miel	<ul style="list-style-type: none"> • Apiculteurs • Intermédiaires commerciaux • Consommateurs 	<ul style="list-style-type: none"> • Cadre de concertation des apiculteurs • Réglementations communales et nationales 	<ul style="list-style-type: none"> • Pratique traditionnelle, mais modernisée • Reconnaissance de la qualité du miel pour son goût et sa provenance des fleurs des palétuviers • La présence des ruches réduit la probabilité que les mangroves soit accessibles par des personnes sans autorisation (due à la peur des abeilles)
Terrains agricoles	<ul style="list-style-type: none"> • Les associations de femmes • Services techniques de l'Etat 	<ul style="list-style-type: none"> • Gouvernance traditionnelle • Réglementation nationale 	<ul style="list-style-type: none"> • Manque d'eau • Les femmes sont bien organisées • Dans une coopérative, seulement 10% des femmes sont jeunes • Risque de présence de polluants chimiques dans les eaux du delta • Risque de charriage des sédiments vers les bolongs
Sites sacrés	<ul style="list-style-type: none"> • Les communautés locales • Les autorités coutumières 	<ul style="list-style-type: none"> • Gouvernance traditionnelle • Accès contrôlé dans les aires protégées 	<ul style="list-style-type: none"> • Perte de transmission de connaissances traditionnelles entre les générations • Pressions grandissantes des religions modernes • Erosion grandissante pouvant causer l'inondation ou la disparition des sites
Autres espèces coquillers	<ul style="list-style-type: none"> • Les communautés locales 	<ul style="list-style-type: none"> • Gouvernance traditionnelle 	<ul style="list-style-type: none"> • Les communautés utilisent d'autres espèces coquillers d'une façon traditionnelle. Ces pratiques semblent ne pas être valorisées.

Ce tableau a été réalisé par les participants de la visite de terrain. D'autres ressources peuvent être ajoutées dans le tableau comme le bois, l'eau douce, le sel, le savoir endogène.

Les dimensions culturelles du SSE

Dans le Tableau 2, les interactions entre les ressources et les acteurs sont nombreuses et les liens avec les aspects culturels deviennent notables. En utilisant le cadre d'analyse de Poe et al., 2014, il est possible de rendre visible les dimensions culturelles du SSE (Tableau 3). Ces deux analyses sont fondamentales pour explorer la résilience du bien (voir partie suivante).

Tableau 3 : Les dimensions culturelles du SSE du Delta du Saloum dans le cadre d'analyse de Poe et al., 2014 (Données de terrain, 2018)

Dimension culturelle	Contexte du Delta du Saloum
<i>L'attachement aux lieux, les valeurs, les identités</i>	Les communautés visitées semblent être très attachées au delta et sont conscientes de leurs liens avec le paysage, y compris les amas coquillers.

Les pratiques et les connaissances traditionnelles	Les pratiques traditionnelles comme l'utilisation de sites sacrés, les plantes médicinales et l'utilisation des coquillages de plusieurs espèces sont courantes et font partie de l'innovation et de la modernisation au sein des filières.
Les dynamiques des moyens de subsistances	Il y a plusieurs filières qui sont importantes pour fournir des moyens de subsistances aux communautés. Ceci crée souvent une identité avec une filière (e.g. des ostréicultrices, des apiculteurs).
La gouvernance et l'accès aux ressources	L'accès aux sites et aux ressources est réglé par les institutions étatiques (e.g. des parcs et des réserves) mais aussi par des règles coutumières.
Les interactions culturelles avec l'environnement	Les aspects culturels constatés pendant la visite démontrent un lien très fort entre les espèces, l'écosystème et les moyens de subsistance, les traditions alimentaires. Le delta est sans doute un paysage bioculturel.

4.4 Compréhension de la dynamique des changements au niveau du site et des changements souhaitables et indésirables pour le système socio-écologique que forme le bien

La résilience est définie, dans la note conceptuelle de la phase III du *Connecting Practice*, comme la capacité à maintenir un développement face à des changements rapides et inattendus (Folke, 2016). Dit plus simplement et comme proposé lors des discussions de l'atelier, la résilience est la capacité à résister aux chocs et à maintenir un équilibre dynamique. Les perturbations du système sont considérées comme biophysique (e.g. changement climatique, inondations) ou sociales (e.g. évolutions des lois, des institutions, de l'économie). Ces changements peuvent venir de l'intérieur ou de l'extérieur du système.

La gouvernance influence la résilience d'un système (Anderies et al., 2004) et donc les liens entre des acteurs et leur rôle dans la prise de décisions concernant l'utilisation et l'accès aux ressources naturelles deviennent pertinents. D'ailleurs, les acteurs et les institutions à l'extérieur du site (e.g. les villes, l'industrie, la Gambie) peuvent aussi influencer la résilience du site. Comme le SSE du site est lié à tous ces acteurs et institutions, il est opportun d'identifier les menaces du SSE et décider comment réagir en cas de nécessité.

A la base des échanges s'étant tenus pendant l'atelier, voici le résumé des facteurs qui influencent le SSE :

- les inondations et l'érosion des amas coquilliers et des terres en général
- le changement climatique
- le manque d'une vision à long terme de la recherche
- les grands projets de développement
- l'aspect frontalier
- la dégradation de la mangrove et la production de sel
- l'urbanisation (e.g. Kaolack) et la pollution (e.g. déchets plastiques)
- la gestion du bassin hydrologique
- l'augmentation du tourisme
- l'exode rural – connaissances et transmissions
- la baisse de la pluviométrie

Tous ces éléments peuvent avoir des effets sur la résilience du bien et le SSE. Comment résoudre ces problèmes au travers de la gestion du bien ? Pour chaque facteur ci-dessus, il y a des actions à proposer. Concernant le changement climatique, il faut réfléchir comment reboiser des endroits pertinents et avec des espèces appropriées. Il faut aussi penser à d'autres actions permettant de diminuer l'effet de l'érosion, comme des systèmes de digues.

En ce qui concerne les grands projets, un schéma directeur d'aménagement de la région du Delta du Saloum est nécessaire, avec le rôle de chaque partie prenante clairement défini. Une vision à long

terme est indispensable dans le contexte d'une étude d'impact stratégique. Etant donné que la gestion du site est confiée à divers ministères (Culture, Environnement), il serait important d'établir un comité technique interministériel pour traiter les problèmes de manière transversale.

La pollution est une autre problématique avec des influences fortes sur la résilience du bien. Il s'agit de déchets plastiques provenant des villes autour du bien. De plus, il y a des problèmes au sein du site avec des pratiques locales d'enfouissement de déchets. Un suivi et une sensibilisation sont nécessaires pour résoudre ces problèmes. Heureusement, il y a des activités de sensibilisation mises en œuvre périodiquement, par des associations de jeunes et à l'occasion des fêtes transfrontalières. Mais ceci est insuffisant et donc une collaboration à une échelle plus grande et transfrontalière est opportune.

L'exode rural menace aussi la résilience du bien. Il diminue la transmission des connaissances traditionnelles et réduit l'implication des jeunes dans le bien. Certaines activités sont déjà en place : le Festival NiimiBadiya avec la Gambie, le programme *Feed the Future* et le concours de dessin dans le delta. Davantage de formations et de financements inciteraient les jeunes à s'impliquer dans le tourisme local.

4.5 Recommandations

Comment améliorer la compréhension et la définition du SSE

Les recommandations ci-dessous permettront d'améliorer la compréhension et la définition du SSE et la résilience du bien.

- Une meilleure connaissance des rapports entre les acteurs et les ressources naturelles pour mieux comprendre comment les ressources sont gérées dans le bien, y compris leur accès et leur utilisation. Ceci comprend tous les acteurs et les institutions qui gèrent des aires protégées à l'intérieur du bien, avec leurs modes de gestion différents (e.g. la Réserve Fathala (privée), les institutions qui gèrent la fermeture des bolongs et les personnes qui utilisent les amas comme sites sacrés, les aires protégées, les réserves forestières, etc.). L'étude (Samb, 2015) sur les rapports entre le parc et un groupe de femmes pour restaurer les mangroves dans un site situé à côté du bien est un exemple qui peut être utile à cet effet.
- Une meilleure valorisation de l'histoire des peuples du site, la création des amas coquillers à l'époque et les peuples d'aujourd'hui et leurs rapports avec les amas coquillers. Ce type de recherche peut interroger la résilience du système social et le changement politique entre les peuples qui ont créé les amas, et les peuples aujourd'hui qui vivent avec ces mêmes amas et le changement d'utilisation des espèces de coquilles différentes au fil du temps. Les femmes aujourd'hui utilisent plusieurs espèces de coquilles avec l'introduction des huîtres qui permet une adaptation socio-économique dans le site.
- Mieux comprendre l'utilisation coutumière du site par les peuples locaux, y compris les règles de gestion, l'utilisation des sites sacrés, les concepts et mots dans les langues locales qui sont pertinents à la gestion du bien et qui peuvent aider à la communication entre les populations locales.
- L'histoire de la création des réserves forestières à l'époque coloniale (les années 1930), et les récentes créations des aires protégées (les années 1970 et 1980) et leur impact aujourd'hui sur l'utilisation et l'accès aux zones et ressources naturelles par des populations locales. Il faut aussi prendre en compte l'histoire de 2018 dans le contexte de l'expansion de la Réserve Fathala (prévue dans leur cahier des charges), qui a essayé de déplacer une communauté locale. Cette proposition a été refusée par la communauté puis par les autorités locales. Quelles tensions existent maintenant entre ces acteurs et comment gérer les activités de la Réserve Fathala d'une manière qui n'aura pas un effet néfaste sur les communautés locales et leur bien-être ?

Présentation du SSE comme outil de communication du Delta du Saloum

Développer une représentation graphique du SSE du Delta du Saloum pourrait être utile pour animer des discussions entre les acteurs et communiquer avec le grand public, etc. Le graphique Fig. 8 a été développé par des équipes multidisciplinaires des sites côtiers aux Etats-Unis (Levin et al. 2016) et pourrait inspirer des graphiques éventuels pour le cas du Delta.

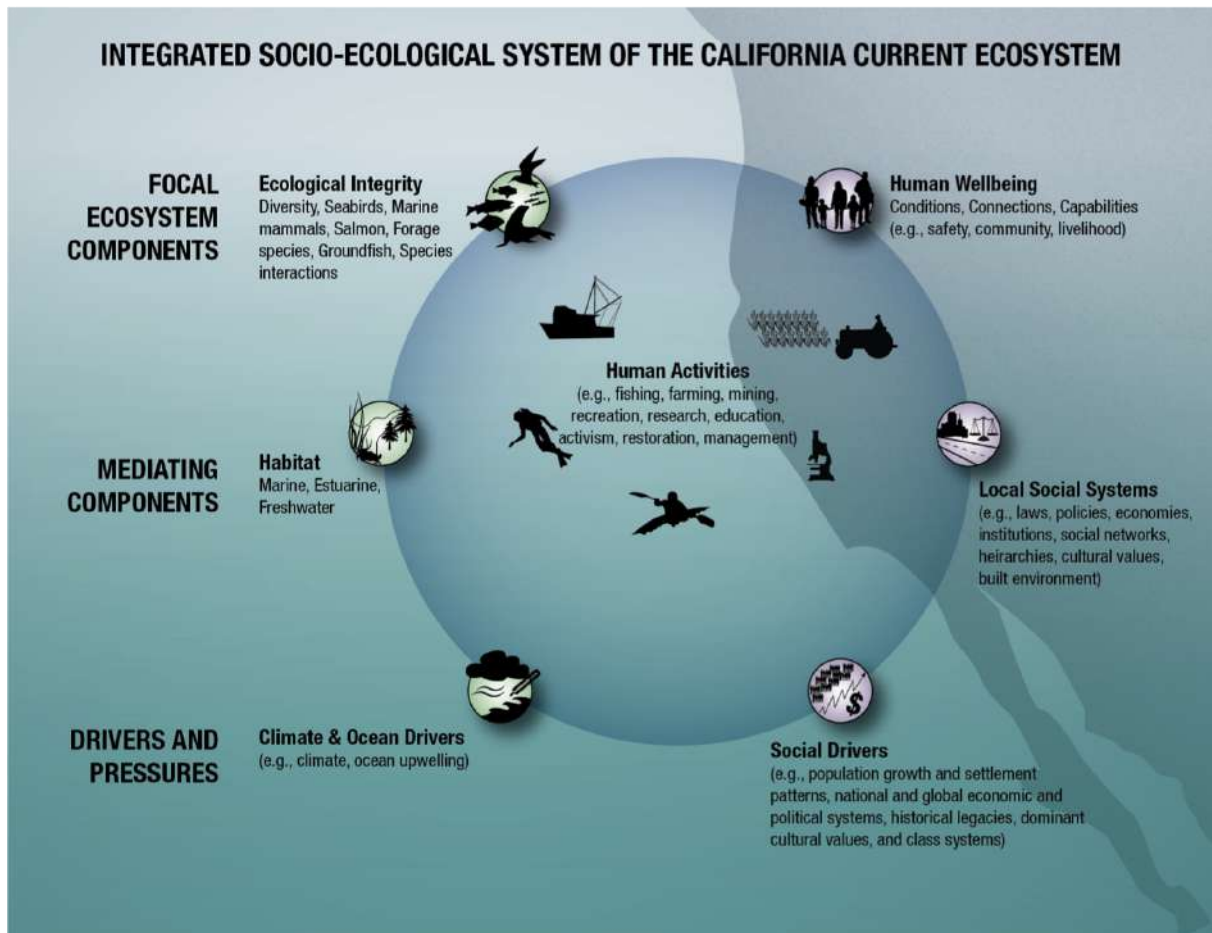


Fig. 8 : Exemple d'un graphique SSE pour aider avec la communication et la sensibilisation (Levin et al., 2016)

5. Système de gestion du Delta du Saloum

5.1 Aperçu sur le concept de la gestion

5.1.1 Concept de la gestion tel que considéré dans le cadre de ce rapport

Le sens du mot gestion diffère en fonction des domaines d'application. Selon l'encyclopédie LAROUSSE, la gestion est une action ou une manière de gérer, d'administrer, de diriger, d'organiser quelque chose. L'organisation renvoie à un groupe d'individus, qui structure, ordonne, pilote des ressources afin d'atteindre un objectif commun. Plusieurs auteurs donnent aussi de nombreuses définitions sur le concept de la gestion. Celle qui est la plus proche de notre objectif est celle de Pierre G. et BERGERON (1984 : 91) qui définit la gestion comme étant un processus par lequel on planifie, organise, dirige et contrôle les ressources d'une organisation afin d'atteindre les buts visés (Nsengiyumva, 2007). La fonction de gestion renvoie donc à l'action. Son but est l'optimisation des ressources disponibles pour réaliser les objectifs fixés. La gestion est ainsi considérée comme un ensemble des procédures, des pratiques et des politiques mises en œuvre en vue d'assurer le fonctionnement satisfaisant d'une entreprise (Nsengiyumva, 2007). Pour Borrini-Feyerabend et *al.* (2013: 11), la gestion consiste à poursuivre des objectifs donnés en mettant en œuvre des moyens et des mesures pour les atteindre.

Dans le cadre de ce rapport et conformément au manuel « Gérer le patrimoine mondial culturel », la gestion du Delta du Saloum est entendue comme l'ensemble des outils légaux et institutionnels ainsi que les ressources disponibles pour assurer un bon fonctionnement de la planification, de la mise en œuvre et du suivi des actions, afin de produire des résultats qui garantissent la conservation et la sauvegarde durable des valeurs du Delta du Saloum.

5.1.2 Méthodologie d'analyse de la gestion du Delta du Saloum

La méthodologie utilisée pour atteindre les objectifs fixés dans les termes de références de la visite de terrain est basée d'une part sur le mapping des interventions des parties prenantes dans le bien et d'autre part sur l'appréciation des outils et des capacités d'action de ces parties prenantes à protéger les valeurs du bien.

Dans un premier temps et comme expliqué dans le chapitre précédent, les participants (locaux surtout) ont été invités à citer les parties prenantes déjà présentes dans la gestion du bien ; une partie prenante étant un acteur qui a un intérêt lié au bien et dont les actions influencent d'une façon ou d'une autre la gestion du bien. C'est sur cette base que les participants ont cité les parties prenantes dont ils avaient connaissance. Cette liste n'est pas exhaustive car une discussion plus approfondie ou un ajout de participants à la réunion engendre l'identification de nouvelles parties prenantes. Cet exercice a permis de connaître la diversité et l'étendue des parties prenantes impliquées dans la gestion du bien.

Dans un deuxième temps, chaque partie prenante ou représentant de partie prenante a successivement été invité à marquer sur la carte du bien, l'aire géographique placée sous sa responsabilité et sa zone d'intervention. Cet exercice a permis de comprendre comment les pouvoirs et prérogatives de chaque partie prenante s'exercent pour assurer la protection des valeurs naturelles et culturelles du bien. De plus, il a permis de visualiser d'une part les lieux de chevauchement des différents pouvoirs et les implications diverses sur la gestion du bien, et d'autre part les lieux où les pouvoirs en place protègent moins le bien et les implications diverses sur sa gestion. Il a enfin permis de comprendre quel pouvoir prime sur quel autre et quelle est la capacité de chaque partie prenante à mettre en œuvre (directement par lui-même ou indirectement par un acteur partenaire interposé) la protection de sa zone d'intervention en cas de besoin.

Dans un troisième temps, les parties prenantes ont été invitées à proposer sur la base de leur expérience de gestion du bien, des approches de solutions pour rendre le dispositif de gestion plus

efficace et répondant mieux aux enjeux liés à l'importance du bien. Cet exercice a permis aux participants de ressortir les points de faiblesse identifiés dans le système de gestion en place. Ces faiblesses seront prises en compte dans les propositions d'amélioration du système de gestion du bien.

5.2 Principales parties prenantes à la gestion du Delta du Saloum

Les parties prenantes listées par les participants sont : Primature - Ministère en charge de la Culture - Ministère en charge des aires protégées – Ministère de l'Intérieur - Direction des Parcs Nationaux – Direction du Parc National du Delta du Saloum – Direction des Aires Marines Protégées - Direction de l'Aire Marine Communautaire de Bamboung – Direction du Patrimoine Culturel – Centre d'Interprétation de Toubacouta - Direction des Eaux et Forêts – Direction des Pêches – Direction de l'Elevage – Direction de l'Agriculture – Direction des Mines – Service Régional du Tourisme – Etat-Major de la Gendarmerie - Gendarmerie de Karang, de Sokone et de Foundiougne - Radio communautaires – Communes de Toubacouta, Bassoul, Palmarin, Soum, Foundiougne, Sokone, Mbam, Djirnda, Djilor, Diossong et Dionewar- Organisations Communautaires de Base (Groupements d'Intérêt Economique, Associations villageoises de protection de l'environnement, etc.) - ONG locales – Partenaires Techniques et Financiers – Club Nature – Ecoles primaires, Collèges, Lycées– Universités nationales – Aire Marine Protégée de Gandoul – Aire Marine Protégée de Sangomar – Préfecture de Fatick et Foundiougne - Réserve Communautaire de Palmarin, Syndicat d'Initiatives du Tourisme, Réserve privée de Fathala, Brigades de douane – l'Inspection d'Académie

En fonction de l'aire géographique d'intervention de chaque partie prenante, on distingue le classement présenté dans le tableau 4. Les parties prenantes localisées au niveau national et régional interviennent dans la gestion du bien de façon directe ou à travers leur équipe de terrain. Elles ont en général des attributions plus larges qui vont au-delà des limites du bien.

Tableau 4 : Catégorisation des parties prenantes du Delta du Saloum en fonction de leur zone d'intervention (Données de terrain, 2018)

National	Régional	Local
Primature - Ministère en charge de la culture - Ministère en charge des aires protégées – Ministère de l'Intérieur - Direction des Parcs Nationaux - Direction des aires marines protégées – Direction du Patrimoine Culturel – Direction des Eaux et Forêts – Direction des Pêches – Direction de l'élevage – Direction de l'Agriculture – Direction des Mines – Etat-Major de la Gendarmerie - Partenaires Techniques et financiers - Universités nationales, Brigades de douane	Préfecture de Fatick et Foundiougne	Direction du Parc National du Delta du Saloum - Direction de l'Aire Marine communautaire de Bamboung - Centre d'Interprétation de Toubacouta - Gendarmerie de Karang, de Sokone et de Foundiougne - Radio communautaires - Communes de Toubacouta, Bassoul, Palmarin, Soum, Foundiougne, Sokone, Mbam, Djirnda, Djilor, Diossong et Dionewar - Organisations Communautaires de Base (Groupements d'Intérêt Economique, Associations villageoises de protection de l'environnement, etc.) - ONG locales - Club Nature – Ecoles primaires, Collèges, Lycées - Aire Marine Protégée de Gandoul – Aire Marine Protégée de Sangoma – Réserve Communautaire de Palmarin - Syndicat d'Initiatives du Tourisme, Réserve privée de Fathala, Inspection d'Académie

En fonction de l'importance des parties prenantes dans la gestion du bien, les participants ont identifié des acteurs clés dont l'influence est plus grande dans la gestion du bien. Il s'agit au niveau local de : Direction du Parc National du Delta du Saloum - Direction de l'Aire Marine Communautaire de Bamboung – Centre d'Interprétation de Toubacouta – Direction des Eaux et Forêts - Communes de Toubacouta, Bassoul, Palmarin, Soum, Foundiougne, Sokone, Mbam, Djirnda, Djilor, Diossong et

Dionewar - Organisations Communautaires de Base (Groupements d'Intérêt Economique, Associations villageoises de protection de l'environnement, etc.) - Préfecture de Fatick et Foundiougne.

Une brève analyse de la liste des parties prenantes à la gestion du Delta du Saloum montre une diversité appréciable d'acteurs. Cette diversité permet la représentativité de diverses couches socioéconomiques et culturelles dans la gestion du bien. L'ensemble peut être classé en trois grands groupes à savoir l'administration centrale, les services techniques de l'Etat et enfin les communautés. Les parties prenantes rencontrées ont aussi identifié ces trois groupes d'acteurs comme les piliers de la gestion du bien mais ont aussi mentionné l'importance des autres parties prenantes dont les actions permettent de tendre vers une gestion plus efficace et durable du bien. Par ailleurs, la visite de terrain a pu noter durant son séjour, un niveau d'engagement et de motivation appréciable chez les parties prenantes rencontrées. Une bonne coordination de l'action de cette multitude de parties prenantes permettra de rendre plus efficace les structures et mécanismes de gestion en place pour la protection des valeurs du bien.

5.3 Efficacité des structures et mécanisme de gestion et opportunités d'amélioration

Au côté de l'Etat Sénégalais, les communautés, depuis des millénaires assurent la préservation de l'écosystème naturel du Delta du Saloum et le patrimoine culturel exceptionnel associé. Cette visite de terrain a permis de mettre en exergue certaines dispositions paraissant particulièrement efficaces et méritant d'être soutenues, ainsi que certains aspects du système de gestion pouvant être améliorés.

En effet, le renforcement du système de gestion du bien est particulièrement important pour faire face aux multiples menaces identifiées lors de la mission d'évaluation de l'ICOMOS et de l'IUCN en 2010. Elles concernaient notamment deux volets : celles associées au changement climatique (l'augmentation du niveau des eaux, la réduction de la pluviométrie, la salinisation des sols, les pluies exceptionnelles, etc.) et celles associées aux actions anthropiques (le tourisme non géré, la pollution, les activités des populations résidentes telles que l'agriculture, les feux de brousse, etc.). La visite de terrain n'a pas permis d'effectuer une étude approfondie permettant de faire un état de l'impact de ces menaces. Néanmoins, la visite de terrain considère que ces menaces constituent des points majeurs de vigilance qui invoquent une mobilisation des acteurs et leur bonne coordination dans la gestion de ce bien.

Les parties ci-après présentent brièvement les observations faites pendant la visite de terrain et proposent des pistes d'amélioration. Ces propositions d'améliorations s'inspirent fortement des propos des parties prenantes rencontrées pendant la visite.

5.3.1 Au niveau des institutions responsables

L'Etat Sénégalais est engagé fortement dans la préservation des ressources de l'écosystème au niveau :

- Du ministère en charge de la nature : la création Parc National du Delta du Saloum dès 1976, la création de la réserve de la biosphère, le classement de la zone RAMSAR, la création d'aires marines protégées, etc. ;
- Du ministère en charge de la culture : le classement des amas coquilliers avec l'écosystème naturel du Delta du Saloum comme paysage culturel, comme monuments historiques, sur la liste du patrimoine mondial ;
- Du ministère de l'aménagement du territoire et des collectivités locales : le transfert de compétences aux régions, aux communes et aux communautés rurales qui définissent et organisent l'usage des espaces sous leurs responsabilités, selon la loi 96-07 du 22 mars 1996, laquelle a été remplacée par la loi de 2014.

5.3.1.1 Une multiplicité de responsables dans une même aire géographique

On constate que dans certaines aires du bien, il existe une multiplicité d'institutions commanditées par l'Etat pour la gestion de ressources diverses ou similaires dans un même lieu (cf. schéma ci-après).

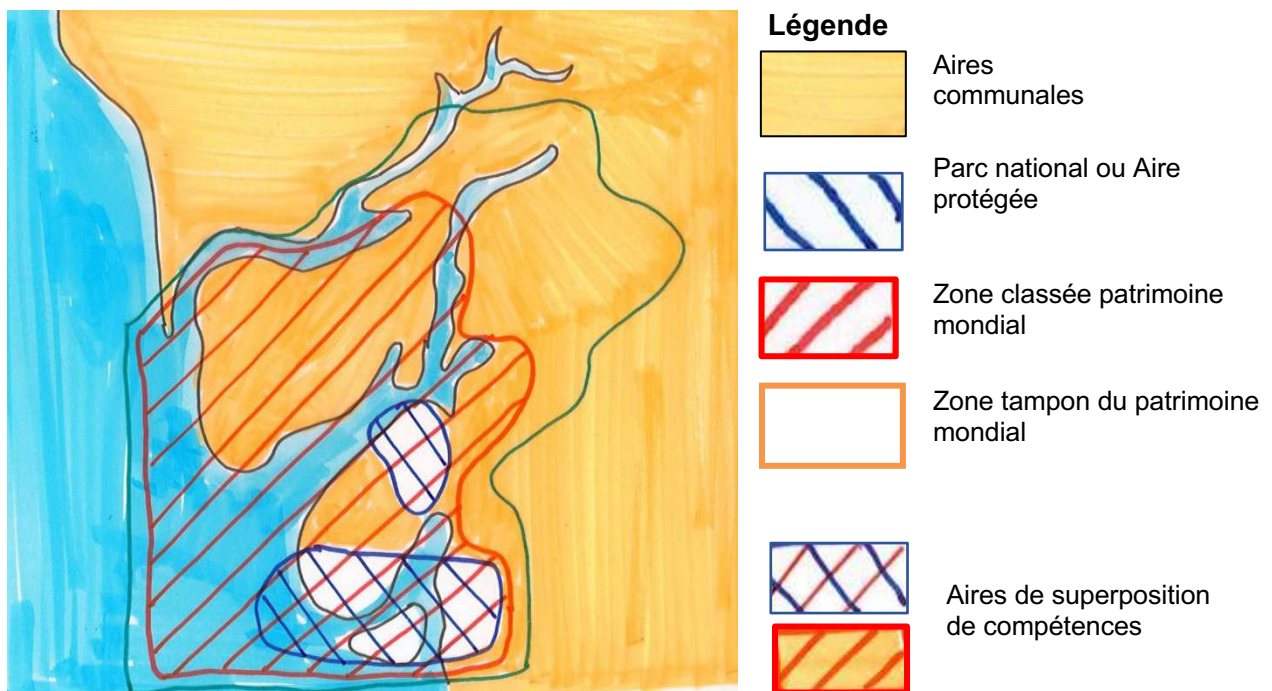


Fig. 9 : Carte schématique du Delta du Saloum représentant les aires protégées et classées (Données de terrain, 2018)

1) Points de vigilance en termes de coordination :

Le bien comprend de multiples valeurs dont la gestion est assurée par un nombre important d'institutions de l'Etat central et décentralisé. Ces acteurs ont collaboré depuis des décennies autour d'un objectif commun, qui a permis de préserver ce bien dans un état satisfaisant. Néanmoins, la visite de terrain n'a pas pu observer de cadre formel de collaboration entre les deux institutions faitières responsables (Ministère en charge de la Culture et le Ministère en charge de l'Environnement et du Développement Durable), ni avec d'autres Ministères qui pourraient avoir un intérêt sur le delta, tel que le Ministère en charge du Tourisme, des Mines, etc. Les tableaux présentés en annexe font un point sur les informations recueillies durant la visite de terrain et sur les éventuels liens à créer entre institutions pour prendre en charge de manière plus coordonnée cet écosystème complexe qu'est le Delta du Saloum.

→ *Si ceci n'a pas été source de conflits jusqu'à ce jour, car les diverses institutions collaborent étroitement, il est opportun de clarifier par des documents légaux, les rôles et les devoirs de chacun en vue de renforcer davantage le système de gestion du bien.*

2) Possibles blocages en cas de conflits d'intérêt :

Dans les aires marines protégées : Ces aires protégées sont sous la responsabilité de conservateurs qui y autorisent ou non l'accès. En parallèle, la direction du patrimoine culturel pourrait devoir se rendre dans ces aires protégées afin de s'assurer de la bonne préservation du bien classé aux monuments historiques comme les amas coquilliers, les sites archéologiques à découvrir, les sites sacrés culturels associés, etc., sans pour autant y avoir un droit d'accès si le parc ou l'aire marine protégée ne l'y autorise pas. Dans ce cas, la DPC ne pourrait pas accomplir sa mission convenablement. Chacun de son côté dispose de documents légaux aux forces inégales mais qui ne présentent aucun lien de convergence entre eux. La première solution est d'actualiser les documents légaux afin qu'ils officialisent la collaboration appréciable entre acteurs que la visite de terrain a pu noter sur le terrain. Une solution plus approfondie est de mettre en commun les outils légaux en vue de disposer d'un outil commun qui clarifie les responsabilités des gestionnaires.

Sur le territoire communal de la zone classée aux monuments historiques : Selon la loi de 2014, les communes organisent l'usage de l'ensemble de cet espace, hors ce même territoire est également sous la responsabilité du Ministère en charge de la Culture à travers la DPC. Dans ce cas, il pourrait être possible que les plans de développement de l'une ou l'autre partie soient légitimes tout en étant incompatibles. Une première solution est d'actualiser les plans de développement des deux parties de façon à harmoniser leur contenu au regard des exigences de la gestion du bien inscrit.

- *Si ceci n'a pas été source de conflits jusqu'à ce jour parce que les diverses institutions ont réussi à entretenir une collaboration étroite, il pourrait être nécessaire de clarifier les rôles et les devoirs de chacun.*

5.3.1.2 Des communes responsables

La visite de terrain nous a permis de rencontrer les élus de Toubacouta. Cette commune est particulièrement engagée dans la préservation des ressources naturelles et culturelles du bien, et très consciente du potentiel qu'elles représentent en terme de développement culturel, économique, cohésion territoriale etc. C'est ainsi que son plan de développement comprend un festival culturel associant le Sénégal et la Gambie, et qu'elle confirme collaborer étroitement avec les aires protégées et la Direction du Patrimoine culturel.

- *La visite de terrain n'a toutefois pas permis de confirmer, faute de temps, un engagement similaire de la part de toutes les autres communes directement concernées par le bien.*
- *La visite de terrain n'a toutefois pas permis de constater, une collaboration formelle et régulière entre toutes les communes directement concernées par le bien et les autres organes de l'état.*

5.3.1.3 Les communes : maillons clés pour le maintien de l'équilibre de l'écosystème du Delta du Saloum

Selon la loi de 2014, les communes organisent l'usage de l'ensemble de cet espace. Ainsi, elles participent fortement au maintien de l'équilibre fragile de l'écosystème en engageant des plans de développement sensibles aux ressources culturelles et naturelles dans des domaines aussi divers que l'agriculture, la pêche, l'élevage et les mines etc.

- *L'engagement fort des communes dans la préservation de l'écosystème est essentiel et il est à soutenir.*
- *Il est par ailleurs opportun de clarifier les attributions de la DPC par rapport aux communes afin de faciliter la coordination des actions.*

5.3.1.4 Les moyens d'action au niveau de la représentation de la Direction du Patrimoine Culturel

La Direction du Patrimoine Culturel (DPC) est l'institution responsable de la préservation du bien classé patrimoine mondial. Afin d'assurer cette tâche, un centre d'interprétation a été mis en place et il est dirigé par le responsable qui joue également le rôle de gestionnaire du site du patrimoine mondial, et garant de la préservation des attributs culturels du bien.

Dans la mise en œuvre de sa mission, le représentant de la DPC collabore étroitement avec ces dernières, ce qui a été confirmé par les représentants des parcs et des aires marines. Elles lui autorisent l'accès aux aires protégées et prêtent des moyens de navigation. Ils travaillent ensemble dans les actions d'information, sensibilisation et veille, etc.

Toutefois, la visite de terrain n'a pas pu obtenir les textes officiels précisant le statut du « centre d'interprétation » et les attributions du gestionnaire de site et du centre d'interprétation.

Aussi nous avons pu constater que le centre d'interprétation dispose d'un véhicule mais n'a pas de moyens de navigation lui permettant de surveiller l'ensemble du bien qui est constitué de zones émergées et de zones immergées. Par ailleurs, le temps disponible n'a pas permis à la visite de terrain d'étudier le système de planification des activités et d'apprécier leur cohérence avec les indicateurs renseignés dans le dossier de proposition d'inscription et les menaces diverses constatées par les missions des organisations consultatives. Lors de la visite de terrain, il a été

compris qu'une subvention annuelle de 20 millions de francs CFA est allouée au Centre d'interprétation pour la gestion du bien, sans précision de la procédure d'allocation de cette subvention et de ses lignes budgétaires. De plus, la visite de terrain n'a pas pu obtenir les informations formelles sur la gestion financière du bien, notamment les principales sources de dépense et de recette (tourisme, animation culturelle, etc.).

Ainsi l'organe déconcentré mis en place pour la gestion du site classé, semble (à confirmer par l'étude des textes) ne pas avoir d'existence officielle complète, ni de rôle précis, ni de ressources suffisantes.

- *Si cette situation n'a pas été source de conflits jusqu'à ce jour, afin d'assumer la responsabilité de la préservation du site, il est nécessaire de clarifier et d'officialiser les aspects suivants : statuts, attributions et moyens d'actions du centre d'interprétation.*

5.3.2 Prise en compte des particularités du bien dans sa gestion

La visite de terrain a mis en exergue l'importance de considérer la réserve de biosphère comme un tout cohérent en termes de biodiversité, de culture, de spiritualité, de logique économique, etc. Ceci invoquerait une gestion plutôt holistique et intégrée du Delta du Saloum afin de préserver ses valeurs.

5.3.2.1 Une gestion prenant en compte l'interconnexion nature / culture

L'analyse des valeurs du bien lors de la visite de terrain a permis de noter que les valeurs naturelles et culturelles et leurs interconnexions se basent sur l'écosystème naturel du delta et son intégrité (voir chapitres 3 et 4).

- *Dans ce contexte, il serait nécessaire de mener une approche de gestion prenant en compte ces interconnexions et d'utiliser la définition et l'évaluation holistique des valeurs comme base de toute action liée au site.*

5.3.2.2 Une gestion au-delà des limites du bien classé

La nature du Delta du Saloum implique de prendre en compte non seulement les parties prenantes intervenant dans le bien, mais également au-delà. Il a été noté en particulier les liens forts avec la partie Gambienne (parc national de Niomi) du Delta du Saloum, mais également le lien avec les sites en amont du delta qui charrient parfois des déchets (Kaolack).

- *La durée de la visite n'a toutefois pas permis de constater une collaboration formelle et régulière entre ces différentes échelles locales, communales, départementales, centrales, internationales.*

5.3.3 Les collaborations avec les autres parties prenantes

5.3.3.1 Un engagement fort de la communauté dans la préservation de l'écosystème du Saloum

Depuis des millénaires et jusqu'à ce jour, un nombre très important d'acteurs (individus, société civile, OCB, ONG, GIE, éco gardes, etc.) engagent des actions importantes dans l'écosystème du delta. L'état de conservation relativement satisfaisant du delta atteste ces efforts positifs.

- *La visite de terrain n'a toutefois pas permis de constater une collaboration formelle et régulière entre ces représentants de la communauté et les organes de l'état.*

5.3.3.2 Une coordination existante à renforcer

Des cadres de concertations ont été créés afin de coordonner les actions dans le Delta du Saloum. Ceux qui ont pu être identifiés dans le cadre de la visite concernent essentiellement des cadres de concertation associés à des filières métiers tels que : « l'artisanat », « l'exploitation des huitres » et « l'apiculture ». Ces plateformes semblent être très appréciées par les personnes interrogées.

Elles sont implantées depuis assez longtemps pour avoir fait leur preuve et semblent donner des résultats satisfaisants, bien que fragile.

- *Il semble, toutefois à confirmer par de plus amples recherches, que ces cadres de concertation, plutôt sectorielles, sont insuffisants et pas représentatifs au regard de la multiplicité des parties prenantes et des intérêts sur le bien.*
- *Il paraît par ailleurs opportun de clarifier les attributions des cadres de concertation par des documents légaux liant si possible les structures étatiques.*

5.3.3.3 Une variété de parties prenantes aux plans d'actions différents

Considérant le nombre important d'acteurs impliqués dans la gestion du bien, par ailleurs nombreux avec des moyens d'actions conséquents, une coordination des plans d'actions autour d'un objectif commun est essentiel. Le plan de gestion produit pour l'inscription du bien sur la liste du Patrimoine mondial n'a pas été renouvelé par l'Etat partie alors qu'il devait couvrir la période 2010 – 2014. Dans ce contexte, il serait nécessaire de le mettre à jour en prenant en compte le contexte actuel (valeurs, nouveaux enjeux, état de conservation, menaces, diversité des parties prenantes, diversité des plans d'action, coopération transfrontalière avec la Gambie, etc.)

- *La visite de terrain n'a pas pu obtenir un plan de gestion du bien classé patrimoine mondial pour la période en cours et future. A ce jour, les gestionnaires semblent se référer au plan de gestion portant sur la période 2010 - 2014. Il est primordial au regard des divers intérêts sur le site et de sa valeur exceptionnelle, de mettre en place un plan de gestion intégré du bien.*

Tenant compte des chevauchements de responsabilités et de l'intérêt commun pour la gestion du bien, il est opportun - et c'est aussi l'avis des participants - de mener les actions ci-dessous pour améliorer le système de gestion en place.

- Faire une séance commune de planification des plans de travail annuels ;
- Renforcer les synergies dans les planifications pour augmenter l'efficacité de chaque partie prenante ;
- Tendre vers une planification commune (document unique de planification pour tous les acteurs clés) ;
- Adopter des documents légaux pour officialiser la planification commune des activités ;
- Mettre en place et rendre fonctionnel le comité de gestion du Delta du Saloum, suivant les réflexions en cours et tel que présenté à la visite de terrain par les parties prenantes.

5.3.3.4 Une coopération transfrontalière non formalisée

La visite de terrain a pu noter des actions de coopération transfrontalière avec la Gambie ainsi que des projets futurs. La visite de terrain a par ailleurs pu noter des influences étrangères qui ne peuvent être adressées que dans le cadre de la coopération transfrontalière. Vu l'immensité de l'écosystème du Delta du Saloum qui va au-delà du Sénégal et les festivals culturels Sénégal – Gambie déjà organisés autour du bien, il est opportun de raviver la coopération transfrontalière entre les deux pays dans le but de mieux conforter la gestion du bien.

Le bien classé inclut une partie du site RAMSAR transfrontalier Niumi-Saloum mais durant la visite, l'implication et les potentialités de ce statut n'ont pu être constatées dans la gestion du bien. Il est opportun de tenir compte de cet atout international pour revitaliser la coopération transfrontalière pour la gestion concertée du complexe écologique Niumi-Saloum.

5.4 Autres améliorations possibles

5.4.1 Renforcer le caractère interconnecté des valeurs naturelles et culturelles du bien

Comme on pouvait l'imaginer, l'identification des valeurs du bien a révélé une multitude de valeurs outre celles citées dans la déclaration de valeur universelle exceptionnelle (Annexe 2). En effet, les valeurs perçues du bien sont fonctions de la nature, de l'intérêt et de la multitude des parties prenantes. Par

ailleurs, l'intérêt continu des parties prenantes pour le bien permet de garder vivant ce mode de vie ancestral qui a permis à l'homme de transformer son milieu et d'y vivre en harmonie avec lui. Dans leur multiplicité, le caractère interconnecté des valeurs permet de créer un soutien mutuel et un point de convergence de tous les intérêts des parties prenantes. Bien qu'étant beaucoup plus reconnu pour ses valeurs naturelles, les parties prenantes sont conscientes des valeurs culturelles du bien et de leur importance dans sa gestion. Au nombre des mesures phares pour renforcer le caractère interconnecté des valeurs naturelles et culturelles du bien, il sera opportun de :

5.4.1.1 Informer et former toutes les parties prenantes sur la connaissance des valeurs du bien et leur interconnexion.

Cette approche permettra aux parties prenantes de découvrir leurs intérêts réciproques. De ce fait, ils apprendront à mieux se connaître d'où l'amélioration de l'ambiance de collaboration qui sera grandement profitable pour la préservation des valeurs du bien et de façon réversible, renforcera l'interconnexion de ces valeurs.

5.4.1.2 Assurer une gestion adéquate des parties prenantes.

L'une des méthodes recommandées pour la gestion des parties prenantes est de les catégoriser suivant leur influence et intérêt croissants. Cette méthode permet au gestionnaire du bien d'entretenir une bonne ambiance de collaboration avec toutes les parties prenantes. Ainsi à un extrême, les parties prenantes à intérêt et influence faibles seront juste tenues informées de la gestion du bien et à l'autre extrême, une grande attention sera accordée aux parties prenantes à forts intérêt et influence.

5.4.1.3 Avoir recours au savoir endogène dans la gestion du bien.

S'inspirant des règles d'équilibre naturel, la caractéristique première du savoir endogène est qu'il présente les valeurs naturelles et culturelles comme les constituants complémentaires d'un environnement équilibré (ou d'une même entité/réalité). Sa promotion dans la gestion du bien et le comportement des communautés riveraines permettra de ne pas perdre les pratiques ancestrales et l'identité culturelle du milieu qui soutiennent aussi l'interconnexion des valeurs naturelles et culturelles du bien.

5.4.1.4 Former les gestionnaires du bien à la gestion des sites à désignations internationales multiples

Le Delta du Saloum bénéficie de trois désignations internationales : Site RAMSAR Transfrontalier, Réserve de Biosphère, Patrimoine Mondial. Au niveau national et international, le fait d'avoir plusieurs désignations internationales est un grand atout pour optimiser la coordination institutionnelle et mettre en œuvre des programmes de partenariat (Schaaf et Clamote Rodrigues, 2016). Il revient aux gestionnaires de fonder la gestion du bien sur la complémentarité et les synergies créées par ces différentes désignations. Le cas contraire, il existera un risque élevé de créer la confusion et la désinformation au niveau des parties prenantes, en cherchant à percevoir certaines valeurs comme supérieures à d'autres. En effet, les difficultés que pose la gestion des sites à désignation multiple surviennent lorsque différentes autorités nationales ont des responsabilités dans le site et qu'il n'y a pas de cadre juridique ou administratif harmonisé, ni même de mécanisme de coordination pour accorder les politiques et les activités d'intervention des différentes institutions compétentes (Schaaf et Clamote Rodrigues, 2016).

5.4.2 Soutenir l'exploitation traditionnelle du bien

5.4.2.1 Une structure traditionnelle forte à prendre en compte

La communauté depuis des millénaires a joué un rôle important dans la gestion du bien. De plus, durant ces dernières décennies, les communautés ont été encore plus responsabilisées, notamment à travers les aires protégées communautaires. Pour ce faire, elles ont mis en place une organisation spécifique, comprenant des organisations classiques (famille, villages, etc.), mais

également des organisations plus originales comme les groupements de femmes. Elles perpétuent les activités traditionnelles (ostréiculture, apiculture, protection et restauration de la mangrove, initiation des couches juvéniles à la tradition, transformation des produits naturels, etc.) qui ont contribué à façonner le paysage du Delta du Saloum, tel que connu de nos jours.

- *Ces organisations en place constituent une force, notamment en termes de résilience (capacité d'organisation d'une structure face aux changements.)*

5.4.2.2 *Mettre en valeur la connaissance sur les pratiques traditionnelles de conservation*

Le bien bénéficie d'une structure bien établie et toujours vivace en termes de procédés et pratiques traditionnelles de conservation. Ceci a permis de maintenir le bien dans un état de conservation satisfaisant. Nous pouvons citer entre autres dispositions : l'existence de sites sacrés, de génies protecteurs, de chants de « sensibilisation » etc.

- *Il s'agit d'outils éprouvés qui ont permis une bonne gestion du bien et dont la mise en valeur contribuera à soutenir le fonctionnement traditionnel en place.*

5.4.2.3 *Développer les connaissances et compétences endogènes*

Les communautés locales ont développé depuis des millénaires, des savoirs empiriques liés aux ressources locales et à l'écosystème du delta (respects du repos biologique, connaissance sur les milieux aquatiques). Aussi, elles ont mené au côté de structures de la société civile depuis quelques décennies, de nombreuses expériences pour améliorer les techniques d'exploitation de l'environnement, et ceci dans son respect (pêche sélective, ostréiculture, apiculture, etc.).

- *Documenter cette connaissance et soutenir la recherche dans le développement de solutions alternatives respectueuses de l'environnement naturel et du contexte culturel est une piste clé pour maintenir l'organisation de ces communautés tout en assurant leur épanouissement complet.*

5.4.2.4 *Une gestion conciliant « préservation et développement »*

Les parties prenantes rencontrées, nous ont fait état d'un certain nombre de problèmes qu'elles rencontrent. Ont été évoqués par exemple : la variation de la salinité, le manque d'eau potable, le manque de production agricole, la difficulté à écouler les produits (miel, huitres, etc.), la difficulté dans la conservation des produits, le besoin de ressources financières pour apporter des améliorations aux techniques et outils utilisés, la gestion des cas épidémies, etc.

Cette liste non exhaustive, met en avant le système économique des communautés du Delta, axé essentiellement sur la production agricole, l'ostréiculture, l'apiculture et le tourisme, ainsi que sa fragilité car fortement lié à la qualité de l'écosystème du delta. Dans ce contexte, il semble essentiel de veiller à planifier des actions prenant en compte ces aspects si fortement liés. A ce titre, les diverses politiques menées par l'Etat (avec les aires communautaires) et les nombreux projets (MDG-F culture et développement, Waame, Wula Nafaa, etc.) ont permis de veiller à maintenir un équilibre entre les intérêts de la préservation et les intérêts économiques.

- *Ainsi, il serait souhaitable que la vision future et la planification associées veillent à cet équilibre « préservation et développement »*

5.4.2.5 *Une gestion « penser global, agir local »*

Malgré le tout cohérent que forme le Delta du Saloum, les parties prenantes ont confirmé que les besoins et les ambitions locaux sont divers. C'est ainsi que depuis plusieurs années, afin de gérer la diversité des situations selon les sites, ils ont mis en place une approche filière en fonction des potentiels de chaque site.

- Dans la planification des actions futures et afin de prendre en compte les communautés - acteurs clés de la préservation du site - il est important d'être à leur écoute et de s'assurer que leurs besoins sont pris en compte dans la prise de décision pour la gestion du bien.

6. Conclusion

6.1 Recommandations de la visite de terrain

Inscrit dans le cadre de la troisième phase du projet *Connecting Practice*, cette visite de terrain qui s'est déroulée du 9 au 14 décembre 2018 dans le site du Patrimoine Mondial du Delta du Saloum (Sénégal), a permis d'explorer les meilleures façons de soutenir la gestion de ce bien en se basant sur le caractère interconnecté de ses valeurs naturelles, culturelles et sociales, ainsi que sa résilience face aux divers défis actuels. Il en est issu ce rapport qui est le fruit du travail collectif de l'équipe composée des représentants de l'ICOMOS et de l'UICN ainsi que des parties prenantes de la gestion du bien. Ceci est dans la droite ligne de la phase III du projet *Connecting Practice* dont le but est d'appuyer la conservation durable des biens du patrimoine mondial, en valorisant autrement les pratiques agricoles et bioculturelles, l'interconnexion des valeurs culturelles et naturelles, et le renforcement de la résilience des sites. Il est opportun de remercier tous les acteurs et organisations dont l'action a permis d'une façon ou d'une autre de réaliser cette visite de site.

Se référant aux résultats de cette visite de terrain, on peut affirmer que les acquis de la mission sont pertinents pour la gestion future du bien. En effet, la visite de terrain a été une réussite tant au niveau organisationnel que des résultats atteints. Le choix du site a été très adapté pour expérimenter les attentes du projet *Connecting Practice*. Ainsi, les résultats ont montré que les différentes valeurs sont complémentaires entre elles et plus important encore, la VUE (qui est culturelle) est soutenue par un attribut naturel qui fonde l'existence du bien. Ces valeurs et leurs attributs, ainsi que la façon dont elles interagissent, méritent d'être décrite de façon détaillée et de faire l'objet d'un suivi approprié. Combinées entre elles, les valeurs naturelles et culturelles du bien contribuent à le classer au rang des sites hors du commun.

Il est à noter néanmoins que la durée du séjour a été insuffisante pour avoir une vision complète de toutes les réalités du bien. Toutefois, la réflexion collective menée avec les différentes personnes ayant effectué l'ensemble des visites, a permis de faire un état des lieux rapide des éléments importants à considérer dans les programmations futures et au regard de l'importance internationale des valeurs naturelles (site RAMSAR, réserve de la biosphère) et culturels (site patrimoine mondial) du bien et de leurs interconnexion. Il est en outre opportun de poursuivre l'identification et l'analyse des valeurs et des attributs de façon plus approfondie, en utilisant la méthodologie publiée par le Centre du patrimoine mondial « Trousse à outils : Amélioration de notre patrimoine ». Il paraît aussi nécessaire d'actualiser les statuts, attributions et moyens d'actions du centre d'interprétation et des autres organes disposant de responsabilités dans la gestion du bien. La représentation graphique du système socio-écologique du bien et son exploitation paraissent utile pour animer des discussions entre les différentes parties prenantes. Tout ce travail d'analyse doit pouvoir constituer la base de l'élaboration du nouveau plan de gestion intégré du bien.

En dépit de l'insuffisance des ressources matérielles, financières et humaines pour la gestion du Delta de Saloum, les parties prenantes rencontrées présentent un niveau appréciable de motivation et d'engagement pour la protection du bien. La grande disponibilité des parties prenantes et leur volonté d'améliorer leurs connaissances et compétences pour la gestion du bien est une base fondamentale sur laquelle plusieurs opportunités d'amélioration de la gestion du bien peuvent se greffer.

A la lumière de tout ce qui précède, diverses recommandations ont été formulées.

Considérant

1. **L'interconnexion entre les valeurs naturelles et culturelles** qui se basent sur l'écosystème existant du delta et son intégrité.
2. **Le rôle primordial de l'Etat** pour la préservation de l'écosystème deltaïque du Saloum ;

3. La **collaboration intense et fructueuse** entre les différentes parties prenantes au niveau local ;
4. Le **rôle essentiel de la communauté** depuis des millénaires et jusqu'à ce jour (individus, société civile, OCB, ONG, GIE, etc.) dans la préservation de l'écosystème deltaïque du Saloum ;
5. La **superposition de compétences**, dans certains cas, entre divers ministères chargés de la protection des différentes valeurs du bien du Patrimoine Mondial ;
6. **Le manque d'opérationnalité** de certains organes de gestion du bien ;
7. Des ressources (budget et personnel) insuffisantes et non adaptées au contexte actuel, d'où le besoin **de renforcer les moyens humain et logistique des structures responsables** en place ;
8. Le besoin **de renforcer l'arsenal juridique** appliqué à la protection et la gestion du bien ;
9. Le nombre important de parties prenantes aux diverses prérogatives et aux **multiples plans d'action** qui aboutissent parfois à une absence de synergie des actions sur une même cible pour un même programme ;
10. Une **longue collaboration entre les structures locales et les partenaires techniques et financiers**, notamment avec l'UICN.

Recommandations générales :

1. Utiliser la définition et **l'évaluation holistique des valeurs** comme base de toute action liée au bien. Cela implique aussi de « sortir » du périmètre du bien inscrit ainsi que de la zone tampon pour avoir une vision complète des valeurs importantes influant sur le bien et de leurs interactions ;

Recommandations pour le bien :

2. Mettre en place **une base de données commune** sur les valeurs et attributs importants du Delta et ne pas se limiter à la valeur universelle exceptionnelle (VUE), mais inclure également les processus écosystémiques, la biodiversité ainsi que la disponibilité en eau potable rare dans certains terroirs du le bien, etc...
3. Définir et prendre en compte les facteurs les affectant, ainsi que leurs interconnexions, comme base pour un **plan de gestion intégré** pour le Delta, en utilisant par exemple la méthodologie « Trousse à outils : amélioration de notre patrimoine » (*Enhancing our Heritage*, <http://whc.unesco.org/fr/series/23/>) ;
4. Elaborer une **cartographie actualisée** de la réserve de biosphère et des différentes composantes protégées, pour avoir une représentation claire (composantes et limites) des aires protégées et classées (réserve de biosphère, RAMSAR, parc national, aires marines protégées, zone classée patrimoine mondial) au niveau national, transfrontalier et international. Il faudrait aussi y intégrer le découpage territorial et administratif.
5. Amener les différents acteurs à **travailler en synergie pour une meilleure planification** des actions (harmonisation des divers plans de travail annuels), la mutualisation des ressources disponibles et une meilleure gestion du site.
6. Etablir des liens étroits avec le monde de la recherche et élaborer **une stratégie de recherche globale sur** le site en fonction des besoins identifiés. Il s'agira de développer la recherche fondamentale articulée avec les connaissances endogènes traditionnelles et la gestion environnementale dans le bien (identification des thématiques, identification des acteurs, collecte et partage des résultats de recherches, suivi des accords, etc.),
7. Etablir une liste complète des grands projets en cours et/ou planifiés pouvant affecter le bien. En effet les Etats doivent **informer le comité du Patrimoine Mondial de tous les projets ayant un impact avéré ou potentiel** sur la VUE, conformément au paragraphe 172 des Orientations.
8. Etablir un **Schéma Directeur d'Aménagement et un plan de gestion intégré, en se basant sur une étude d'impacts stratégiques** pour le Delta, porté par l'Etat et les collectivités locales à travers une intercommunalité en tenant compte de la dimension transfrontalière du bien ;

9. Mettre en place **un organe de gouvernance participatif**, qui prenne en compte les enjeux actuels et futurs du Delta, chargé d'élaborer et mettre en œuvre le plan de gestion intégré en y associant des moyens adaptés.
10. Renforcer les activités liées à des **programmes écologiques, à l'éducation environnementale, en particulier concernant la gestion de l'eau et des déchets (collecte, tri et compostage) et à la connexion entre les femmes et jeunes avec le site** ;
11. Redynamiser la coopération et **collaboration avec les autorités gambiennes** pour la gestion des valeurs culturelles et naturelles du complexe écologique Niimi-Saloum.

Suggestion de mise en œuvre des recommandations citées précédemment :

Au regard de l'écosystème remarquable du Delta du Saloum et de la très forte interconnexion entre les valeurs naturelles et culturelles observées durant la visite de terrain, il est suggéré ce qui suit :

Aux ministères en charge

des collectivités territoriales, de la culture, de l'environnement, des aires protégées, du tourisme, de l'aménagement du territoire, de ressources halieutiques, du pétrole, des mines, de l'agriculture, de l'élevage, de l'artisanat, de l'hydraulique, de la jeunesse, de la femme, de l'éducation nationale, de l'enseignement supérieur, des grands projets de l'Etat, des agences des grands travaux de l'Etat, de l'investissement, de l'économie et des finances, **de collaborer étroitement pour une meilleure gestion du delta du Sine Saloum en vue de préserver ses valeurs culturelles et naturelles et de les léguer aux générations futures.**

Aux Ministères de la Culture, de l'urbanisme et des collectivités territoriales de

1. Actualiser et clarifier **les attributions du gestionnaire** de site et du centre d'interprétation du Delta du Saloum ;
2. Officialiser la **collaboration entre le gestionnaire de site et les différentes autorités en charge de la conservation du bien** ;
3. Renforcer les **moyens du centre d'interprétation** pour la protection, le suivi, conservation des sites sous sa responsabilité (staff, pirogues, archivage, accueil de chercheurs, etc.) ;
4. **Mettre en place le Comité de gestion du Delta du Saloum avec des moyens conséquents**, en tenant compte des valeurs culturelles et naturelles du bien et des enjeux actuels ;
5. Mettre en **place un règlement d'urbanisme et un schéma directeur** dans le respect de l'environnement dans la zone classée PM et la zone tampon ;
6. S'assurer **que les aménagements effectués** dans la zone classée respectent les procédures et les règlements d'urbanisme en place, y compris pour les infrastructures hôtelières.

Au ministère en charge de l'environnement de

1. Tenir compte du statut du Patrimoine Mondial du Delta du Saloum, ainsi que des besoins locaux et de la complexité de la gestion de ce site, **dans l'allocation annuelle des ressources financières et humaines** au PNDS et aux AMP.
2. Commanditer **une étude environnementale sur le delta Saloum** pour évaluer les impacts des changements en cours (réchauffement climatique, érosion, modification de la salinité, etc.)
3. Etablir une **collaboration transfrontalière** entre les parties gambienne et sénégalaise des aires protégées pour le dénombrement, le suivi écologique et les échanges de bonnes pratiques, etc...
4. **Poursuivre leur soutien** au Centre d'interprétation et aux communautés du delta dans le but d'une gestion durable des ressources.

Au ministère en charge du tourisme, du pétrole, et de l'aménagement du territoire de

1. Tenir compte de la **fragilité du Delta dans la validation et la mise en œuvre des grands projets gouvernementaux** (SAPCO, exploitation pétrolière, etc.)

2. **Appuyer les actions du Syndicat** d'initiatives touristiques et soutenir la formation des acteurs du tourisme (guides, hôteliers, transporteurs, artisans, etc.)

Au niveau des départements et collectivités territoriales de

1. S'assurer que le **plan d'aménagement sectoriel détaillé** est basé sur l'étude d'impacts stratégiques du delta, et qu'il soit donc respectueux de l'environnement classé et de sa zone d'emprise ;
2. Plaider pour intégrer la **formation professionnelle dans les curricula de l'université du Sine Saloum**, notamment dans les métiers du patrimoine, l'éco-tourisme et aux métiers verts ;
3. Maintenir la dynamique de soutien des filières qui assurent un développement harmonieux tout en préservant le Delta.

6.2 Possibilités d'amélioration de l'organisation des prochaines visites de terrain

La visite de terrain du Delta du Saloum a été fortement inspirée des précédentes visites effectuées dans d'autres sites du projet *Connecting Practice*, mais elle a permis d'identifier plusieurs possibilités d'amélioration dont la mise en œuvre permettra d'élever le niveau d'efficacité des prochaines visites de terrain. Ces possibilités d'amélioration ont été détaillées ci-dessous.

- Les déplacements sur le terrain dans le cas du Delta du Saloum ont rendu les journées de travail plus courtes. Bien qu'elles soient importantes, le temps nécessaire à leur réalisation a réduit les opportunités d'approfondir un peu plus les objectifs définis dans les Termes de Référence. Pour disposer de plus de temps pour les travaux en salle lors des visites ultérieures, il est opportun dans la détermination de leur nombre dans le programme global, de tenir compte de la pertinence et du temps nécessaire pour les déplacements sur le terrain.
- Le contact avec les communautés s'est fait lors des visites de terrain et seulement en groupe. Il sera opportun d'organiser les visites de terrain de façon à consacrer moins de temps à la discussion de groupe et puis permettre la visite des installations en petits groupes, ce qui permettra de recueillir en plus de la perception globale issue de la discussion de groupe, des points de vue individuels des membres de la communauté.
- Les visites de terrain et le travail en salle se sont déroulés avec les mêmes délégués. Il est fort appréciable que ces derniers aient pu se rendre disponibles pour toute la durée de la mission mais il sera encore plus enrichissant de joindre d'autres parties prenantes à la discussion. Pour contourner les contraintes liées à la disponibilité de ces derniers et à la logistique, certains acteurs pourraient être invités pour toutes les activités du programme pendant que d'autres seront seulement invités pour une ou quelques-unes des activités du programme.
- Lors des préparatifs de la visite de terrain, il est souhaitable d'amener les acteurs qui reçoivent la mission à préparer les documents officiels (lois, décrets, arrêtés, conventions, contrats, études stratégiques, etc.) dont la visite de terrain aurait besoin. Ceci permettra à celle-ci de disposer de documents officiels pour mieux l'orienter dans les analyses qu'elle fera des informations collectées sur le terrain.
- Pour les visites de terrain ultérieures, il est bien de maintenir l'analyse du mode de gestion des biens dans les Termes de Référence, mais il est opportun de faire un aperçu sur la gouvernance aussi puisque les deux concepts sont liés. L'analyse de la gouvernance permettra de mieux comprendre les interactions entre les structures, les processus et les traditions qui déterminent la façon dont le pouvoir et les responsabilités sont exercés, comment les décisions sont prises et comment les citoyens ou les autres parties prenantes peuvent s'exprimer.



Fig. 10 : Participants de la visite de terrain du Delta du Saloum (Kpadonou, 2018)

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Annexe 1

Tableau 5 : Parties prenantes décisionnaires au niveau de l'Etat central

Organe	Lien majeur avec l'écosystème	Types d'actions menées	Moyens
1^{er} Ministre	→ Etudier l'intérêt de clarifier le lien à travers un texte juridique.	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Ministère en charge de la culture	<ul style="list-style-type: none"> Responsable du site Patrimoine mondial. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Ministère en charge de la nature	<ul style="list-style-type: none"> Responsable des aires protégées et des parcs. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Autres ministères	→ Etudier l'intérêt de clarifier le lien à travers un texte juridique.	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
2 Préfets de Fatick et Foundiougne	<ul style="list-style-type: none"> Autorité politique/administrative décentralisée Responsable sauf dans le PNDS Membre du comité d'orientation de l'AMP de Bamboung. → Etudier l'intérêt de clarifier le lien à travers un texte juridique. → Etudier l'intérêt de formaliser la collaboration encore informelle avec le centre d'interprétation.	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Direction des parcs nationaux	<ul style="list-style-type: none"> Responsable du PNDS Responsable de l'un des noyaux centraux de la réserve de biosphère Responsable de la partie sénégalaise de la zone RAMSAR transfrontalière avec la Gambie Intervention possible dans les autres parties du bien classé mais sur demande du Centre d'interprétation. 	<ul style="list-style-type: none"> Action sur la Biodiversité (surveillance, suivi écologique de la biodiversité. Veille à interdire l'exploitation des amas coquillers. Tous les autres aspects de suivi des amas coquillers sont laissés sous la responsabilité de la DPC. 	Dispose de : <ul style="list-style-type: none"> personnel sous ordre, de budget annuel de fonctionnement, de moyens matériel, roulant et naval, Certains équipements vétustes (camp militaire, campement) un système de renseignement avec les communautés, un système de patrouille dans le site de lois qui définissent le travail à faire
Direction des aires marines communautaire protégées	<ul style="list-style-type: none"> Responsable de l'AMP de Bamboung Responsable de l'un des noyaux centraux de la réserve de biosphère Intervention possible dans les autres parties du bien classé mais sur demande du Centre d'interprétation. 	<ul style="list-style-type: none"> Peut agir directement pour protéger son domaine en cas de menace. Autorise l'accès dans l'aire protégée Sensibilisation des communautés. 	→ Etudier la possibilité de renforcer les moyens pour la protection, surveillance, suivi et sensibilisation
AM protégée de Sangomar	<ul style="list-style-type: none"> Responsable de l'AMP de Sangomar Responsable de l'un des noyaux centraux de la réserve de biosphère 	→ Etudier l'intérêt de formaliser le droit d'accès à la DPC / Centre d'interprétation sur l'aire.	
AM protégée de Gandoul	<ul style="list-style-type: none"> Responsable de l'AMP de Gandoul Responsable de l'un des noyaux centraux de la réserve de biosphère 		

Réserve communautaire Palmarin	<ul style="list-style-type: none"> • Responsable de la réserve de Palmarin • Responsable de l'un des noyaux centraux de la réserve de biosphère 		
Direction du Patrimoine Culturel/Centre d'interprétation du Sine Saloum	<ul style="list-style-type: none"> • Responsable de la zone classée patrimoine mondiale et de la zone tampon. 	<ul style="list-style-type: none"> • Veille sur le site classé patrimoine mondial, notamment les amas coquilliers. • Peut agir indirectement par le biais des autorités politiques et de la DPN pour protéger son domaine en cas de menace. • Fait des descentes dans le site en cas de menace signalée ou d'activité à mener • Sensibilise les communautés et appuis les groupements des communautés. • Gère le Centre d'interprétation. <p>→ Réfléchir à comment assurer la surveillance du patrimoine classé dans les aires naturelles protégées où la DPC n'a pas autorité ni droit d'accès automatiques.</p>	<p>Dispose de :</p> <ul style="list-style-type: none"> • personnel sous ordre, • de budget annuel de fonctionnement, • de moyens bureautique et roulant. • Le moyen de navigation du PNDS et des AMP est utilisé grâce à une entente informelle • un système de renseignement avec les communautés et des relais sur le terrain pour le suivi des amas, • Décret de nomination du gestionnaire qui ne définit pas le travail à faire <p>→ Etudier l'intérêt de définir avec un texte officiel les responsabilités et le rôle du gestionnaire et responsable du centre d'interprétation.</p> <p>→ Etudier la possibilité que la DPC ait ses propres moyens de navigation.</p>
Syndicat d'initiatives touristiques (hôtel, taximan, restaurant, ...)	<ul style="list-style-type: none"> • Intérêt pour la mise en valeur touristique 	<ul style="list-style-type: none"> • Acteur privé prenant des responsabilités dans la valorisation touristique du site • En place dans les grandes villes, intervenant sous le ministère de tourisme et à travers le sous-préfet. <p>→ Etudier l'intérêt que les syndicats soient associés aux prises de décisions par les acteurs étatiques pour la valorisation touristique du site.</p>	<p>Dispose de :</p> <ul style="list-style-type: none"> • un cadre de concertation • un réseau d'information et de formation des membres pour soutenir la gestion du site

Source : Données de terrain, 2018

Tableau 6 : Parties prenantes décisionnaire au niveau décentralisé

Organe	Lien majeur avec l'écosystème	Types d'actions menées	Moyens
Ministre de l'intérieur	<ul style="list-style-type: none"> → Autorité nationale en charge de la sécurité des personnes et des biens → Etudier l'intérêt de clarifier le lien à travers un texte juridique. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
2 Départements de Fatick et Foundiougne	<ul style="list-style-type: none"> → Autorité politique/ administrative décentralisée → Etudier l'intérêt de clarifier le lien à travers un texte juridique. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Les 3 communes	<ul style="list-style-type: none"> • Autorité politique/ administrative décentralisée • Responsable sauf dans les AMP et PNDS. → Etudier l'intérêt de clarifier le lien à travers un texte juridique. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Gendarmerie	<ul style="list-style-type: none"> • Responsables du respect de la sécurité des personnes et des biens. 	Consultés pour les procédures en cas de litige.	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Direction de l'agriculture	<ul style="list-style-type: none"> • Intervient en fonction des orientations communales, sauf dans AMP et PNDS → Etudier l'intérêt de clarifier le lien à travers un texte juridique. 	<i>Pas d'information collectée à ce sujet pendant la mission</i>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Direction des eaux et forêts			
Direction des pêches			
Direction de l'élevage			
Direction des mines			

Source : Données de terrain, 2018

Tableau 7 : Autres parties prenantes

Organe	Lien majeur avec l'écosystème	Types d'actions menées	Moyens
2 radios communautaires	<ul style="list-style-type: none"> Interviennent sur tout le site et au-delà du delta Collaboration avec tous les autres acteurs du site 	<ul style="list-style-type: none"> Information et sensibilisation Mobilisation sociale pour la conservation du site 	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Organisation communautaire de base (GIE, association de protection, ...)	<ul style="list-style-type: none"> Lien socioéconomique et culturel avec le bien Existe dans tous les villages 	<ul style="list-style-type: none"> Protection et utilisation durable des ressources naturelles du site Mobilisation sociale pour la conservation du site 	Dispose de : <ul style="list-style-type: none"> Connaissances et savoir-faire traditionnelles et empiriques éprouvés Ressources humaines fonds insuffisants d'entretien et de fonctionnement moyens techniques et financiers associés aux projets moyens techniques peu reconnus scientifiquement
Acteurs culturels (club nature...)	<ul style="list-style-type: none"> Lien socioéconomique et culturel avec le bien 	<ul style="list-style-type: none"> Mobilisation sociale pour la conservation du site Donne des prestations dans le site et au-delà du delta 	<ul style="list-style-type: none"> Productions artistiques Lobbying local, national et international
Ecoles	<ul style="list-style-type: none"> Lien éducatif et socioculturel avec le site 	<ul style="list-style-type: none"> Formation et éducation de la jeunesse 	<i>Pas d'information collectée à ce sujet pendant la mission</i>
ONG locales	<ul style="list-style-type: none"> Prestataire de service 	<ul style="list-style-type: none"> Mise à disposition de l'expertise sur divers sujets Soutien à la conservation du site <p>→ Etudier l'intérêt de définir un programme d'action</p>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Partenaires techniques et financiers	<ul style="list-style-type: none"> Coopération internationale Intervient en liaison avec les organes étatiques en place et leurs plans. 	<ul style="list-style-type: none"> Site de travail et d'expérimentation Apprentissage et révélation des valeurs du site <p>→ Etudier l'intérêt de définir un programme d'action</p>	<i>Pas d'information collectée à ce sujet pendant la mission</i>
Fondations			<i>Pas d'information collectée à ce sujet pendant la mission</i>
Universités			<i>Pas d'information collectée à ce sujet pendant la mission</i>

Source : Données de terrain, 2018

Annexe 2

TERMES DE RÉFÉRENCE

Visite de terrain – Delta du Saloum

Sénégal

Les membres de l'équipe :

- Au sein du projet UICN / ICOMOS *Connecting Practice*, participeront à la visite de terrain du **Delta du Saloum** du **9 au 13 décembre 2018**, avec pour objectif général de travailler au renforcement des cadres de gouvernance et des arrangements de gestion afin de permettre une prise en compte mieux intégrée du patrimoine naturel et culturel du bien ;
- Participeront pleinement à toutes les activités de la mission au sein d'une équipe composée de représentants de l'UICN, de l'ICOMOS et des parties prenantes locales.
- Se prépareront de façon appropriée au travail sur le terrain en examinant les documents fournis, y compris ceux qui ont soutenu le processus de proposition d'inscription du bien ainsi que d'autres documents pouvant apporter une meilleure compréhension du contexte, afin d'échanger des points de vue avec les autres membres de l'équipe et parvenir à une approche commune ;
- Seront disposés à collaborer étroitement les uns avec les autres ainsi qu'avec les représentants des communautés et des autorités gouvernementales (y compris répondre à toutes les questions qu'ils pourraient avoir concernant les processus et les pratiques associés au patrimoine mondial), dans un esprit de partage des connaissances ;
- Travailleront dans un esprit collectif avec les autres membres de l'équipe de la mission pour mettre en œuvre le programme d'activités sur place qui permettra de faire progresser les questions clés de la mission, notamment l'exploration du caractère interconnecté des valeurs et pratiques culturelles et naturelles et la compréhension du système socio-écologique que forme le bien afin d'en comprendre les mécanismes de résilience ;
- Dans la mesure du possible et en tenant toujours en compte les différences entre les objectifs du projet *Connecting Practice* et les processus officiels d'évaluation et de suivi réactif de l'UICN et de l'ICOMOS, ils engageront un dialogue constructif et ouvert avec les représentants du gouvernement, les autorités de gestion et d'autres parties prenantes sur les moyens de gérer de manière durable et efficace le bien du patrimoine mondial et son contexte élargi ;
- Prépareront ensemble un rapport de visite sur le terrain qui documente le travail réalisé, offre une vue holistique du patrimoine culturel et naturel du bien, reflète une vision collective de toutes les personnes impliquées dans la rédaction du rapport et fourniront des recommandations sur les points suivants :
 - *Le caractère interconnecté des valeurs culturelles, naturelles et sociales du bien et des pratiques bioculturelles associées :*
 - Explorer les relations entre les attributs et les valeurs qui ont soutenu l'inscription du bien sur la Liste du patrimoine mondial avec d'autres valeurs culturelles et naturelles importantes, y compris la valeur culturelle de la nature et la manière dont les systèmes culturels permettent ou sont nécessaires pour soutenir les valeurs naturelles ;
 - Identifier les caractéristiques et valeurs naturelles dont dépendent les valeurs culturelles et comment elles sont interconnectées ;
 - Identifier la façon dont le paysage témoigne de processus bioculturels importants ;

- *Comprendre la résilience socio-écologique du bien :*
 - Analyser le système socio-écologique que forme le bien ;
 - Comprendre la dynamique des changements au niveau du site et des changements souhaitables et indésirables pour le système socio-écologique que forme le bien ;

- *Le système de gestion du bien :*
 - Identifier et dialoguer avec les principales parties prenantes du bien (dans la mesure du possible pendant la visite de terrain) ;
 - Examiner la façon dont les structures et les mécanismes de gestion fournissent un cadre adéquat pour protéger les valeurs culturelles et naturelles du bien ;
 - Explorer comment le système de gestion pourrait être amélioré afin de prendre en compte le caractère interconnecté des valeurs naturelles et culturelles du bien et pour répondre aux changements dans l'exploitation traditionnelle du bien.

Les membres de l'équipe pourront fournir une réflexion sur l'expérience du travail sur le terrain, y compris un bref résumé des défis rencontrés lors de la rédaction du rapport (si besoin), réflexion qui pourra alimenter les visites de terrain prévues ultérieurement dans la deuxième année du projet.

Annexe 3

Déclaration de valeur universelle exceptionnelle

Brève synthèse

La région du delta du Saloum témoigne de manière remarquable de la synergie entre un milieu naturel d'une grande biodiversité et un mode de développement humain toujours présent bien que fragile. Des pratiques durables du ramassage des coquillages et de la pêche en eaux saumâtres, du traitement de ces récoltes destiné à leur conservation et de leur exportation s'y sont développées. Les amas coquilliers et les amas à tumulus forment des paysages culturels spécifiques et exceptionnels.

Les nombreux amas coquilliers du delta du Saloum sont généralement bien conservés et ils ont parfois des dimensions imposantes. Ils témoignent directement de pratiques socioéconomiques durables et très anciennes. Au fil des siècles, ils ont permis de constituer de nombreux îlots artificiels contribuant à la stabilisation des terres et des bras d'eau du delta. Avec leur végétation caractéristique au sein du milieu naturel du delta, les amas coquilliers forment des paysages culturels typiques. Certains amas comportent des tumulus ; ils forment, avec leur végétation de baobabs et leurs formes collinaires, des sites funéraires aux paysages spécifiques.

Critère (iii) : *Par ses nombreux amas coquilliers, par les paysages qui leur sont associés et par la présence d'un ensemble rare et bien conservé d'amas à tumulus funéraires, le delta du Saloum apporte un témoignage exceptionnel d'un mode de vie littoral, en milieu subtropical sahélien, aux eaux saumâtres riches en coquillages et en poissons.*

Critère (iv) : *L'ensemble des amas coquilliers accumulé tout au long d'un processus culturel bimillénaire a formé une structure physique d'îlots stables et de terres émergées au sein du delta du Saloum. Les paysages culturels formés sont exceptionnels et ils illustrent une longue période de l'histoire des peuplements humains le long des côtes de l'Afrique de l'Ouest.*

Critère (v) : *Le delta du Saloum constitue un exemple éminent d'établissement humain traditionnel. Il représente un mode de vie et de développement durable basé sur la cueillette des coquillages et sur la pêche, dans une interaction raisonnée avec un milieu naturel d'une grande biodiversité mais fragile.*

Intégrité

Les conditions d'intégrité en termes culturels du delta du Saloum sont a priori assez satisfaisantes, même si certains amas coquilliers ont été endommagés, mais l'intégrité demeure fragile. Les amas coquilliers comme les paysages culturels et la biodiversité du milieu naturel peuvent être menacés par des comportements socio-économiques mal contrôlés.

Authenticité

Les conditions d'authenticité des amas, des amas à tumulus et de leurs paysages sont généralement satisfaisantes. Elles sont complétées par une authenticité anthropologique des pratiques de cueillette des coquillages et, à un moindre degré, de la pêche.

Mesures de protection et de gestion

La protection des amas coquilliers et des amas à tumulus est assurée par des mesures réglementaires appropriées. Toutefois, la protection active des biens culturels sur le terrain est récente et elle doit s'étendre à l'ensemble du bien, et ne pas seulement concerner le Parc national. Par ailleurs, la politique générale de la conservation du bien est en lien étroit avec la conservation des milieux naturels et avec les programmes de développement durable du delta dans son ensemble.

La gestion du bien s'appuie sur de nombreux acteurs de terrain. L'ensemble forme un système de gestion du bien satisfaisant, avec des acteurs principaux et des responsables bien identifiés, notamment

le Parc national, les communautés rurales et le MDG-Fund des Nations unies. Toutefois, ce système de gestion est en évolution et la multiplicité des programmes et des intervenants tend à rendre certaines situations un peu confuses. Le Comité de gestion transversal reste à instituer (2011), ses moyens à confirmer, et le traitement homogène de la gestion-conservation pour l'ensemble du bien à améliorer.

Annexe 4

Connecting Practice - Visite du Delta du Saloum – 9-14 décembre 2018 Liste des participants

Prénom	Nom	Structure
Mahécor	Diouf	Gestionnaire du delta du Saloum
Marie Angélique	Manga	Adjointe au gestionnaire du site. Responsable bureau d'information touristique
Capitaine Lamine	Kante	Conservateur de l'aire marine protégée du Bamboung
Commandant Cheikh	Niang	Conservateur du parc national du delta du Saloum
Mamadou	Bakhoum	Ingénieur agronome
Moussa	Mané	Directeur de la radio communautaire Niombatofm
Mamadou	Dieng	Association des guide touriste et ornithologue
Chérif	Senghor	Président commission culturel commune de Toubacouta
Youssouph	Diédhiou	UICN
Cosme	Kpadonou	ICOMOS
Carlo	Ossola	UICN
Bakonirina	Rakotomamonjy	ICOMOS
Maureen	Thibault	ICOMOS
Abdoul	Sow	ICOMOS
Gretchen	Walters	UICN

Practice Project: Phase III

Final Report: Landscape of the Pico Island Vineyard Culture (Portugal)





**Report of fieldwork in Landscape of the Pico Island Vineyard Culture (Portugal)
15 – 20 September 2019**

Lovísa Ásbjörnsdóttir, Gwenaëlle Bourdin, Selma Kassem, Bill Kenmir, Leticia Leitao,
Michèle Prats, Manuel Paulino Soares Ribeiro da Costa

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Executive summary

The management and governance of the Pico island Vineyard Cultural World Heritage Site were explored during a site visit from a team of professionals assembled by ICOMOS and IUCN as part of the Connecting Practice programme.

The management of the Property is fully integrated within the governance of the wider Natural Park of Pico which has both resources and expertise to provide an effective management planning framework, and to oversee its implementation. However, as is often the case, resources are limited and real world choices need to be made which can affect the effectiveness of the delivery and monitoring of management strategies.

The team's findings, in relation to the governance and management systems of the Property can be broadly split into two key areas:

2.1 Building knowledge and understanding

- Full identification the suite of values and attributes of the Property
- Identification of the interrelatedness between OUV and wider cultural, natural and social and environmental factors
- Identify factors affecting short, medium and long term resilience of the Property
- Ensure all stakeholders are fully informed about the value of the Property in enhancing the cultural and economic life of Pico Island, and therefore the need to provide support for its ongoing protection and management

2.2 Improving management planning systems

- Clear vision for the management of the Property in a wider Pico context
- Enhance the current management planning systems to incorporate the key learning points above
- Ensure monitoring is in place to track the condition of the attributes of OUV and key factors affecting them
- Enhance implementation through improved monitoring and governance

If the managers of the Property were able to develop the key areas above and to further incorporate them into the governance and management systems, we believe the OUV of the Property would be better understood, better protected and thereby continue to play its important role in the cultural, environmental and economic development of Pico island.

1. Introduction

This report presents the findings of the fieldwork in the *Landscape of the Pico Island Vineyard Culture* (Portugal), as part of the Phase III of the Connecting Practice Project (2018-2020). This Project seeks to influence a shift in conceptual and practical arrangements toward a more genuinely integrated consideration of natural and cultural heritage under the World Heritage Convention. The main goal of the fieldworks carried out as part of the project is:

To strengthen policy frameworks and management arrangements for the protection of highly significant landscapes and seascapes that will achieve a more genuinely integrated consideration of natural and cultural heritage.

In this third phase of the project, the fieldwork also explored how resilience thinking could help strengthening the protection and management of the property.

Three other properties were used as cases studies during this phase:

- i. *Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud, and Oases Areas)* (United Arab Emirates);
- ii. *Saloum Delta* (Senegal); and
- iii. *Cultural Landscape of Honghe Hani Rice Terraces* (China).

All four sites represent organically-evolved cultural landscapes, where traditional practices such as agriculture, viticulture, fishing and shellfish gathering continue to be maintained.

The Terms of Reference for the fieldwork (see Annex 1) were structured around three main elements:

- a) Gather a better understanding of the interconnected character of the cultural, natural and social values of the property and associated biocultural practices;
- b) Explore how to develop a resilience thinking approach for the property;
- c) Examine ways to strengthen the management system of the property considering its overall significance.

The findings reported here are based on the lessons learned throughout the fieldwork, the analysis of the information made available to the team prior to the visit to the property and a brief literature review. When writing this report, we were aware of the limitations of how much can be learned about the property in only one-week visit. We acknowledge that this influences our perspectives of the property, the issues identified, and how we interpreted the information obtained from interviews, different stakeholder interactions, and literature reviews. We recognize that the fieldwork does not provide us with the necessary experience to deliver in-depth and robust conclusions and recommendations. We therefore view the fieldwork as a valuable learning experience, following the overall approach established by the Connecting Practice Project.

2. The interconnected character of the cultural, natural and social values of the property

2.1. Description of the property and justification for its inscription on the World Heritage List

The *Landscape of the Pico Island Vineyard Culture* is located in the archipelago of the Azores, situated in the middle the Atlantic Ocean, approximately 1500 km from the western coast of the European continent and 3900 km from the nearest coastal point of North America. The Azores are one of the two autonomous regions of Portugal, along with Madeira.

The Archipelago is composed of nine islands and a few islets, all of volcanic origin. Pico is the second largest (447km²) of the islands and derives its name from that of the stratovolcano, which dominates the island. The Pico mountain reaches a height of 2.351 m above sea level, the highest point of the Azores but also of Portugal.



Geographic location of the property

The property was initially nominated as a mixed property in 2002. However, IUCN's evaluation considered that the natural values of the property while significant could not be considered to be of Outstanding Universal Value. Therefore, in 2003, the World Heritage Committee referred back the nomination to allow the State Party to resubmit it as a cultural landscape and covering a more extensive area. In 2004, the property was finally inscribed on the World Heritage List based on the following justification of criteria:

Criterion iii: The Pico Island landscape reflects a unique response to viniculture on a small volcanic island that has been evolving since the arrival of the first settlers in the 15th century.

Criterion v: The extraordinarily beautiful human-made landscape of small, stone walled fields is a testimony to generations of small-scale farmers who, in a hostile environment, created a sustainable living and much-valued wine.

The World Heritage property comprises two component parts constituting coastal strips, approximately 50 metres deep, on the north-west and north of the island. These are the most representative and best-preserved areas of a once much more widespread practice of growing vines in small soilless stonewalled fields on flat land along the coast, unsuitable for arable cultivation.



Map of the property

The colonisation of the Azores (as well as that of Madeira) was partly a response to address chronic cereal shortages in Portugal therefore the first agricultural experiments on the islands involved cereal production. In Pico, the extent of the lava fields and the nature of the land made it difficult to cultivate cereals. Instead, thanks to the favourable microclimate and the characteristics of the volcanic soil, the population focused on wine production. By the 19th, the production capacity was such that it allowed for considerable quantities to be exported. However, plagues of powdery mildew and *phylloxera* led to a

significance decline in the island's winemaking activity: in 1866, instead of the average 12,000 to 15,000 barrels a year, only 100 barrels of wine were produced. As a result, many people were forced to emigrate and large areas of vineyards were abandoned. In turn, many owners sold-off their lands leading to large properties to be divided in smaller parcels.

Much of the present extensive rectilinear land-use pattern seems to have been influenced by these social-economic dynamics however small plots would have always been necessary because of the harsh environment. The grafted vines have to be planted in the cracks and holes in the lava stone slabs and protected from the strong winds and salty sea breezes and even waves which ravage the island's coastline. The typical *currais*, small plots of land defined of dry-stone walls, are an intelligent way of sheltering the vines or other crops and at same time making using of large amounts of stones that need to be cleared from the plots. The extensive network of *currais* and resulting grid of stone walls are organised in a very particular way. The properties are separated by high double walls, and the vineyard inside these walls is divided into *jeirões*, separated by double walls from the paths, where the *canadas* come to an end. The *canadas* are used to structure the vineyard and are made up of single walls which are intersected perpendicularly by the *traveses*, which may be single or double walls depending on the amount of stone available in the area, to form the characteristic *currais*... Access from one *curral*... to another is provided by *bocainas*, which are narrow, generally discontinuous paths to avoid channelling the wind (Azorean Government 2018).



Aerial view Lajido Area (Nomination file)

The wine-making activity never fully recovered from the mid 19th century plagues, leading to the progressive abandonment of vineyards. By the end of the 20th century, the vineyard areas had been reduced to around 120 ha. Consequently, the World Heritage property comprises abandoned stone-walled enclosures and areas where grape production continues to take place.

Considering that one of the main objectives of the fieldwork is to gather better understanding of the interconnected character of the cultural, natural and social values of the property, it is necessary to first analyse in detail the reasons why the property was inscribed on the World Heritage List. It has already been mentioned that the *Landscape of the Pico Island Vineyard Culture* is considered to be of Outstanding Universal Value because it reflects a unique response to viticulture that has evolved over centuries (criterion iii) and as a testimony to generations of small-scale farmers, in a hostile environment (criterion v). The short descriptions of the justification of these criteria included on the adopted Statement of Outstanding Universal Value provide only a starting point to understanding the interconnected character of the values of the property. In itself, the Outstanding Universal Value of a

property already reflects part of that interconnected character since it is always defined as singular; that is, the property is *of* or *has* Outstanding Universal Value (defined as singular). Particularly when the property is inscribed by more than one criterion, this automatically implies that its Outstanding Universal Value encapsulates different sets of values.

Therefore, it is necessary to clearly identify and analyse what those values are as well as the attributes that convey and embody those values, to subsequently determine what needs to be done in order to adequately conserve those attributes and maintain the values in the long-run. To do so, it is important to consider the wording of the criteria that supported the inscription of the property on the World Heritage List since it provides a basis for the understanding of the values of the property. But since the wording of the criteria has changed over time, the version that needs to be considered is that used by ICOMOS during the evaluation process (2003-2004) and that is the one including in the Operational Guidelines dating from 2002 namely:

Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared;

Criterion (v): be an outstanding example of a traditional human-settlement or land-use which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change (UNESCO 2002).

The keywords in criterion (iii) are “testimony to a cultural tradition or to a civilisation”. In the case of Pico, the analysis of the justification used for this criterion makes it clear that the testimony refers to that of a cultural tradition, that of viticulture. The justification is also clear in that this tradition is still living and has evolved since the 15th century.

The wording of criterion (v) at the time of the inscription of the property refers to outstanding examples of a traditional human-settlement or land-use. Thus, for Pico, it's the land-use aspect that needs to be considered. While the property includes traditional human-settlements within its boundary, these are part of the attributes, as it will be analysed later in the report. The wording of criterion (v) also refers to the impact of irreversible change. While the justification given for the application of criterion (v) does not refer explicitly to this aspect, it does refer to a “hostile environment”. This aspect of irreversible change is also important to be kept in mind for the purpose of exploring a resilience thinking approach, discussed later on in this report.

A closer analysis of the justification of criterion (v) also helps identifying another important aspect: the extraordinarily beautiful human-made landscape. This implies that the property also has important aesthetic value, even though in itself cannot be considered as part of the Outstanding Universal Value, since the wording of criterion (v) is not explicit in this regard, unlike criterion (vii), which refers to exceptional natural beauty and aesthetic importance. This is where it is important to recall that the property was initially nominated as a mixed site, and namely by criterion (vii) but that IUCN considered the property did not meet this criterion, from a natural heritage perspective. That said, this does not exclude the importance of the aesthetic values from a cultural perspective. This analysis already points to the interconnected character of the cultural and natural values of the property and the shortcomings of identifying these different values separately.

Since values are socially constructed ideas, it is important to identify the attributes that convey and embody those values, since they will be the focus of protection and management actions. The Statement of Outstanding Universal Value (see box 2.1 below) refers, in general, to the most important attributes of the property. However, it is necessary sometimes to analyse other sections of the Statement, beyond the text of the justification of the criteria, particularly when these are quite short, as is the case of Pico.

Table 2.1. attempts to resume the different sets of values that collectively constitute the Outstanding Universal Value and the attributes referred to in the SOUV that embody those values. It is important to recall that the same attribute can embody or convey more than one type or category of values. For an incomplete and limited mental model for the purpose of helping the understanding of the values of the property. Moreover, identifying values according to categories is not a straightforward process, has

limitations and on its own can sometimes oversimplify the understanding of the property. However, it remains a useful first step towards a larger process of understanding the interconnected character of the cultural, natural and social values of the property, since only by first identifying the constituent elements of that character is later possible to understand the interconnections.

Criteria	Values	Attributes
(iii) bear a unique or at least exceptional testimony to a <u>cultural tradition</u> or to a <u>civilisation which is living</u> or which has disappeared;	Unique response to viticulture that has evolved since the 15 th century.	<ul style="list-style-type: none"> - Traditional grape-growing processes and practices; - traditional wine-making processes and practices; - the vines and traditional varieties of grapes (Verdelho, Arinto and Terrantez); - the buildings associated with the viticulture (manor houses, wine cellars, warehouses); - other built elements (pathways, field shelters, tidal wells, ports and ramps, enabling and associated with the production of wine).
(v) be an outstanding example of a traditional human-settlement or <u>land-use</u> which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change	Exceptional testimony of human-made landscape representative of generations of small-scale farmers	<ul style="list-style-type: none"> - Farming practices; - Volcanic soil; - pattern of orderly, long, linear walls running inland from, and parallel to the coastline; - the extensive network of <i>currais</i> and their characteristics and function (small, contiguous, rectangular plots built to protect crops); - the stone walls and the materials to build them (black basalt rocks).

Table 2.1 Identification of the values that constitute the Outstanding Universal value of the property and its attributes



Network of *currais*



Stone walls



Grape varieties



Tidal well



Field shelter



Rola pipas

Box 2.1 Statement of Outstanding Universal Value of the property

Brief synthesis

The Landscape of the Pico Island Vineyard Culture is an outstanding example of the adaptation of farming practices to a remote and challenging environment. Pico Island is one of nine volcanic islands in the Azores Archipelago in the Atlantic Ocean. The island contains spectacular evidence of grape-growing and wine-making (viniculture), with an imposing pattern of orderly, long, linear walls running inland from, and parallel to, the rocky coastline around its northern and western edges. The stone walls form thousands of small, contiguous, rectangular plots built to protect crops from wind and salt spray. Vines were, and continue to be, planted within the small and soilless plots (locally called *currais*). The extensive system of small fields, as well as the buildings (manor houses, wine cellars, warehouses, conventional houses, and churches), pathways and wells, ports and ramps, were produced by generations of farmers enabling the production of wine.

Begun in the 15th century, wine production on Pico Island reached its peak in the 19th century and then gradually declined due to plant disease and desertification (loss of soil and reduced rainfall). However, a low level of grape vine growing and high-quality wine production continues to be undertaken and expanded, especially around the village of Criação Velha. Wine production is managed under a regime designed to ensure economic viability and sustainability as well as to retain traditional farming techniques.

Criterion iii: The Pico Island landscape reflects a unique response to viniculture on a small volcanic island that has been evolving since the arrival of the first settlers in the 15th century.

Criterion v: The extraordinarily beautiful human-made landscape of small, stone walled fields is a testimony to generations of small-scale farmers who, in a hostile environment, created a sustainable living and much-valued wine.

Integrity

The 987 ha property and its 1,924 ha buffer zone encompass all the elements necessary to understand the vineyard culture of Pico Island, which is the basis for its Outstanding Universal Value. The physical evidence across this landscape includes the extensive network of enclosed stone-walled fields, or *currais*, a variety of buildings (houses, wine cellars, windmills, warehouses, and churches), pathways, wells, ports, and fig trees. Its boundaries, including the buffer zone, represent a significant and intact proportion of the vineyard landscape, which encircled the island in the 19th century. The property comprises areas of both abandoned stone-walled enclosures (a relict cultural landscape) and areas where grape production continues to take place (a continuing, living and working landscape).

The vineyard landscape and culture of Pico Island is largely intact, extraordinarily well preserved, and without additions of intrusive modern structures. The abandoned, stone-walled enclosures suffer from a low level of deterioration resulting from disuse and neglect, while certain invasive plants species have colonised many of these abandoned *currais*. Though currently maintained, the integrity of the Landscape of the Pico Island Vineyard Culture is threatened by the construction of new buildings that are incompatible with the visual qualities of the World Heritage property, and future development and expansion of the Pico airport risks impacting the Outstanding Universal Value of the property.

Authenticity

The Landscape of the Pico Island Vineyard Culture has evolved over 500 years and is exceptionally well-preserved and fully authentic in its setting, materials, continued use, function, traditions, techniques, and management systems. The spectacular coastal setting of the viniculture landscape sits at the foothills of Pico Mountain, a volcano that dominates the topography of the island. The material used to construct the *currais* and buildings is largely composed of local, irregular, weatherworn, black basalt rocks. The use of this dominant material type is a major element of the authenticity of the cultural landscape. Part of the property (adjacent to Criação Velha, immediately south of the island's main town of Madalena) is actively farmed. The *currais* in these areas are used in a way that is consistent with 19th-century techniques and traditions, thus fully satisfying conditions of authenticity.

The property is vulnerable to a number of pressures, which include the importing of stone for re-building that is not consistent with local materials. The expansion of the local wine-based industry (in part as a consequence of World Heritage status) is currently not considered a threat to the authenticity of the property, as viniculture practices are carried out by individual owner-farmers without the use of mechanical vine-growing methods.

Box 2.1 Statement of Outstanding Universal Value of the property (cont.)

Protection and management requirements

The Landscape of the Pico Island Vineyard Culture is well protected through a system of legislation, management plans, and a multi-tiered administrative system. Protection mechanisms are in place at the regional, island, municipal, and protected landscape levels.

Laws to protect both the vine growing areas and the standards of wine production on Pico Island were passed in 1980, 1988, and 1994. In 1986, the area covered by the World Heritage listing (as well as areas beyond the buffer zone) was classified as a Protected Landscape (IUCN Category V Protected Area, which are typical living landscapes). Regional Act of Law 10 of 2002 provides four levels of protection that include two zones for stone wall-enclosed vineyards or *currais* – the small *lajidos* (or broad lava flow fields) of Criação Velha and Santa Luzia, which are areas protected for their high-quality wine production.

A series of management plans have been developed for the viniculture landscape of Pico Island, beginning with a 'Safeguarding Plan' (1993), an action plan ('Dynamizing Plan,' covering the period 2001-2006), and a regularly revised five-year Management Plan for the World Heritage property. The latter plan allowed the Regional Government to adopt measures to impose planning constraints on new buildings, use appropriate local building materials, reconstruct ruins, revitalise abandoned vineyards (e.g., remove invasive plants), and 'guarantee the revitalisation of the landscape through the progressive increase of cultivated vines under traditional methods.' The Management Plan views the property as a living, working landscape that is maintained and protected by sustaining the area's distinctive wine-making traditions and thereby preserving the complex field patterns and associated structures and houses. A recent evaluation of the current 'Land Management Plan of the Protected Landscape of Pico Vineyard Culture' carried out by the Regional Directorate for the Environment will be the basis for revisions to the Management Plan. The purpose of the Plan is to "further promote the maintenance and recovery of the vineyard landscape, turning it into one of the most economic and social development hubs of Pico Island and the Azores."

The multi-governmental, administrative structure is responsible for the management of the World Heritage property. The Azores Regional Directorate for the Environment is primarily responsible for law-making, management planning, and management implementation. A Management Committee, appointed by the Regional Secretary (Minister) for the Environment, is responsible for the property. The Pico Island Department of the Environment provides scientific expertise, while the municipal governments of Madalena (Criação Velha) and Sao Roque do Pico (Santa Luzia) exercise planning control (i.e. regulations relating to vine growing methods, local roads, and buildings).

Sustaining the Outstanding Universal Value of the Landscape of the Pico Island Vineyard Culture in the long-term will require ongoing coordination between the different levels of government in partnership with the local communities and land owners. The future protection of the 500-year old vineyard landscape will rely on continuing, effective, and realistic partnerships that support sustainable wine production in a way that continues to preserve traditional viniculture practices.

2.2. Other important values of the property

As analysed before, the justification of criterion (v) refers to an "extraordinarily beautiful human-made landscape" ascertaining that the property also has important aesthetic values. Whereas these values cannot be said to form part of the Outstanding Universal Value of the property, they are deeply interconnected with its land-use and landscape values. It is also important to recall at this point that the property was originally nominated as a mixed property, namely by then natural criterion (iii), equivalent to current criterion (vii), which refers to superlative natural phenomena or exceptional natural beauty and aesthetic importance. Although IUCN's evaluation however considered that this criterion was not justified it noted that

The claim of exceptional natural beauty and aesthetic importance is made for the combination of the stone walls of the site, the proximity of the sea and the backcloth of the volcano. However, the walls are not really a natural feature; there is no special reason to identify the seas

immediately off-shore; and while Pico volcano is indeed a spectacular mountain of great beauty, it is outside the nominated area (IUCN evaluation 2003).

It is also interesting to note that in the revised nomination submitted in 2004, the justification offered by the State Party for criterion (v) does not explicitly refer to the aesthetic values or beauty of the property. The nomination file includes a number of references to “beauty” but in relation to geological formations as well as to the aesthetic importance of the human settlements within the landscape.

On the other hand, the aesthetic values of the property are clearly identified and detailed in the management plan that was submitted with the nomination file, where it is stated:

Aesthetic values:

- An example of an unusual balance between the natural and the building heritage;
- A simplicity of forms, colours of materials and a balanced integration of the building heritage;
- An indivisible and harmonious unity formed by the Pico Volcano, the netting of the dark walls and the clear waters of the Atlantic Ocean (Management plan submitted with the nomination file 2004).

IUCN's evaluation had noted that the Pico volcano is located outside of the nominated property and so are the clear waters of the Atlantic Ocean referred to above. Nevertheless, both natural elements create a visual background that support the aesthetic values of the property. It can also be stated that the aesthetic values extend beyond the World Heritage property.



View of the landscape with volcano in the background

Interestingly, the management plan included with the nomination dossier presents a well-articulated analysis of the different categories of values of the property, which is similar to the findings arising from the discussions during the fieldwork. In this document the following categories of values are identified:

- Urban values;
- Architectural values;
- Social values;
- Landscape and agricultural values;
- Environmental values;
- Aesthetic values (already referred to above); and
- Archaeological values.

The description of these values also includes valuable information for the identification of the attributes that embody and convey those values.

From a methodological perspective, the different categories of cultural values are first analysed followed by the natural/environmental values. Combining the assessment of the values included in the management plan and the findings of the discussions during the fieldwork, Table 3.1 summarizes the other important cultural and social values of the property in a similar manner to that used for the property's Outstanding Universal Value in the previous section of this report.

Categories of values	Description	Attributes
Aesthetic values	Extraordinarily beautiful human-made landscape resulting from the proximity to the sea, the volcano in the background and network pattern of the <i>currais</i> .	<ul style="list-style-type: none"> - Harshness of the coastal setting and visual connectivity with the landscape; - The dominance of the volcano in the landscape; - The orderly pattern and extensive network of <i>currais</i>; - The simplicity of the built structures and their integration in the landscape; - The contrast of colours between: <ul style="list-style-type: none"> - the white waves and the dark lava fields and stone walls; - The dark stone walls and the green vegetation; - The dark stones walls of the traditional buildings and other built elements painted in red and white.
Landscape/ planning values	Important testimony of human settlement in a remote and challenging environment	<ul style="list-style-type: none"> - Pattern of human settlement in the island characterized by small and concentrated towns and maximum use of agricultural land; - Proportions and characteristics of the built structures in response to harsh environment and limited resource materials; - Other built structures associated with functioning of the society such as religious buildings and windmills; - Traditional construction techniques and materials.
Social values	Cultural identity, traditions and practices resulting from the constraints of an insular, remote and harsh environment.	<ul style="list-style-type: none"> - Farming practices; - Social practices and behaviours; - Cultural and linguistic expressions; - Traditional folkloric expressions; - Traditional gastronomy.

Table 2.2 Identification of the other important cultural values of the property and their attributes

This assessment of the other important values of the property is not exhaustive and reflects the limitations of how much can be learned about the values of the property in a short-period of time. In addition, as mentioned before, the identification of different categories of values is a subjective process and a different categorisation could have been proposed. It is also important to keep in mind that these values extend beyond the area of the nominated property.



Traditional building



Windmill



Cheeses locally produced



Church



Traditional folkloric practices

Because the property is included on the World Heritage as a cultural landscape it is recognised as the combined work of people and nature. Therefore, by default, the attributes of the property will be both natural and cultural, as exemplified in Table 2.1 above. The volcanic soil and dark basalt stones, for example, are important natural attributes of the Outstanding Universal value of the property. However, theoretically, it cannot be assumed by default that because a property is recognised as a cultural landscape, it necessarily has important natural values. The volcanic nature of a landscape does not automatically determine that the property has important geological values. In the case of Pico, it has.

When the property was initially nominated as a mixed property, namely by all four natural criteria, IUCN's considered that the property 'displays a number of interesting geological and physiographical features, including a good array of lava formations of recent date. However, they are neither exceptional nor complete (IUCN evaluation 2003)'. Nevertheless, the geodiversity of the Azores archipelago has been recognised at the international level, as a *UNESCO Global Geopark*. While this designation extends to the archipelago as a whole, some of the identified geosites are located within the boundaries of the property.

The Azores, located between North American, Eurasian and African lithospheric plates, represents a geo-hotspot with high geological activity and diversity. Being one of youngest islands in the Azores, Pico and its lava fields are of high geological and scientific value. As described in the nomination:

There are countless vestiges of basaltic eruptions (less explosive) in Pico's Vinicultural Landscape that originated either from Mountain of Pico, or from the various existing volcanic cones in the area... These eruptions gave place to, besides several types of pyroclastic materials, a-a type lava drains, locally designated as "biscuit ground", characterized by their rough surface and type pahoehoe lava ditches, locally designated as "slab ground", characterized by their smooth surface and for comprising a vast set of micro-relief and structures of rare beauty such as interlaced lava, pahoehoe toes, tumuli, pressure crests, and lava tubes, amongst others.

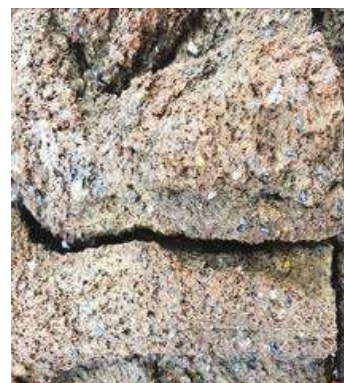
Due to the volcanic nature of the island and to the presence of basaltic type lava ditches, this place, as well as the whole island, presents us with a diversified speleological patrimony, as the presence of volcanic caves (lava caves and caverns) (Nomination file 2004).



Pahoehoe lava ropes along the coast



Pahoehoe lava tumuli along the coast



Lava rock with variety of crystallisations



Pico volcano



Exhibition showing geodiversity



Audio visual about volcanic activity

As mentioned in the Statement of Outstanding Universal Value, the property is part of the *Pico's Vineyard Culture Protected Landscape of Regional Interest*, equivalent to an IUCN Category V Protected Area, covering a total area of 3078 ha. According to IUCN's guidelines for applying protected areas management categories, Category V protected areas, called protected landscapes/seascapes, are defined as:

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values (Dudley 2008).

This definition implies that the protected area should have important ecological and biological values, in addition to cultural and scenic/aesthetic values already analysed. The values' analyses included in the management plan included with the nomination file, states that the property also has:

- important fauna associated with endemic vegetation mainly in areas where agriculture does not exist or has been abandoned;
- endemic species that form areas of primitive vegetation a few relics of the Tertiary such as *Azorina Vidalii*, listed as an endangered species in IUCN's Red List of Threatened Species;
- seven subspecies of endemic terrestrial birds and nesting of a sea bird along the whole area.

Thus, the relict vineyards, and to a certain degree even the continuously used ones, provide important habitats for a variety of species. Growing grapes and other fruits attracts several animals for feeding, and the stone walls offer shelter and nesting areas for birds and bats. These areas are carefully monitored to prevent other species such as rats, wood pigeons and blackbirds (*Turdus merula*) which could harm the grapevines. To do so, gaps in the stone walls are sealed, also in order to maintain their stability.

The *currais* create a certain micro climate, by reducing the effects of heavy winds and consequently supporting the growth of grapevines, but also other plant species endemic to the region. The rehabilitation of abandoned vineyards therefore sometimes requires a balance with the protection of important fauna and flora.



The stone walls offer shelter and nesting areas for a number of species namely the Cory's Shearwater (*Calonectris diomedea*) locally called *cagarro*



Rewilded abandoned vineyards



Canary Islands Dragon Tree (*Dracaena draco*) (Vulnerable, IUCN Red List)



Azonina Vidalii (Endangered, IUCN Red List)

2.3. Relationships between cultural, natural and social values

This section examines the interrelationships between the cultural, natural and social values of the property. Because the property is included on the World Heritage List as a cultural landscape it is recognised as the combined work of people and nature, and therefore its Outstanding Universal Value is interrelated with a wider social-ecological system with important geological and biological values as well as other cultural values. These values contribute to the property's overall significance.

The remoteness of the Azores archipelago, the harsh climatic environment and the volcanic nature of the island were and continue to be critical determinants for how the property represents an outstanding example of the combined work of humans and nature. The volcanic nature of the soil and extensive fields of lava flow meant that fertile soil was scarce, requiring the first settlers to find inventive methods of agriculture to ensure their survival. They therefore planted crops that could adapt to such constraints namely by planting the grapevines in the cracking holes of the basalt rock.

To protect the vineyards and other crops from the strong winds and continuous seawater spray, which strongly inhibited their growth, successive generations of farmers constructed an orderly and extensive network or *currais*. These *currais* not only offered shelter for crops but also allowed to make use of the excessive rocks that needed to be cleared from the plots. The black volcanic basalt is also used as the main building material for most types of constructions, contributing to their harmony with the surround

environment. The characteristics of these buildings also reflect their adaptation to the harsh climatic conditions, with low heights and small openings.

The availability of freshwater was another factor which made human survival on the island difficult. The first settlers discovered potable underground water, which they made accessible by the creation of tidal wells. Many of these continue to be in use.



Tidal wells

The remoteness of the Archipelago, located in the middle of the Atlantic Ocean also contributed to ecological and biological values of the property and its wider environmental context, resulting in a rich endemic fauna and flora.

The combination of the natural and human features that constitute this landscape results in whole that is more than the sum of its component elements but forms an indissociably social-ecological system. The diagram below attempts to describe graphically the relationships between the different elements that constitute this system and the values of the property.



2.4. Recommendations

The diagram above shows how the natural and cultural values are interrelated and reflect the human interaction with a challenging environment. It also demonstrates that the cultural values are sustained and deeply determined by significant natural features and the environmental context of the place. What also becomes clear is that the aesthetic values of the property derive from the interlinkages between the natural and cultural attributes.

As mentioned before this analysis should not be considered as exhaustive but rather as a starting point towards a more in-depth identification and understanding of the values and attributes of the property. The discussions held during the field visit, even though limited due to the time constraints, were fruitful in understanding how the cultural and natural values and attributes of the property are considered to be interrelated with the wider social and environmental system. These discussions have also generated a number of recommendations towards strengthening the management of the property, as follows:

- To carry out a more exhaustive assessment of values and attributes of the property not merely in terms of listing them but better understanding the interrelations and interdependencies between them;
- Since the property was included on the World Heritage List, the landscape has experienced changes. Therefore, it would be helpful to reflect on what represents a healthy dynamic between the relic and continuously in use parts of landscape as well as the historical testimony of different phases of landscape evolution should be identified and maintained;
- Explore how different designations (e.g. World Heritage, UNESCO Global Geopark, Protected Area) can be better articulated from a values perspective;
- In regard to the aesthetic values of the property, reflect how these values extend beyond the property and its buffer zones and therefore, give further consideration to the protection of the wider setting and visual connectivity with important elements namely the Mount Pico volcano;
- The historic values of the property seem to need further consideration namely by understanding better the evolution of the landscape as well as the human settlements and the historic buildings. This could also be potentially important to better consider the conditions of authenticity of the property particularly in regard to the slow and cumulative effects of change in some of the attributes;
- Consider how a better understanding of the values and attributes of the property could help reinforce the monitoring of their state of conservation, particularly for the cultural heritage attributes;
- Consider how a better understanding of the Outstanding Universal Value and the interconnections with the other important values of the property could help with interpretation and educational programmes;
- Consider conducting an assessment of the ecosystems services and benefits derived from the property and how this translates into economic values. It could also be helpful to carry out an economic valuation of the real cost of wine production, and how these could potentially affect the protection of the property in the long-term, given that at present, traditional viticulture heavily depends on subsidies and financial help from the government.

3. Exploring how to develop a resilience thinking approach for the property

3.1. Context

For this section we have attempted to combine aspects of resilience thinking theory used in relation to social-ecological systems, with the ideas and the wider discussions generated during the field visit. Due to the short duration of the visit, and as a new topic to part of the team involved in the fieldwork (both at the international and site levels), findings and suggestions reflect only an overview of how a resilience assessment framework for the property could be approached. To take this forward, more work is required to develop resilience thinking in a way that would help inform management planning for the property and the wider social-ecological system.

Definitions of resilience abound and different views of what resilience means depend largely on the context in which it is applied. Most writers and publications about resilience agree that it has to do with 'the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop (Stockholm Resilience Centre n.d.)'. For the purpose of this report, two resilience-thinking publications were used to structure the key elements of a resilience assessment framework for the Pico Island namely:

- Assessing Resilience in Social-Ecological Systems: Workbook for Practitioners (*Resilience Alliance 2010*)
- Applying Resilience Thinking: Seven Principles for Building Resilience in Social-ecological Systems (*Stockholm Resilience Centre 2014*)

Given that the frameworks included in the above publications are not heritage specific and given the short duration of the field visit, they have been simplified and five important steps identified:

1. Identifying and describing the system;
2. Understanding system dynamics;
3. Fostering adaptive governance;
4. Synthesizing findings;
5. Translating resilience thinking into a set of practical actions.

To translate the theory into practice and aid understanding, the following sections present key concepts related to the steps identified and describe how those concepts could be applied and detailed in a resilience assessment for the Pico Island. Finally, (in section 3.3), we present a series of partially completed action tables that apply a resilience thinking approach to the key issues and could help translate findings from steps 1-4 into a list of actions that can be embedded within the management system.

3.2 Theory into practice

Resilience is a concept that has gained a lot of traction in the past years and has evolved from an initial idea of the capacity of a system to persist in an original state to incorporate notions of adaptability and transformability (*Folke et al. 2010*). Heritage places like any other system are not static but constantly changing. Understanding better how a heritage place such as Pico Vineyard Landscape functions as a system, by developing a resilience assessment, can help develop strategies for coping and directing both known and unexpected change.

3.2.1 Identifying and describing the social and ecological system of Pico

The first important step towards a resilience assessment involves defining the social-ecological system to be assessed. The concept of 'social-ecological system is central for resilience thinking since 'Resilience is fundamentally a system property (*Resilience Alliance 2010*)'. Social-ecological systems can be defined as 'linked systems of people and nature' (*Stockholm Resilience Centre n.d.*)

A first step towards identifying the system to which we want to build resilience is to define the physical boundaries of that system. This can be done in multiple ways. One is to look at the different component parts that can constitute that system namely:

- Cultural
- Political
- Social
- Economic
- Ecological
- Technological
- Other

An understanding of a system based on the analysis of these different components can be quite different and may require consideration of different physical boundaries. Most importantly, such boundaries may not necessarily coincide with the boundaries defined for Pico Vineyard Landscape as a World Heritage Property. The reason for this is that the boundaries of the property were defined from an identification perspective, that is, related to the area which contains the attributes that convey the Outstanding Universal Value of the property. However, this area is influenced by a wider social, ecological and economic context that is equally important to consider in a resilience assessment, since some of the key issues influencing how that system functions and which can cause disturbances to it, may originate from that wider context.

Identifying the main issues of concern will also help defining the physical boundaries of the system on which the resilience assessment will focus on. From a World Heritage perspective, these issues can be equated with the factors affecting the property. Why is this important? Most World Heritage properties and other heritage places are affected by a significant array of factors affecting their state of conservation. However, not all factors will affect the property in the same manner nor necessarily all of its attributes. Thus, a fundamental question to ask from the beginning of a resilience assessment is: resilience of what and to what?

Although there is a tendency to talk about the overall resilience of a system, if we are to develop clear strategies, it is impossible to build the resilience of all components of that system to all the issues that raise concerns, and at all times. Considering all these parameters, based on the discussions held during the field visit, it was considered that for the case of Pico Vineyard Landscape, a resilience assessment would need to be considered for the whole Pico Island as the wider social-ecological system.

It is also necessary to consider the temporal scale for the resilience assessment: over what timeframe do we need to consider change and resilience? Are we looking at a short-term management cycle linked to the duration of a management plan or is it important to consider a longer-term perspective? This will also be dependent on the factors or change-drivers that the resilience assessment will prioritise. Overall, there is no straightforward way to define the boundaries of a system and it will be necessary throughout the assessment to revisit parameters defined in the early stages of the process as new considerations emerge.

3.2.2 Understanding system dynamics

In this section we try to better understand the system dynamics. How do the various components interact at the system level? What are the change-causing factors that may necessitate a resilience approach? Over what timeframe do they operate? Are there thresholds that could tip the system into an alternative state?

As mentioned above, it is not possible nor advisable to attempt to build the resilience of all aspects of system to all the factors that can lead the system to change. Hence, amongst the factors affecting the system, it is important to prioritise which ones will be taken into consideration in a resilience assessment. This will help answer the critical question: resilience to what? Which makes it necessary to simultaneously address the question: resilience of what?

From a World Heritage perspective, when identifying the factors affecting a property such as the Pico Vineyard Landscape (such as for example as part of the Periodic Reporting exercise), the exercise is often limited to a compilation of an unprioritized list of different factors followed by the determination of the necessary management actions to address those factors. However, it is likely those factors will not affect equally all the attributes of the property, nor with the same level of impact. Hence, it is important

to deepen that analysis. First, it is important to understand the root causes underlying those factors in order to avoid just treating the effects of those factors and consequently their recurrence. Second, it is important to clearly identify the extent, severity and impacts of those factors. For instance, based on the discussions held during the field visit, it was considered that three important factors should be looked at in a resilience assessment for the Pico Island, namely: ageing population, level of political support, and commercial drivers for wine-production. If we consider the first as an example, it would be important to determine what section of the population would need to be considered: the farmers cultivating the vineyards? The winemakers? Both? In addition, it would be important to gather data to have a clear perspective of the severity of the issue. Are we talking about 10%, 20% or more of the relevant section of the population?

When identifying the factors, it is also important to consider how those factors can drive changes in the system and if those changes can be slow and predictable or fast and unexpected. A factor such as population ageing will be associated with changes that may be predictable but could be slow or fast, depending on the circumstances. If a large proportion of the wine growers, for instance, have already reached retirement age and are not being replaced by a younger generation, this can lead to the abandonment of the vineyards in quite a short period of time. Therefore, it is important to have data to inform this type of analysis to support informed decisions rather than base them on assumptions.

Depending on the type of factors, it is also advisable to assess how those factors influenced and led to changes in the system in the past. For example, if hurricanes were considered as a potential factor, it would be important to build an historical timeline to determine how often the system was affected by it in the past, the severity of the impacts, to what extent the system was affected as well as how long did it take the system to recover and if any adaptations and transformations to the system resulted from it. This approach will also help identify potential future states. Here is an example of this approach in relation to the traditional cultivation techniques:

- **Current:** traditional techniques help sustain landscape aesthetics and as a living cultural tradition; they are also the most sustainable way to produce the raw material for a high-quality wine given environmental and climatic conditions but which is considerably subsidized.
- **Historical:** the vineyard landscape reflects the history of the island and how people adapted to a harsh environment and past disturbances such as *phylloxera* disease.
- **Future:** scenarios may consider how changes at the political level, which for instance could cease or reduce subsidies, and at the environmental level, (coastal erosion, climate change, new diseases), would require further adaptations and transformations.

If a considerable portion of the components of a system, or a critical one, changes, it could tilt the system in an undesirable state and lose part of its identity. From a World Heritage perspective, this would be the case when key attributes that convey the Outstanding Universal Value of the property are lost or severely damaged. Therefore, it is important to identify potential thresholds that represent a breakpoint between two alternative system states. For Pico, we could think about what constitute critical thresholds for the following variables, for example:

- loss of traditional knowledge related to agricultural practices and wine-production;
- shortage of labour;
- intensification of cultivation;
- increased storminess (due to climate change) lead to coastal erosion and destruction of the currais.

For example, if the labour force reduces to a critical point (which would need to be determined based on specific data), a threshold may be crossed where traditional methods of cultivation become too expensive and more intensive or mechanised systems need to be adopted to maintain wine production, (but might be difficult to introduce because of terrain constraints and the configuration of the currais). This could lead to abandonment of the vineyards, and associated loss of local knowledge and skills. To determine this type of threshold, that is, the labour force required in terms of numbers and skills, it is necessary to ask: how can this be measured? What data is needed? What could happen if the labour force drops below that threshold or increases considerably in relation to that threshold?

Thinking about thresholds will sometimes require a consideration of alternative states. Here it is important to understand both the values and attributes of the current system, and how much flexibility there is for those attributes to adapt and transform and what key attributes need to persist in order to keep the identity of the system.

3.2.3 Fostering adaptive governance

Once the temporal and physical boundaries of the social-ecological system and its main component parts have been identified and its dynamics better understood, it is important to examine to what extent and how quickly can existing governance and management systems respond to changes. Therefore, in this section it would be necessary to consider the critical elements of these systems, and how they operate and interact. Who are the important actors (institutions, rightsholders and stakeholders)? How are decisions made? Who holds positions of power and influence? How do these different actors interact? This is important because responses (or lack of response) to change will reflect the interactions and power balances between the different actors.

Society is made up of a myriad of rules, some formal, others informal, such as cultural practices that determine how people interact with the ecosystems and the environment around them. Formal institutions consist of codified rules such as constitutions, laws, organized markets, and property rights, while informal institutions include the rules that express the social or behavioural norms of a family, community, or society. Together, these interacting institutions form the governance system that guides how society functions and makes decisions (*Resilience Alliance 2010*). As such, governance can be defined as the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken and how rightsholders and stakeholders have their say.

In general, most of the elements of such governance and management systems are the result of years and even decades of political and public administration considerations and negotiations and therefore slow to adapt to changing circumstances. On the other hand, as explored above, changes in a World Heritage property or other heritage place can occur rapidly requiring actions to be deployed quickly in order to avoid the system to pass defined thresholds and shift to undesirable states. Governance and management systems that are flexible and involving collaborative decision-making processes can facilitate resilience responses by encouraging continuous learning, experimentation and innovation.

In the framework of a resilience assessment, the following steps can help gather a better understanding of the readiness of the existing governance and management systems for a World Heritage property to quickly and adequately respond to change. First, it is necessary to have a clear understanding of the actors involved in the governance and management of the Property. A stakeholder mapping exercise may help to visualize the governance system. For example:

Political	Commercial	Civil society
National Government	Winemakers	Local communities
Azorean Government	Tourism sector	NGOs
Pico Governance		Community groups/ reps
Municipalities		Influential individuals
Management agencies		Landowners

Beyond the simple list above it would be necessary to consider who is responsible or accountable and who need to be involved or consulted or kept informed about the management of the property. In addition, it is important to consider the relationships between actors: how do they and their interests interact? Who holds power and how is power exercised? Consider also if decision-making processes are clear to all those involved, transparent and inclusive. Are actors willing to engage in collaborative decision-making? Is decision-making concentrated within a single group or institution, or is a diversity of institutions accepted by most actors?

Another important aspect to analyse is the ability of the management system in place to monitor how factors affect the property. This is crucial in order to identify how those factors can potentially change the system. Therefore, it is important that site managers invest in monitoring programmes that focus on

the key elements of the Outstanding Universal Value of the property and the attributes that convey that value and how factors are affecting those attributes. It is particularly important to monitor slow variables since these are often overlooked, either because their impact might not immediately be visible or because they might require measures that are difficult to tackle. For instance, going back to the issue of population ageing and potential loss of knowledge and skills, and their impact on the traditional agricultural practices and wine-making, this type of factor or variable might be more demanding to monitor (and less visible) than the rate of abandonment of the vineyards. Yet addressing the issue (particularly if less unattended for long) will require considerable human and financial resources as well considerable amounts of time.

Monitoring programmes should also address the cumulative effects of the different factors affecting the property, as some will generate feedback loops amongst them that can change the dynamics within the system.

Overall, site managers need to start adopting and fostering adaptive governance and management systems which follow dynamic approaches and embrace complexity and unpredictability and move away from control and command systems based on business as usual.

3.2.4 Synthesising findings

The information gathered throughout the resilience assessment and the discussions associated with it, should be summarised in order to provide a clear rationale around the most important issues from which to develop a clear set of resilience actions.

What are the main issues for concern? components of the system that we need to be concerned with? For example:

- Subsidy for traditional cultivation
- Climate change impacts on traditional cultivation
- Demographic change
- Building development drivers and regulation (including enforcement)
- Wine production ethos e.g. quality vs quantity.
- Tourism carrying capacity
- Overlapping designations – potential for conflicting objectives
- Wider ecological impacts – e.g. use of chemicals

What are the *key components* of the social-ecological system that are relevant to the main issues and contribute to the identity of the system? (below components were identified during the field visit in Sept 2019)

1. Traditional methods of cultivation and other traditional practices;
2. The people who practice those traditions;
3. Land-use patterns;
4. Built structures;
5. Underlying biological and ecological processes that contribute to the functioning of the system.

Who are the main stakeholders in the system?

- Develop a detailed “map” of key stakeholders

What are the main disturbances, disruptions and uncertainties? For example:

- Climate change
- Demographic change
- Political change
- Commercialisation (wine production, tourism)
- Ecological impacts

3.3 Translating Resilience Thinking into a set of practical actions

In this section we offer a mechanism to capture the findings from the resilience model (sections 1-4). This mechanism provides for an assessment of the “risk” around the need to develop resilience measures to address the main issues for concern. There is a table presented for each of the main issues. Each table frames a series of questions around the resilience of key components of the system from which a series of actions can be developed.

Some guiding questions:

- What are the environmental, social/cultural and economic impacts of the main issue(s) that were identified?
- Considering the main resources that are central to issues identified, what are the key components that change relatively slowly over time? Which ones change relatively fast?
- Have you clearly identified the values and attributes of the system that you (and other actors) wish to maintain, even when the system is undergoing change?
- How might those values and attributes be reflected in alternative states – after a threshold is crossed?
- Who are the key actors and what role(s) do they play in the system?
- What are the main ecosystem and cultural/social services of most importance to rightsholders and stakeholders?
- What are the main disturbances to the system? What are the social and ecological impacts of disturbances in the system?
- Are there power dynamics in the social domain of the system that significantly influence how the system is structured and how it functions?

Presented below is a table, addressing one of the main issues identified and how practical actions should be framed and presented. We have made an initial attempt to populate the table for illustrative purposes only. Note that this is just a proposal and to develop a detailed resilience approach, this approach would need be revised and further work undertaken.

Key issues	Practically worded questions framed around key components of the system dynamics	Analysis (brief summary) include any interconnected impacts eg on the wider ecological system, socio-economics, landscape aesthetic etc (identified earlier)	Risk level			Resilience measures
			Level of confidence that the system could be negatively impacted	Severity of impact	Overall risk	Actions to mitigate risk – outline only (including monitoring metrics)
Level of subsidy for viticulture	Will the various arms of government continue to financially support traditional cultivation methods?	The current government structures clearly recognise the value of supporting viticulture in the property. However, government funding priorities can change. A loss or reduction of subsidy for traditional cultivation would impact the whole system. It is important to better understand the repercussions and the wider socio-economic implications of future changes in support.	3	5	12 High	Undertake an economic analysis of the benefits to the wider economy. Eg for every 1 EUR invested generates x EUR for the local economy. Wine industry jobs, tourism benefits Explore alternative socio-economic models of cultivation. Advocacy plan to promote traditional approaches
	Would a reduction in subsidy drive a shift from traditional to more intensive methods of cultivation and loss of OUV?					
Climate change impacts	Could increased storminess and shifts in drought cycles impact traditional cultivation methods?	The climate changing within certain parameters will allow cultivation, as practiced, to continue. We don't yet have a full understanding of those parameters.	2	5	10 high	Identify the key climate parameters for traditional cultivation methods to operate. Propose and trial resilience measures that seek to maintain the traditional techniques and to maintain the landscape value.
	Other?					
Demographic change	Given traditional cultivation is currently undertaken by an ageing					

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	demographic, does this mean there is no future workforce?					
	Does an ageing demographic represent a threat to maintaining local/traditional knowledge and skills?	Yes. Critical knowledge is held in a relatively small pool of individuals. Grafters for example. Loss of this knowledge would impact on traditional cultivation methods				In partnership with wine producers create a bursary/sponsorship with education establishments to offer training in traditional cultivation techniques. Instigate an annual grafting competition to celebrate this local tradition.

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3.4 Recommendations

The fact that the vineyard culture and landscape persist today is testament to the past and present resilience of the social-ecological system of Pico. Change is a constant, it can be fast or slow, predictable or unpredictable. It is happening right now and future shocks will happen. While the system can absorb certain level of change there is always a risk that change could negatively impact on the system or even tip it into an alternative state. Resilience thinking offers a framework to consider change at the system level and assess its impact and develop actions that will help build resilience. In practical terms, the importance of monitoring of the key identified variables that could impact on the resilience of the Property, must be adequately resourced.

The suggestions included in this report attempt to provide a framework on how resilience thinking could be approached and linked with the management planning framework that is currently under review. We have provided a simplified model of existing resilience assessment methodologies which could and should be further developed and tailored to the specific social, political, economic context of Pico. We also recommend that this type of assessment is undertaken as a collaborative process among the different actors involved in the governance and management of the World Heritage property.

4. Management of the property

In this section we review the management system and governance structures that apply to the property. The systems reviewed include wider governance, at the Island and Regional levels, as we have seen the management and governance of the property cannot be separated from its wider social and political context. We identify some of the key political challenges and current strategies that are of high relevance to the protection and management of the property in both natural and cultural terms.

4.1 Management system and governance

4.1.1 Pico Island World Heritage management plan

The management system of the property:

- *identify and engage with key stakeholders (to the extent possible during the mission program)*
- *explore how policies and management arrangements provide an adequate framework to protect the cultural and natural values of the Property*
- *explore how the management system could be improved to take into account the interconnected character of natural and cultural values*

During our field work, we were accompanied by and met some of the important stakeholders, mainly winemakers, visited the wine cooperative, and met the Director of the wine museum who showed us his Museum and its surroundings (a remarkable dragon tree forest), and on the last day, we had a meeting with some members of the Advisory Commission.

4.1.2 Description of the management system

4.1.2.1 The Autonomous Region of the Azores

The Autonomous Region of the Azores comprises the surrounding ocean and its depths, defined as territorial waters and exclusive economic area; it is composed of 9 volcanic islands, very spread, composed of 3 groups, Pico being in the central group. Endowed with political, administrative and financial autonomy, the Region has its own Government and Parliament and specific laws, connected to the National Law according to the subsidiarity principles. The Regional Legislative Assembly is composed by 52 members, 4 of which represent Pico island.

Pico island has the representation of several regional departments, which directly intervene in the protected area, through the following bodies:

- *Regional Department for Housing and Equipment: - Administrative Section; - Housing and Public Works' Service; - Housing, Infrastructures and Equipment Service*
- *Regional Department for the Environment: - Nature Conservation Service; - Environment Service; - Ecoteca (an ecology library) of Pico*
- *Regional Department for Agriculture and Fishing: - Agrarian Development Service; - Forestry Service; - Fishing Delegate*
- *Regional Department for Economy: - Pico island Service; - Tourist Office*
- *Regional Department for Economy and Culture: - Pico Museum – including the Whalers Museum, the Whale Factory Museum and the Wine Museum*

Pico Island natural and cultural landscapes and biodiversity are protected by various laws, and it is interesting to note that, in this island, **Culture and Nature management has always been connected.**

Before the proposal of World Heritage listing, different measures had been taken to protect both Natural and cultural heritage, and one must remind that the first WH proposal was a Mixed site, and that the author of the proposal and now responsible for the listed cultural landscape, is the Secretaria Regional do Ambiente (Regional Department for the Environment)¹, and it is responsible for the management of the Property, on both point of views: cultural and natural.

As underlined in the Management Plan annexed to the candidature, the management of the Property is assumed by a new entity through the Directive Committee and the Support Office – but the type of management defined by this Plan is one of **alliance and partnership**. Furthermore, the essence of this landscape, beside its aesthetic value, is its **resilience quality**.

Legislation

- 1996 *Regional Legislative Decree n.º 12/96/A, June 27. Classification of Protected Landscape of Regional Interest for Vine Cultivating in Pico Island*
- 2002 – *Regional Legislative Decree n.º 10/2002/A April 2; Definition of specific measures for protecting and land use zoning in Protected Landscape of Regional Interest for Vine Cultivating in Pico Island*
- 2004 - *Regional Legislative Decree n.º 13/2004 / A, April 24, which regulated the use and soil transformation of the Protected Landscape area of Regional Interest for Vine Cultivating in Pico Island*
- 2006 - *Regional Regulatory Decree No 24/2006 / A, July 13 approving the Protected Landscape Management of Regional Interest Pico Island Vineyard Culture (POPPVIP)*
- 2008 - *Regional Legislative Decree n.º 20/2008/A, July 9 y, creating the Natural Park of Pico Island;*
- 2011 - *Regional Regulatory Decree No. 24/2011/A, November 23, Approving the Waterfront Planning of Pico Coastal areas (POOC)*
- 2012 - *Regional Legislative Decree n.º 15/20/12/A, Establishing the legal regime for preservation of Nature and biodiversity*
- 2013 - *Regional Regulatory Decree n.º 11/2013/A, August 2, Modifying the Organical Law of Regional secretary for Environment and See, approved by Regional Regulatory Decree n.º 13/2007/A, May 16.*
- 2014 – *Regional Legislative Decree n.º 7/2014/A, May 6, First modification of the Regional Regulatory Decree No 24/2006 / A of 13 July approving the Protected Landscape Management of Regional Interest Pico Island Vineyard Culture (POPPVIP), revoking the Regional Regulatory Decree n.º 24/2006/A, July 13*
- 2014 - *Regional Regulatory Decree n.º 24/2014/A, December 2014 Approving the grant funding system for the maintenance of viticultural tradition landscapes, currais and socialcos, and of traditional varieties orchards situated in protected landscape areas and costal strips, integrated in the Natural Park areas and in biosphere areas 2017*
- *Regional Legislative Decree n.º 74/2017, August 7, launching the revisal of the Regional Touristic Management Plan of Azores Autonomous Region, approved by the Regional Legislative Decree n.º 38/2008/A, August 11 2008 (POTRAA)*

4.1.3 Local studies

In 2000, an Inventory of the built heritage of the Property has been launched by the Regional Direction of Culture

- *Inventory of Azores Built Heritage – Lages do Pico*
- *Inventory of Azores Built Heritage – Madalena do Pico*
- *Inventory of Azores Built Heritage - São Roque do Pico*

¹ Now the **Regional Secretariat for Energy, Environment and Tourism**

- 2001 —*Protected Landscape of Regional Interest for Vine Cultivating in Pico Island; Implementation of SIG. Department of Agrarian Science of Azores Universities, José Machado*
- *At the same time, various University studies or books were edited on Fauna, flora, geology and speleology of Pico Island*

4.1.4 The management plan annexed to the nomination dossier

4.1.4.1 Goals

To start an active and integrated process of dynamic planning and management which allows the preservation of natural and cultural heritage, as well as the self-sustainability of the site applying for inclusion in the World Heritage list and its buffer zone.

4.1.4.2 Measures

The Plan proposes measures to ensure cooperation and synergies, instead of imposing unilateral rules. It is presented as a guide for a joint action, involving all partners, and not as a list of measures and actions.

Actions are put forward to be discussed with the different official bodies and owners.

They would:

- encourage the maintenance and the extension of the cultivated area
- the rebuilding and the revitalization of the building heritage
- the preservation and the dissemination of natural heritage
- a new integrated strategy for tourism and for cultural action and diffusion
- a better intervention on the territory and its monitoring
- the promotion of the wine produced in the region

As we see Nature, Culture and Economy are tightly interconnected.

Another interesting point is that since the beginning monitoring and change management were included in the strategy of the management plan:

The management proposals should be computer supported and monitored. A database has already been created for that purpose, built based on shared information and permanently updated, which will allow not only the preservation but also the dynamic management of the alteration of this protected landscape.

The Management Plan begins by a complete and precise description of the history and present state of the Property, not only of the cultural and man-made structures and attributes of the landscape, but also of its socio-economic system, as well as natural features and management objectives: fauna, endemic vegetation (renovation of the natural vegetation as a result of the decrease in size of the wine growing farms; this renovation includes the recovery of endemic *phytocoenoses*), but also exotic vegetation (proliferation of exotic vegetation along with endemic *phytocoenoses*, which sometimes endangers them).

It stresses specificities that could constitute some limiting or problematic factors

- the socio-economic fabric composed of an incipient and unsophisticated entrepreneurial issue due to the small scale of economic transactions; the relevant entrepreneurial bodies or associations are the fish factory, Cofaco, the Wine Growing Cooperative of Pico and the Dairy Agricultural Cooperative of Pico island

- a strong dependence on imports of consumption goods, mostly products for food, machinery and fuel
- a population mobility with a strong seasonal character, and an increase of temporary residence during the Summer months, due to immigrants (most of them coming from North America) and to the growing number of tourists
- a lack of labour force to work in the vineyards due to a shift to the tertiary sector and emigration
- an absence of a cadastral register which does not allow to indicate the size and the property owner. This mainly applies to the rural level
- a tourist sector presenting a tendency to grow, both at the most conventional level, that is, the increase of the number of beds, and at the complementary level through the existence of companies working in the area of Nature tourism

But it also stressed the promising attributes

- wine growing production as a source of wealth for the island
- the community which bears a strong working and affective relationship to the Property
- the endemic flora and fauna associated to it which are responsible for the rich biodiversity and originality of habitats; (though not being an explicit attribute of the OUV)
- the rural communities where the economic life is associated to local productions (wine, fruit, brandy and cheese) and to a seasonal social and cultural life
- the proximity to urban communities (Madalena and São Roque), where the whole tertiary, secondary and external (harbours and airport) activities are located
- lava fields with a high landscape value

This Management Plan must be articulated with other Territorial planning, and mainly the regime defined by POOC Pico, that is based on a model planning and development of the coastal zone articulating socio-economic and ecological dynamics use of resources and risk management, one of the main options arising from the National Strategy for Management Integrated Coastal Zone.

One may note here the **important interconnexion between Man and Nature**, that is due to the specificity of cultural landscape category and of this small island, but also to the fact that the Dossier and Management Plan were originated by the Environment Department.

We will see that this characteristic will even develop with the new management structure that is the Natural Park.

4.1.5 2004 Governance organization of the Pico Island Viticultural landscape

The Protected Regional Vineyards of Pico island include different levels of administration

- 1st level: The Directive Commission, the managing body of the area, is constituted by a President and two voting members (one of them representing the municipalities and the other is the Regional Department for the Environment). It issues mandatory opinions regarding all activities that imply land use and whose licensing is processed by the local authorities included in the Protected Landscapes. It has a land use regulation of its own that is consolidated through regional legislation, to which both private citizens and the local administration are subject. It was responsible for the execution of the Management Plan proposed in 2004, through a Management Technical Cabinet
- 2nd level: An advisory Commission, constituted by representatives of the multiple levels of local and regional administration, and other sectors of the Island's society, including nongovernmental associations. This Commission works as a forum for discussion and planning and it monitors the execution of the management plan

Two other bodies play an important role

- The Regional Wine Growing Committee plays a rather dynamic regulating role concerning the wine growing activity of the island, defined through a local territorial management system
- The Local Administration and the municipal management and decisions regarding land use, urbanism and planning

The Management Plan is following with a serial of 8 policies: *Requalifying and Protecting WH, Defend and promote the wine*, declined in 19 “specific objectives”: *To establish technical and legal mechanisms for the adequate requalification and preservation of the area applying for World Heritage and the buffer area; To establish methodologies for the preservation of the built heritage;* and in 21 “strategic objectives”: *To establish contract-programs with local administration regarding the physical planning of rural towns; To give priority to preservation actions in detriment of new buildings... Followed by 24 Actions, The responsible body is precise, as the proposed amount of financing; many of these actions are “intangible” (inventories, organization, planning), but some implies tangible works, such as, for instance: “Protocols with concessionary bodies of infrastructures for their correct setting” (1 000 000) we have seen buried electric lines realized thanks to this program, or “Creation of an Interpretation Centre in a building owned by the Regional government in the applying area of Lajido, integrated in the Wine Museum”, that we have visited (645 000).*

This part of the plan is not very understandable, since, in the presentation, the direct relationship between Goals, Objectives and each action doesn't clearly appear, and we had the feeling that, though they have done many interventions, these were done more empirically, rather out of a definition of priorities and a time planning.

In terms of Tourism there is no specific planning, but some principles have been drawn:

The only mention found in the description is the following:

“ Tourism, as a factor of economic development, can also be beneficial for the local communities, as long as it can concur towards the correct dissemination of genuine cultural values of wine growing, associated to other cultural and natural values (volcanic manifestations, the now extinct whale-fishing and crafts), and can work as a motor in the affirmation of different values.”

And in the Actions:

- *a new integrated strategy for tourism*

The tourist sector presents a tendency to grow, both at the most conventional level – that is, the increase of the number of beds – and at the complementary level through the existence of companies working in the area of Nature tourism;

- *Strategy:*
 - *To promote quality tourism on the island*
 - *To create support equipment to tourism*
 - *To encourage and support private citizens in their applications regarding the adaptation of large buildings in programs of rural tourism– SIDET;*
 - *To include the existing financial incentives in the program for the revitalization of wine cellars and machinery for tourism support – SIDEDEL;*
 - *To create financial incentives for the maintenance of natural ecosystems.*

As for funding, the Azores economy is largely dependent on European funds: in 2007-2013, it benefited of 966, 400, 000€ from EU, for a total public contribution of 224, 600, 000€. In the Environmental sector,

it amounted to 147, 500, 000€, versus 26, 000, 000€, one may suppose that some of the money was used for the launching of the Management Plan.

At the end, some information is given on the envisaged monitoring process.

In conclusion, this master plan was more a list of projects than a plan. In its defense, it has been done at a time (2002-2004) when ICOMOS reflections and guidelines on the subject were not developed, and it was certainly a rather adequate approach at the time, though a too short sighted in terms of possible dynamics and potentiality, in particular concerning tourism.

4.2

Current revisions to the Protected areas management plans

4.2.1

New Context

4.2.1.1

Governance

The responsibilities of the Department in charge of Environment has been modified in 2016, it is now the Regional Secretary of Energy, Environment and Tourism, a new organization showing which are the present “growing” sectors.

The responsibility and management of the World Heritage Property have been entrusted to The Natural Park of Pico, created in 2008, who are also responsible for all the protected natural areas of the island: (156km², 35% of the island surface area), as well as its maritime zone (79km²), thus facilitating the interconnection between Nature and Culture.

The management Team that we have met and with whom we worked, whatever their specialty, appeared well prepared, competent and dedicated to their task, as well in the Natural as in the Cultural field and used to **interconnecting** both approaches.

4.2.1.2

Management plan revision

Nevertheless, it also appears that the specificity of the World Heritage landscape has been drowned among all the protected areas, natural and cultural

1. Since the Pico Natural Park assumes the management of all the Island 22 protected areas, among which the Property (CZ 927ha, BZ 1924ha). It is the largest Natural Park in the Azores, a land area covering about 35% of its surface, on about 15 600ha, accrued by approximately 7 900km² of marine protected area
2. the area covered by the World Heritage listing (as well as areas **beyond** the buffer zone) has been classified as **a Protected Landscape** (IUCN Category V Protected Area, which are typical living landscapes) since 1986
3. In the present Management system, no differences have been made in the management rules applied in either protected areas, whereas the grants at first applied in the WH inscribed area, were later enlarged to the Buffer Zone, and then to the whole protected areas
4. Several management plans have been developed interesting either some part of or the whole protected areas

- *Regional Legislative Decree n° 13/2004 / A, April 24, which regulated the use and soil transformation of the Landscape area of Regional Interest for Vine Cultivating in Pico Island*
- *Regional Regulatory Decree No 24/2006 / A, July 13 approving the Protected Landscape Management of Regional Interest Pico Island Vineyard Culture (POPPVIP)*
- *Regional Legislative Decree n°15/20/12/A, 2012, Establishing the legal regime for preservation of Nature and biodiversity*

Beside specific Nature protection Programs, such as RAMSAR, Natura 2000, Geopark, and Reserves, directly managed by the Park, some other planning and Management documents have been prepared by other authorities, that also deal with the Property or the Park areas, among which one may cite:

- *The local land-use planning Documents*
- *Regional Regulatory Decree No. 24/2011/A, November 23, 2011, Approving the Waterfront Planning of Pico Coastal areas (POOC)*
- *Regional Legislative Decree n° 38/2008/A, August 11 2008 (POTRAA) (now in revision)*

A new management plan has been realized by the Park and is being presented to the Political Governance level, it should be approved at the end of 2019. The redactors of this Plan are totally familiar with the SWAT process.

A first draft, concerning only one part of the property (*Proposal of intervention for the Area of Protected Landscape of the Vineyard Culture of Ponta da Ilha*) has been shown to us, but we were told that the final proposal is rather different. Here is a resume of this extract:

- OB1. Maintenance and conservation of species of flora, fauna, habitats and ecosystems, as well as landscape diversity, with special attention to the priority endemic habitats
- OB2. Promotion of scientific and educational activities that contribute to the well-being of the population and develop a public support for environmental protection
- OB3. Regulation of uses and activities, minimizing threats to landscape stability
- OB4. Maintaining a harmonious, natural and cultural interaction through landscape protection, traditional uses, building practices
- OB5. Support for the development of lifestyles and economic activities in harmony with nature and preserving the traditions of the local community...landscape interpretation
- OB6. Encourage tourist and recreational activities according to typologies and scales appropriate to the biophysical characteristics of the area
- OB7. Contribute to the development of the local community through the benefits generated by the provision of services and sales of natural products

This new version of the management plan concerns not only the World Heritage inscribed areas but the whole 15, 600ha of landscape (and may-be even more if the maritime area is also included). It transcribes a real interconnecting approach between Nature and Culture, though it is supposed to cover both inscribed and buffer zones. One should wish that the definitive project is better balanced between Culture and Nature, and more heritage oriented, in order to enhance the Outstanding Universal Value of the Property.

The conclusion drawn by the Director of the Park, at the end of our fieldwork, was that, while preserving the now developed tight interconnection between Nature and Culture, as well as the virtuous expanding policy at stake in the whole natural part of the island, especially in terms of managing the abandoned or newly recovered "currais", it would be necessary **to individualize the management plan and rules applied in the Property**, to better respond to its specific OUV and attributes.

4.2.1.3

Viticulture

A specific office has been created for WH vineyards, the Technical Office of the Protected Vineyard, with a support of Natural Park, thanks to rangers' surveys, administration, and incentives (50%) first for architecture and currais in the inscribed areas, and buffer zone, and now to all protected areas. The Regional Budget amounts to 4 Million (2,350€/ha at most), and the Natural Park controls the use of the subsidies.

The OUV of the Property being a "unique" landscape created by winegrowers in a hostile environment, its maintenance as a living landscape is linked to its rentability, that was problematic in the beginning of this century.

This landscape showed grave signs of abandonment. The area of production was decreasing year after year, the producers were generally old and this activity was not anymore desirable. Nowadays, the falling trend seems have reversed. However, global competition is high, and since they can't produce a big quantity and with a large cost base, due to the difficult producing process, they must place themselves in "niche" markets, playing on the WH label, the "heroic viticulture", their specificity, and high quality. They must be very careful about the quality level of the wine and not to give in to the siren calls of fashion that changes very fast. Being in an Island or in a remote place, one doesn't always realize what are the high-quality world standard, when more and more good wines are produced, thanks to oenological progresses, in a near saturated market of more and more demanding connoisseurs.

On another hand one cannot but rejoice at the decision taken in 2014² of enlarging the grant funding system helping the maintenance of viticulturally tradition landscapes, currais and socialcos, to all the protected areas (even outside the WH area), and not only for grapes, but also to traditional varieties orchards. It is a resilient way of rehabilitating the landscape, maintaining the heritage and providing new revenues, and a recognition that the granting system initiated for the Heritage Landscape has proven its effectiveness.

The World Heritage inscription has been **the motor of an incredible change** in Pico viticultural landscape, and in all the abandoned vineyards of the Natural Park. Since 2004, the currais in good state of conservation and in use have tremendously increased from 120ha to 800 ha that been rehabilitated and now in production.

Moreover, the trend to change the way of vine growing, abandoning the currais for a modern planting system in line, that proved to be unfit to the climate but to which one of the field work team witnessed in 2011 and 2013, has been totally replaced by reviving and developing the old currais tradition, despite the effort it demands; moreover, when the winegrowers were getting old without a replacement, one see to-day young people or new-comers from other sectors taking the relay, while the price of grape has got from 1€/kg to 3 to 4€. The operational winegrowing enterprises have passed from 120 in 2004 to 279 today, while in the same time the number of wineries have much developed, one wine grower having even created a 120ha estate, the cooperative has nearly doubled its surface and architecture and housing is in much better conditions.

Pico has been listed as a Região Demarcada (Controlled Appellation) by a Regional Decree-law nr. 25/80/A from September 16th, and the wine produced and commercialized in it as Vinho Licoroso em Região Determinada (Sweet Wine in a Specified Region) by the Decree-law 17/94 from January 25th. In 1997 the brand Lajido was launched in the market by the Adega Cooperativa Vitivinícola (the only Wine growing cooperative) of Pico island as an expression of the original wine growing of the area.

² Regional Regulatory Decree n.º 24/2014/A, December 2014, see above p. 2

The quality is in great part due to the quality of the variety and grapes, weather, health conditions and maturity of the grapes, but also to the selection during the crop, (not leaving leaves, stems, rotted bays), and of course vinification. In some of Pico wines further progress is possible.

The adaptation to Pico climate of biological wine-growing and biodynamics, that are successfully developing mainly in the more famous vineyards in France and other European countries, could be launched, not only out of an ecologic necessity, but also because consumers, especially the young ones, are more and more looking for that specific category of wines.

One must not forget that such a rapid shift can go both ways; wine markets, granting capacity and climate or phytosanitary conditions may change, sooner or later, fast or slowly, and some reflection could be given on how to adapt to these new conditions.

4.2.1.4 Tourism

Tourism is now part of the same Regional Secretary as Environment (and Energy) with sustainable development as a key goal.

The Island presents many diverse attractions for sustainable Tourism: a beautiful coast with a lot of small natural harbors or lagoons, an interesting architecture, an extraordinary natural, cultural, maritime setting, a volcano, (the highest point of Portugal and the 7th wonder of the Azores), caves, museums, and a lot of remarkable source of interest, for curious people or specialists: vines and wines, architecture, landscape, lava and geology, speleology, fauna (cagarros, gypaetes, bats, insects, fish and whales), flora (dragon trees, local floristic varieties), religious or traditional feasts and rites, local gastronomy, navigation (motor or sail boat, fishing, diving, trekking), and so on.

Tourism was not felt as an important development factor in the previous Management Plan, though it should become one, either in long stays with a diversity of offers, or for a shorter time in complementarity with other islands. But, in relation to the tourism strategy, the Park has chosen a very sensible way: instead of authorizing big developments, they favour small ones, mostly in rehabilitating ancient abandoned building (manors, storehouses, distilleries), or small private housing, scattered all along the coast or inside the island.

The Regional Government of the Azores has based its Tourism Strategy on the high value of nature, landscape, flag species and outdoor experiences with a strong environment friendly label. Pico Island offers the perfect scenario to enjoy such nature-based tourism activities, welcoming around 15,000 tourists per year, equivalent to the number of residents on the island.

A Touristic Management Plan (POTRAA) has been launched by the Autonomous Region in 2008, its revision being first proposed in 2015, and decided in 2017. It has not been possible to consult the complete 2008 version, only one general outline being accessible to the public, that seems to be the template for the future document; it presents 7 chapters: Territorial Management tools, Territorial conditions, Territorial Monitoring, Uses and Activities, Landscape, Studies and projects (presenting only 3 headings: Lagoons, Coast and Land use), Bibliography. Under Landscape heading there are references to 2 Texts: Azores Landscape Book, and European Convention for Landscape, and 1 other text is cited elsewhere: the POOC³.

³ *Regional Regulatory Decree No. 24/2011/A, November 23, Approving the Waterfront Planning of Pico Coastal areas (POOC). See pp.4 & 5*

Integrated in the research project SMARTPARKS, a survey revealed the importance assigned to Pico protected areas and coastal zone. Among coastal and maritime activities, bathing and whale watching are the most frequent activities (57% and 44% of respondents, respectively) and 20% of respondents think whale watching should be promoted. This exploratory study gathered important information for decision-making agencies in respect to problems to be solved and possible solutions through tourism, namely application of a fee system to help managing and conserving protected areas.

4.2.1.5

Risks

Many risks exist and measures must be taken to either manage them to limit their impact on winegrowing, landscapes, fauna, flora, biodiversity and human welfare.

In 2019, the legislation requires the Government to provide natural hazard mapping that should contain technical information safeguarding the exposure and vulnerability of the territory to floods, floods, slope movements and permanent gaseous fumes. The information will be integrated into special and municipal spatial planning systems. The seismic risk is also evident in this hot spot area, but apparently, as well as the risk of diminishing funds and subsidies.

Potential environmental consequences of inadequate decisions:

- Energy: renewable energies and energy savings are necessary, and have already been applied in the Islands, but solutions must be found to minimize their impact on the landscape or the biodiversity, or even forbid them when it is incompatible with the OUV or with fauna and flora preservation. Research and innovation must be launched to find suitable answers, that often are found in small individual devices than in big equipment. The use of biomass from invasives, for instance could be a lead, or of geothermy, under the condition of their architectural, landscape and ecologic integration
- Maritime hub: this project, wherever in the Azores carries risks for the environment of the whole archipelago: the enormous necessary infrastructure would have a significant impact on the landscape and the submarine flora and fauna. Risks of fuel emissions after an incident or a degassing, of storm related container loss. The risk for to whales, a touristic and economic loss of course, but moreover the disappearing of a very important species: according to a recent study an average of 140 whales are killed every year due to their encounter with shipping; however their role in the alimentary chain of fish, in the development of phytoplankton and krill and also in helping by their iron rich dejections ocean CO₂ absorption, has been totally underestimated

4.2.2 Strengthening the socio-ecological resilience of the Property

Wines are already being exported to niche markets which have great potential for growth and added value. Associated with this area, the role of wine tourism cannot be overlooked, which could benefit to small vineyards by combining production with landscape, gastronomy and rural tourism. These initiatives thus seek to increase the positive trend towards diversifying agricultural production, contributing to reducing the commercial deficit of some regional agricultural products, and using, through innovative initiatives, the use of invasive plants. The invasives, especially *Pittosporum undulatum*, though fragrant and beautiful when in bloom, constitute by their dynamic growth a big problem for biodiversity and currais maintenance. However, they could be used in many ways, that could generate a new economy and help their management: they are already source of a very fine honey, but their fibers, biomass, fragrance, wood, bio-chemical and therapeutic qualities could be exploited on a large scale. In the same way, many local plants could be used for their therapeutic, tincture or fiber qualities, that are nowadays sought after.

The 'Terra Açores' project was created as another facet of this sector. It consists of uncultivated public land which will be made available to young agricultural entrepreneurs, promoting diversification and

contributing towards reducing imports, it could be helpful for diversifying soil use and incomes in Pico Island.

Another document has been enacted in 2011, the POOC⁴, a special Territory plan having the nature of administrative regulation with which the municipal plans and inter-municipal spatial planning must conform as well as programs and projects, whether public or private. This plan establishes safeguarding regimes for natural resources and values, setting the uses and the regime management compatible with the sustainable use of the specific objectives.

- safeguarding and environmental valorization of resources and landscape, in particular water resources
- protection and enhancement of natural ecosystems of interest for nature conservation, either in the area terrestrial or marine environment
- the minimization of risk situations and impacts environmental, social and economic issues
- the classification and enhancement of bathing areas
- the orientation of the development of activities specific to the shoreline (but for the ports)
- the promotion of the population's quality of life
- the improvement of transport and communications

It proposes many interesting measures contributing to the welfare of population and preservation of environment, its limits including some part or the totality of the core zone (that is not very clear, in absence of a precise map, but the Property is cited in the text), and it must be harmonized with the WH management plan and OUV (with its international value), and with the other planning documents, that are lower-ranking than the POOC.

⁴ *Regional Regulatory Decree No. 24/2011/A, November 23 2011, Approving the Waterfront Planning of Pico Coastal areas (POOC) See pp.2 &4*

4.3 Involvement of stakeholders

We have been accompanied during our visit by a winegrower, representing her profession, we have met a cheesemaker, a honey-maker, various wine growers, the head of the Wine cooperative. We have been struck by their involvement, their spirit of cooperation, conviviality and readiness, what was also true of the Park representatives.

On the last day of our field work, a meeting was organized by the Park with some stakeholders including, members of the Advisory Commission, the Mayor of Maddalena, various wine owners, the Director of the Cooperative, representatives of Departments (Agriculture, Forest, Culture), the responsible for the AOP (wine Regulation Authority), of a local association, a Regional representative.

After a presentation of the field work members, a presentation was made on the Connecting Practice project and the roles of ICOMOS and UICN.

After a presentation in Portuguese of the finality of the Connecting Practice project, and its two first phases, the aim of the present Phase III was explained: centered on organically involved Cultural landscapes, its main objective being to strengthen resilience of sites.

This meeting and other encounters with the various stakeholders prove not only that they are fully dedicated to their Island and way of life, despite the difficulties, but that they adhere to the goals of the Park and recognize the important role it is playing in the sustainable development of the Island.

4.4 Recommendations

The team in charge of the management plan is competent and dedicated. Its insertion in the politic, social and economic system of the Island is good and the management plan, under revision, has proved to be adequate and boosting in terms of sustainable development, thanks more to its implementation in the property by the Park than to its conception.

In fact, the management plan was not as elaborated as it would be nowadays, but it was rather in advance on its time, especially in terms of interconnexion and coordination between Nature and Culture, and even more since that the Natural Park is responsible as well of the World Heritage as of all the other protected natural areas (international or local).

Anyhow, the consequence of this organization is that the World Heritage specificity, in terms of OUV, attributes and area is not sufficiently taken into account: the OUV is treated on the same level as the local and other values, and its label and image, that is usually considered as rewarding, is not, in the practice, put forward enough; one may fear that it will be the same in the new management plan. The establishment of a specific management plan for the World Heritage property, after the ongoing revision of the current Protected Areas Management Plan might be envisaged. The evolution of this Cultural landscape must be thoroughly measured, monitored and anticipated, with relevant indicators, not only physical, but also cultural, economic and social.

Finally, the WH management plan must be tightly coordinated with all the other plans managed by other entities and covering this small Territory.



We would like to thank the many people who made our visit so enjoyable and informative. Special thanks must go to the staff of the Pico Natural Park for their warm welcome, facilitation, knowledge, enthusiasm, openness and positive contribution to the field work.

5. Lessons learned and recommendations

The fieldwork in the Landscape of the Pico Island Vineyard Culture was a fruitful learning experience. Attempting to summarise our main conclusions regarding this experience is not an easy task.

Findings, in relation to the governance and management system of the Property can be broadly split into two key areas: Building knowledge and understanding and Improving management planning systems.

The history of the nomination before the property was inscribed on the World Heritage List is interesting in highlighting the high value of the natural elements, hence contributing to illustrate the fact that natural attributes plays a significant role in supporting the World Heritage Cultural value of the property.

The way the governance of the property has been organised especially in terms of interconnexion and coordination between Nature and Culture, and even more since that the Natural Park of the island is responsible as well of the World Heritage as of all the other protected natural areas (international or local), simplified potential conflicts in managing in an integrated way natural and cultural heritage. Governance being centralised within the hands of one institution assist in practical terms in the implementation of the management of the property but it has a counter effect which is to dilute the World Heritage Value with the other values at site level and aggregate all these values at the same level, without clearly specified management needs related to the value recognised by the World Heritage inscription.

More weight to cultural heritage preservation might be given to the management of the property. A better understanding of the values and related attributes of the property and above all of their interconnexion could assist in better focusing the management of the property on maintaining its Outstanding Universal Value, including the development of specific management plan for the inscribed areas. Development of a clear vision for the management of the Property would assist as well in this regard.

A related aspect of the governance of the property is the fact that the management team is also responsible of the implementation of the other International/Regional designations in place in the Natural Park. Not all these designations overlap with the World Heritage designation however the role the lava flow fields have on the aesthetical and landscape values of the property illustrate the importance the GeoPark designation could have in reinforcing the protection of the property. The case of Pico Island would be interesting in this regards for further exploration on how different International designations could reinforce each other and enhance the management of a Property. Further work could be envisaged at site level to explore whether potential conflicts may arise from these different designations, in terms of aim and regulations in place.

The property was inscribed on the World Heritage List partly as living landscape and partly fossil landscape. However, the intention was not to manage the site in order to maintain these distinctions. The aim was to use World Heritage site inscription in order to show that cultural heritage can underpin sustainable development. Since the inscription in 2204, the landscape has been regenerated and the rehabilitation projects are expected to reach 811ha by 2020, almost 7 times the operational area in the year 2004.

While the system can absorb certain level of change there is always a risk that change could negatively impact on the system. An attempt to operationalize at management level Resilience thinking has been made during the field visit. This would need to be further developed to the specific social, political, economic context of Pico.

TERMS OF REFERENCE

Fieldwork - Landscape of the Pico Island Vineyard Culture Portugal

The members of the team will:

- as part of the IUCN/ICOMOS Connecting Practice project, participate in the fieldwork to the **Landscape of the Pico Island Vineyard Culture** from **16-20 September 2019**, with the overall objective of strengthening policy frameworks and management arrangements that will achieve a more genuinely integrated consideration of natural and cultural heritage of the property;
- participate fully in all activities during the mission as part of a team composed of representatives from: IUCN; ICOMOS; Stockholm Resilience Centre (to be confirmed) and the Azores Regional Directorate for the Environment.
- adequately prepare for the fieldwork by reviewing the documents provided, including those that supported the nomination process of the property as well as other documents that can inform a better understanding of the context, in order to exchange views with the other team members and reach a common approach;
- be willing to work closely together with the other team members as well as with representatives of communities and government authorities (including responding to any questions they may have concerning World Heritage processes and practices), in a spirit of shared learning;
- work collectively with the others in the mission team to develop and implement an on-site program of activities that will enable the key questions of the mission (below) to be advanced, including an exploration of the inter-relatedness of cultural and natural values and practices, biocultural understandings of the landscape, and the value of the agricultural systems;
- in so far as possible, and while always keeping in mind differences between the objectives of the Connecting Practice project and the official IUCN and ICOMOS evaluation and reactive monitoring processes, engage in a meaningful and open dialogue with representatives from the government, management authorities and other stakeholders on ways to sustainably and effectively manage the World Heritage property and its wider context;
- collectively prepare a Fieldwork Report that documents the visit, provides a holistic view of the World Heritage property for its cultural and natural heritage, reflects a collective view of all those involved in the writing the report, and provides recommendations addressing the following points:
 - *The interconnected character of the cultural, natural and social values of the property and associated biocultural practices:*
 - explore the relationships between the attributes and values that supported the inscription on the World Heritage List with other significant cultural and natural features and values, including considerations of the cultural value of nature and how cultural systems help or are necessary to sustain natural values;
 - identify the natural attributes/features and values upon which the cultural values depend and how they are interconnected;
 - explore the relationships between nature-driven and human-driven processes that produce the natural and cultural values;
 - *How to strengthen the socio-ecological resilience of the property:*
 - analyse the socio-ecological system embedded by the property;

- provide an understanding of the dynamics of changes at the site level and of desirable and undesirable change in the socio-ecological system in which the property is situated;
 - provide guidelines on how the management plan could be further enhanced to incorporate adaptive measures in the face of change;
- *The management system of the property:*
 - identify and engage with key stakeholders (to the extent possible during the mission program);
 - explore how policies and management arrangements provide an adequate framework to protect the cultural and natural values of the property;
 - explore how the management system could be improved to take into account the interconnected character of natural and cultural values.
- Provide a reflection on the experience of the fieldwork, including a brief summary of the challenges encountered when writing the report (if any) and your reflections on whether the biocultural approach has enabled you to gain new or different insights.

Statement of Outstanding Universal Value of the property

Brief synthesis

The Landscape of the Pico Island Vineyard Culture is an outstanding example of the adaptation of farming practices to a remote and challenging environment. Pico Island is one of nine volcanic islands in the Azores Archipelago in the Atlantic Ocean. The island contains spectacular evidence of grape-growing and wine-making (viniculture), with an imposing pattern of orderly, long, linear walls running inland from, and parallel to, the rocky coastline around its northern and western edges. The stone walls form thousands of small, contiguous, rectangular plots built to protect crops from wind and salt spray. Vines were, and continue to be, planted within the small and soilless plots (locally called *currais*). The extensive system of small fields, as well as the buildings (manor houses, wine cellars, warehouses, conventional houses, and churches), pathways and wells, ports and ramps, were produced by generations of farmers enabling the production of wine.

Begun in the 15th century, wine production on Pico Island reached its peak in the 19th century and then gradually declined due to plant disease and desertification (loss of soil and reduced rainfall). However, a low level of grape vine growing and high-quality wine production continues to be undertaken and expanded, especially around the village of Criação Velha. Wine production is managed under a regime designed to ensure economic viability and sustainability as well as to retain traditional farming techniques.

Criterion iii: The Pico Island landscape reflects a unique response to viniculture on a small volcanic island that has been evolving since the arrival of the first settlers in the 15th century.

Criterion v: The extraordinarily beautiful human-made landscape of small, stone walled fields is a testimony to generations of small-scale farmers who, in a hostile environment, created a sustainable living and much-valued wine.

Integrity

The 987 ha property and its 1,924 ha buffer zone encompass all the elements necessary to understand the vineyard culture of Pico Island, which is the basis for its Outstanding Universal Value. The physical evidence across this landscape includes the extensive network of enclosed stone-walled fields, or *currais*, a variety of buildings (houses, wine cellars, windmills, warehouses, and churches), pathways, wells, ports, and fig trees. Its boundaries, including the buffer zone, represent a significant and intact proportion of the vineyard landscape, which encircled the island in the 19th century. The property comprises areas of both abandoned stone-walled enclosures (a relict cultural landscape) and areas where grape production continues to take place (a continuing, living and working landscape).

The vineyard landscape and culture of Pico Island is largely intact, extraordinarily well preserved, and without additions of intrusive modern structures. The abandoned, stone-walled enclosures suffer from a low level of deterioration resulting from disuse and neglect, while certain invasive plants species have colonised many of - these abandoned *currais*. Though currently maintained, the integrity of the Landscape of the Pico Island Vineyard Culture is threatened by the construction of new buildings that are incompatible with the visual qualities of the World Heritage property, and future development and expansion of the Pico airport risks impacting the Outstanding Universal Value of the property.

Authenticity

The Landscape of the Pico Island Vineyard Culture has evolved over 500 years and is exceptionally well- preserved and fully authentic in its setting, materials, continued use, function, traditions, techniques, and management systems. The spectacular coastal setting of the viniculture landscape sits at the foothills of Pico Mountain, a volcano that dominates the topography of the island. The material used to construct the *currais* and buildings is largely composed of local, irregular, weatherworn, black basalt rocks. The use of this dominant material type is a major element of the authenticity of the cultural

landscape. Part of the property (adjacent to Criação Velha, immediately south of the island's main town of Madalena) is actively farmed. The currais in these areas are used in a way that is consistent with 19th-century techniques and traditions, thus fully satisfying conditions of authenticity.

The property is vulnerable to a number of pressures, which include the importing of stone for re-building that is not consistent with local materials. The expansion of the local wine-based industry (in part as a consequence of World Heritage status) is currently not considered a threat to the authenticity of the property, as viticulture practices are carried out by individual owner-farmers without the use of mechanical vine-growing methods.

Protection and management requirements

The Landscape of the Pico Island Vineyard Culture is well protected through a system of legislation, management plans, and a multi-tired administrative system. Protection mechanisms are in place at the regional, island, municipal, and protected landscape levels.

Laws to protect both the vine growing areas and the standards of wine production on Pico Island were passed in 1980, 1988, and 1994. In 1986, the area covered by the World Heritage listing (as well as areas beyond the buffer zone) was classified as a Protected Landscape (IUCN Category V Protected Area, which are typical living landscapes). Regional Act of Law 10 of 2002 provides four levels of protection that include two zones for stone wall-enclosed vineyards or currais – the small *lajidos* (or broad lava flow fields) of Criação Velha and Santa Luzia, which are areas protected for their high-quality wine production.

A series of management plans have been developed for the viticulture landscape of Pico Island, beginning with a 'Safeguarding Plan' (1993), an action plan ('Dynamizing Plan,' covering the period 2001-2006), and a regularly revised five-year Management Plan for the World Heritage property. The latter plan allowed the Regional Government to adopt measures to impose planning constraints on new buildings, use appropriate local building materials, reconstruct ruins, revitalise abandoned vineyards (e.g., remove invasive plants), and 'guarantee the revitalisation of the landscape through the progressive increase of cultivated vines under traditional methods.' The Management Plan views the property as a living, working landscape that is maintained and protected by sustaining the area's distinctive wine-making traditions and thereby preserving the complex field patterns and associated structures and houses. A recent evaluation of the current 'Land Management Plan of the Protected Landscape of Pico Vineyard Culture' carried out by the Regional Directorate for the Environment will be the basis for revisions to the Management Plan. The purpose of the Plan is to "further promote the maintenance and recovery of the vineyard landscape, turning it into one of the most economic and social development hubs of Pico Island and the Azores."

The multi-governmental, administrative structure is responsible for the management of the World Heritage property. The Azores Regional Directorate for the Environment is primarily responsible for law-making, management planning, and management implementation. A Management Committee, appointed by the Regional Secretary (Minister) for the Environment, is responsible for the property. The Pico Island Department of the Environment provides scientific expertise, while the municipal governments of Madalena (Criação Velha) and Sao Roque do Pico (Santa Luzia) exercise planning control (i.e. regulations relating to vine growing methods, local roads, and buildings).

Sustaining the Outstanding Universal Value of the Landscape of the Pico Island Vineyard Culture in the long-term will require ongoing coordination between the different levels of government in partnership with the local communities and land owners. The future protection of the 500-year old vineyard landscape will rely on continuing, effective, and realistic partnerships that support sustainable wine production in a way that continues to preserve traditional viticulture practices.

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CULTURAL LANDSCAPE OF HONGHE HANI RICE TERRACES (CHINA)

Fieldwork Report





Report of fieldwork at the Cultural Landscape of Honghe Hani Rice Terraces (China)

3 - 11 November 2019

Marlon Martin, Qingwen Min, Nupur Prothi Khanna and Maureen Thibault
With inputs from Haiming Yan, Rouran Zhang and Yuxin Li

Cover page photo: Cultural Landscape of Honghe Hani Rice Terraces (China) © Nupur Prothi Khanna

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ANNEXES

Annex 1: Terms of Reference

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Personal Note by expert from Philippines, Marlon Martin (November 2019):

“With more than fifteen years of experience in heritage conservation among the Ifugao people of the Rice Terraces of the Philippine Cordilleras¹, I observed substantial parallels in the state of conservation of my own landscape with that of the Hani people. We face the same issues that threaten our traditional lifeways – young people leaving, indigenous knowledge neglected in mainstream management, tourism being prioritised over conservation, etc.

With the short interaction with the Hani people, I have, yet again, experienced a sense of awe and belongingness to their cultural landscape, as I usually experience among cultures similar to mine. In the bigger anthropological scheme of events, one gets the feeling of being connected somewhere in the past. A hundred generations or so ago, we could have been one people.”

1.0 INTRODUCTION

The Connecting Practice Project seeks to influence a shift in conceptual and practical arrangements toward a more genuinely integrated consideration of natural and cultural heritage under the World Heritage Convention.

To achieve this outcome, the project has undergone three phases that have benefitted from targeted field studies, which assessed possibilities for nature-culture integration. The fieldwork component of the third phase (2018-2020) explored how a better understanding of the interconnected character of the natural, cultural and social values of the properties used as case studies could further support and sustain traditional management practices that would result in more effective conservation outcomes and strengthen the resilience of the property.

The four case studies selected were:

- i. **Cultural Sites of Al Ain** (Hafit, Hili, Bidaa Bint Saud, and Oases Areas) (United Arab Emirates),
- ii. **Saloum Delta** (Senegal),
- iii. **Landscape of the Pico Island Vineyard Culture** (Portugal) and
- iv. **Cultural Landscape of Honghe Hani Rice Terraces** (China)

All four sites represent organically-evolved cultural landscapes, where traditional practices such as agriculture, viticulture, fishing and shellfish gathering continue to be maintained.

This report presents the findings of the fieldwork for the *Cultural Landscape of Honghe Hani Rice Terraces* World Heritage Site, which is the final case study of the third phase of the Connecting Practice Project.

¹ The Rice Terraces of the Philippine Cordilleras were inscribed in 1995, the first-ever property to be included in the cultural landscape category of the World Heritage List.

The objective of the fieldwork and case study of the *Cultural Landscape of Honghe Hani Rice Terraces* (hereafter referred to as the *Hani Rice Terraces WHS*) is based on the overall goal of Phase III of the Connecting Practice Project:

To strengthen policy frameworks and management arrangements for the protection of highly significant landscapes and seascapes that will achieve a more genuinely integrated consideration of natural and cultural heritage

In order to work towards this goal, the fieldwork participants were asked to engage with local management authorities and communities to assess the interconnections and inter-relatedness of cultural and natural values and practices at the property, in order to further their understanding of traditional management frameworks and biocultural practices within the landscape (Terms of Reference (Annex 1)).

The Terms of Reference (hereafter “ToRs”) were structured around three main elements:

- The interconnected character of the cultural, natural and social values of the property and associated biocultural practices;
- How to strengthen the socio-ecological resilience of the property;
- The management system of the property.

For the *Hani Rice Terraces WHS*, a fourth element was added to the ToRs to address the focus of Phase III on biocultural practices and agricultural systems:

- The designation of “*Hani Rice Terraces*” as a GIAHS (*Globally Important Agricultural Heritage Systems*) site as part of a Programme of the Food and Agriculture Organization of the United Nations (FAO).

The *Hani Rice Terraces WHS* was selected as a case study for Phase III of the Connecting Practice Project as the site fulfils two main criteria:

1. The Site is listed as a cultural landscape on the World Heritage List by UNESCO for its Outstanding Universal Value (OUV) and is directly related to the interaction between people and their environment (criteria (iii) and (v)); and
2. The Site provides an example of a Globally Important Agricultural Heritage Systems (GIAHS) and was selected as such by the FAO.

This report provides information gathered from fieldwork, literature reviews and meetings with a range of stakeholders at site. The field visit was undertaken from 3 to 11 November 2019 with experts from IUCN and ICOMOS, as well as representatives from the GIAHS programme. World Heritage Site managers and other representatives from the Honghe Hani and Yi Autonomous Prefecture, the World Cultural Heritage Management Administration of Honghe Hani Rice Terraces, Hani Rice Terrace (World Heritage) Management Council of Yuanyang County, the Culture and Tourism Administration of Yuanyang County, ICOMOS China, Chinese Academy of Cultural Heritage, Institute of Architectural

History of China, Architecture Design Co. Ltd., Honghe University and other relevant stakeholders provided the local expertise. This final report is a collaborative effort by this team of representatives (Annex 3). The authors of this report² acknowledge that there are limitations associated with the assessment and learnings from a brief site visit. This may be influenced by diverse perceptions of the property, information gathered, literature reviews completed and on individual interpretations.

The report is introduced with a brief history of the *Hani Rice Terraces WHS* as a cultural landscape (Section 2). The following part (Section 3) reviews the Outstanding Universal Value that supported the inscription to the World Heritage List, and provides an in-depth review of the interconnected values and attributes of the property, as well as the interlinkages between its cultural, natural and social characteristics. This effort also examines the resilience of the property to address current concerns of climate change, changing demographics and evolving cropping patterns and practices (Section 4). The GIAHS designation is considered a significant factor to identify and address the challenges of agricultural systems within the holistic management plan at site (Sections 5 and 6). These studies and learnings from the field visit section conclude with recommendations and lessons learned related to management approaches for the future (Section 7).



Fig. 1: View of the Duoyishu Area rice terraces (Thibault, 2019)

² The authors of the report are: Marlon Martin, Qingwen Min, Nupur Prothi Khanna and Maureen Thibault.

2.0 DESCRIPTION AND HISTORY OF THE WORLD HERITAGE PROPERTY

The World Heritage property of the *Cultural Landscape of Honghe Hani Rice Terraces* encompasses the most concentrated area of steep rice terraces in China, located in the Ailao Mountains of southern Yunnan with a sub-tropic valley climate averaging an annual rainfall of around 1,400 mm. The cultural landscape is a testimony of the successful human adaptation of the terrain to create settlements in challenging environments, as described in the ICOMOS Evaluation document, as follows:

Responding to the difficulties and opportunities of this environment of high mountains and narrow valleys crisscrossed by ravines, the Hani people have, over the past 1,300 years, created out of dense forest an extraordinarily complex system of irrigated rice terraces that flow around the contours of the mountains.

The Hani rice terraces are distributed in the four counties of Yuanyang, Honghe, Jinping, and Luchun. The inscribed property is located in the mountainous area in central Yuanyang County, where the three largest and most concentrated groups of terraced rice fields are located: Bada (gentle gradient slope), Duoyishu (somewhat steep gradient) and Laohuzui (very steep gradient) (Figure 2).

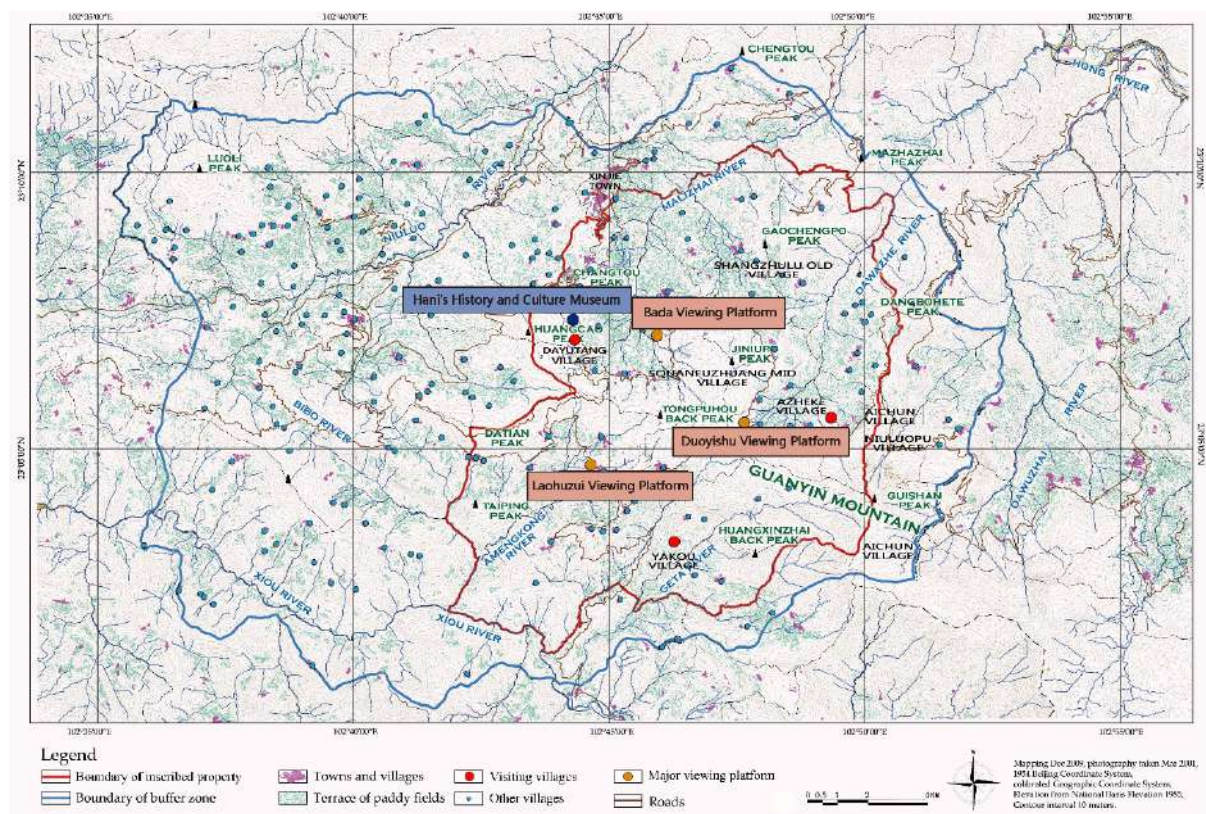


Fig. 2: Map of the inscribed property and surrounding areas

The inscribed property is 16,603.22 ha with a buffer zone of 29,501.01 ha (total area of 46,104.23 ha) which includes forestlands, agricultural terraces with an irrigation system demonstrating traditional rice cultivation methods and practices, and villages and settlements, all of which are closely integrated within the landscape (State Party of People's Republic of China, 2013; UNESCO, 2013). The property includes 82 villages, constructed between the terraces and the mountain top forests, each with between 50 and 100 households.

This historic landscape reflects a 4-tiered system of forests, rice terraces, water supply and irrigation systems, and settlement. Using rainwater gathered in the forested mountain tops, a complex irrigation system of channels and ditches spreads water all along the terraces. In addition to this ancient 'water recharge' forest, three other forest systems exist, sacred forest, consolidation forest and village forest, the latter being typically used for harvesting timber for buildings and firewood.

The traditional social and religious structures continue to promote the relationship between the individual and the community as well as between people and the gods, all of which contribute to maintaining the larger harmony between people and their environment. This respect for nature, the community and the individual supports a system of interdependence called the 'Man-God Unity social system' within a complex yet resilient land management system (ICOMOS, 2013). Certain areas within the sacred forests are set aside for various deities, including the village god *Angma*, considered the soul of the village, and the god for protecting the lands, *Misong*, revered for health and prosperity.

Five villages on the property are considered the most representative: Shangzhulu Old Village, Quanfuzhuang Middle Village, Niuluopu Village, Azheke Village, and Yakou Village. Their traditional vernacular buildings with walls of rammed earth, stone or adobe bricks under a thatched straw roof create the distinctive 'mushroom' shaped architecture of the settlement. Each residence has three levels: the ground floor for domestic animals, the intermediate floor for the family to reside, and the top floor for grain storage. Each household has one or two plots of rice terraces, usually producing red rice, through an integrated farming and breeding system that includes buffalos, ducks, and fish (Ibid.).

2.1. History

The history of the *Hani Rice Terraces WHS* is closely intertwined with the history of the Hani people. Oral traditions and ethnological research suggest that they originated from the Diqiang tribe from the Gansu and Qinghai provinces in northwest China until they settled in the Yunnan province as an outcome of migrations across centuries (State Party of People's Republic of China, 2013). *The Classic of History*, representative of ancient Chinese literature, refers to the Hani people as an independent ethnic group and mentions terraces in relation to their livelihood.

The faith of the Hani people is based on the human-nature ideology of harmony. They worship the sun and moon, mountains and rivers, forests and other natural elements such as fire. The sacredness of nature is central to their culture expressed in traditional practices such as sacrificial activities and offerings to water, fields and sacred forests. Festivals celebrated through the year include the celebration of the village gods held in the forest in February, the worship of the god of agriculture in June

to pray for a good harvest, and the celebration of the harvest itself with a long street banquet and the Angmatu Festival at the end of winter (ICOMOS, 2013). Each village carries out its sacrificial activities and festivals, uniting households and reinforcing the community. The key roles in the village are the *Migu*, the *Mopi*, and the Craftsman.³ In the Hani language, *Migu* means the administrative head of the village. He is elected once a year and is responsible for the management of the village, including the resolution of any disputes of livestock, land or water resources. The *Mopi* is a spiritual leader and priest, who is considered to be half-god, half-man. Responsible for protecting and sharing the Hani history and culture, the *Mopi* also presides over religious activities and guides agricultural production. In contrast, the Craftsman has no administrative or religious importance; rather, he is a blacksmith charged with forging farming tools, indispensable to the Hani people (State Party of People's Republic of China, 2013).

Forests play a key role in the irrigation of the terraces and in maintaining an ecological balance. Each village has a forest keeper responsible for its traditional protection and management. Consolidation forests are planted to stabilise the slopes and terrace areas. The water recharge-forests and sacred forests have been protected over generations for their social and cultural significance.

The management of water resources is integral to rice cultivation in the terraces. Water distribution is settled by wood-cuts, which are marks carved into wooden posts to determine how much water is needed by which terraces at any given time during the year. Each village elects a ditch keeper to ensure equal distribution of water, while the entire community is responsible for maintaining the overall irrigation system of approximately 446 km comprised of dugout streams, ditches, canals and bamboo tubes (ICOMOS, 2013). The *Migu* and *Mopi* are believed to ensure that the traditional water distribution and management guidelines are followed, and animals are sacrificed to the Well God to ensure endless and year-round water prosperity.

2.2. Terraces and farming

The rice terraces are built out of black clay, with the fields allocated through a traditional distribution system. Families own individual terraces, but a communal working scheme ensures the holistic protection of the agricultural system. The rice varieties and farming methods depend upon local conditions and altitudes. In addition to the main crop of red rice, other crops may be included and at times vegetables such as soya, calla and edible wild herbs may be cultivated on the field ridges above the terraces. Besides crops, integrated breeding programs are also used. Fish are introduced to the rice fields for pest control, and ducks are often bred to protect the rice seedlings from snails and weeds. The presence of ducks and fish in these areas improves the fertility of the land while providing an additional source of food for people. Water buffalo and cattle, primarily used for ploughing, contribute organic

³ The Hani myth of the Three Sacred Eggs explains the origins of these three important members of the village: the hen of the Heaven God laid three eggs, each of a different color: white, patterned and red. After having been placed in sunlight for three days, the eggs hatched; *Migu* came out from the white egg, the *Mopi* from the patterned egg and the Craftsman from the red egg (State Party of People's Republic of China, 2013).

fertilizer and are another source of food. It is believed that these animals connect with the gods when they are sacrificed at the Kuzhazha Festival and at funerals.



Fig. 3: Ducks in the rice terraces (Thibault, 2019)

Each farmer typically owns one or two buffalos, a cow, and calves. They graze in the high grasslands when they are not used for ploughing. Dogs, pigs, chickens, and horses are also bred around the houses. Additional sustenance comes from mushrooms and other fungi gathered in the upper forests. Small tea plantations may be found in wider village areas. In most places, organic farming practices are used, except in some low-level plantations where hybrid rice plantations use chemical fertilizers.

The production of red rice is part of an elaborate, socio-economic farming and breeding system that has sustained the land and the Hani people for centuries. The use of animals such as ducks, fish and water buffalo as key participants in the farming system demonstrates the integrated ecological approach to rice cultivation as is prevalent in many traditional cultures (ICOMOS, 2013).

3.0. WORLD HERITAGE RECOGNITION

3.1. History of the nomination

The Cultural Landscape of Honghe Hani Rice Terraces was nominated in January 2012 and inscribed onto the World Heritage List the following year as a cultural landscape. Initially, the nomination was proposed under criteria (i), (iii), (iv), (v), and (vi), but finally the site was only inscribed under (iii) and (v), as follows (emphasis added in italics):

Criterion (iii): The Honghe-Hani terraces are an outstanding reflection of elaborate and finely tuned *agricultural, forestry and water distribution systems that are reinforced by long-standing and distinctive socio-economic-religious systems.*

Red rice, the main crop of the terraces is farmed on the basis of a complex, integrated farming and breeding system within which ducks fertilise the young rice plants, while chickens and pigs contribute fertiliser to more mature plants, water buffalo plough the fields for the next year's planting and snails growing in the water of the terraces contribute to pest control. The rice-growing process is sustained by elaborate socio-economic-religious systems that strengthen peoples' relationship with the environment, through obligations to both their own lands and to the wider community, thereby affirming their belief in the sacredness of nature. This system of dual interdependence known as the 'Man-God Unity social system' and its physical manifestation in the terraces form an exceptional, living cultural tradition.

Criterion (v): The Honghe Hani Rice terraced landscape reflects in an exceptional way a specific *interaction with the environment mediated by integrated farming and water management systems, and underpinned by socio-economic-religious systems that express the dual relationship between people and gods and between individuals and community, a system that has persisted for at least a millennium, as can be shown by extensive archival sources.*

In its evaluation, ICOMOS argued that while the rice terraces may be considered as visually appealing, the creators of the terraces did not construct the landscape with the intention of producing an environment with aesthetic value. Therefore, criterion (i) was considered to have not been justified.

Further, criterion (iv) was not considered to have been met since the value of the terraces is more clearly demonstrated by their continuity over time than by illustrating a specific moment in history. Lastly, with regards to criterion (vi), ICOMOS argued that the important cultural traditions of the Hani people, which undoubtedly support the connection between the Hani people and their environment, are sufficiently reflected within criterion (iii) and were not demonstrated as having outstanding universal significance.

IUCN provided comments to ICOMOS on the nomination dossier of the property in April 2013, making note of the important natural values in the area. IUCN underlined the “biodiversity of global importance” within the landscape, which was not explored in the nomination document.

3.2. The interconnected character of the cultural, natural and social values of the property and associated biocultural practices

3.2.1. Relationships between the attributes and values that supported the inscription on the World Heritage List with other significant cultural and natural features and values

The Cultural Landscape of Honghe Hani Rice Terraces is considered to be of Outstanding Universal Value because it bears exceptional testimony to a living cultural tradition (criterion iii) and it reflects an outstanding human interaction with the environment (criterion v). The *Hani Rice Terraces* is valued for a combination of the physical landscape of the terraces themselves and the overall socio-economic-religious systems that supported their creation and have been maintained over centuries by the Hani people (ICOMOS, 2013).

The “socio-economic-religious systems that express the dual relationship between people and gods and between individuals and community”, from criterion (v), are central to examining the cultural values that supported the inscription of the terraces on the World Heritage List.

The basic unit of the Hani people’s social system is the village. All major activities and festivals are organised at the village level. As mentioned above, the inscribed property contains 82 villages, each of which includes between 50 and 100 households. The traditional “mushroom” houses are built on three floors with walls of earth or stone and a roof thatched with straw. Some homes built on particularly inclined hillsides have a flat roof, which provides additional living space to dry grains and clothes or for other activities (State Party of People’s Republic of China, 2013). Houses are built closely together along the main street, which gives access to the forest and rice terraces. The gate at the entrance to the village is believed to guard the community. Constructed between two trees and across the main road, a series of wooden knives are often hung across the gate for protection.



Fig. 4: House in Yakou village on three floors (Thibault, 2019)



Fig. 5: Entrance to Azheke village (Thibault, 2019)



Fig. 6: Flat roof with beans drying (Martin, 2019)

The lack of hierarchy and physical uniformity of the traditional houses reflects the democratic nature of the Hani society, in which the administrative and social leaders are chosen by the villagers. The *Migu*, or administrative leader of the village, is elected by the male patriarchs of each household. He is chosen from a limited pool of representatives with high social standards, as the Hani people believe that the destiny of the village is interlinked with that of the *Migu*. The villagers also rely on their *Migu* to resolve any conflicts regarding their land, water resources or livestock. The *Migu* may represent them in the local government. The Craftsman, the blacksmith who creates farming tools for the villagers, also has an important role in the social system of the terraces, providing his community with the physical implements to work in the terraces. Like the *Migu*, he has an elevated social status, though with lesser administrative power.



Fig. 7: Meeting the Migu of Yakou village (Thibault, 2019)

Within a village, the important societal roles entrusted upon the *Migu*, Craftsman, ditch keeper, and forest keeper demonstrate the strong relationship between individuals, community, and nature, which is aptly recognised in criterion (v). A similar relationship co-exists between the community and their gods, embodied in the village by the *Mopi*, or religious leader considered to be half-man and half-god. In Hani culture, religious leaders are created through a master-pupil learning system, where traditional religious knowledge is transmitted through rites, festivals, activities, and other social and religious processes. The *Mopi* is responsible for maintaining and disseminating other Hani traditions and knowledge related to farming, literature, shared memories, medicine, water use, marriages and funerals (State Party of People's Republic of China, 2013). Traditional knowledge is often transmitted through songs, which fall within three categories: *Haba* (folk song), *Aqiku* (love song) and *Amiche* (children's song). As the Hani written characters have been lost over time, music is an important tool of transmission, and *Haba* acts as an important record for Hani heritage.

As the priest who connects the villagers to the gods, the *Mopi* has a central role representing the sacred in the socio-economic-religious systems of the *Hani Rice Terraces*. He presides over religious and sacrificial activities and guides agricultural production, which is closely linked to the religion of the Hani people. They believe that each object has a soul and makes sacrifices to gods and goddesses, such as the Goddess of Heaven, the Tree God or the Water God to guide their destiny. Above each Hani village, the sacred woods of the village, called *Zhai Shen Lin*, house a sacred tree that is the embodiment of the Village God. This god protects the village and is a source of life, providing cereals and livestock to the villagers.

The Hani people's reverence of nature has allowed them to farm in challenging conditions for over a thousand years, as their agricultural system is closely connected to their spiritual relationship with nature and their respect for both the individual and the community (ICOMOS, 2013).

The lasting socio-economic-religious systems of the Hani people uphold the cultural values recognised in the Statement of Outstanding Universal Value. The historic value of the site is demonstrated through human interaction with nature, continuing for at least a millennium. The social value is justified by the Hani people's strong ties to the community responsible for the transmission of traditional knowledge and continuity of rituals and beliefs. The economic value is represented by the resilience of traditional techniques of red rice cultivation that have enabled farmers to grow and sell their organic agricultural products. Though not recognised as a World Heritage value, the aesthetic value of the rice terraces cannot be left unmentioned. The creators of the terraces may not have intended to produce a visually stunning scene, but the resulting landscape has a strong visual quality that is aesthetically pleasing, as evidenced by the images below:



Figs. 8-9: Views of Bada area rice terraces (Thibault, 2019)



Keeping in mind the objective of Phase III of the Connecting Practice Project, the fieldwork team laid out their understanding of the discernible nature culture interrelations at site. The table below provides a summary of the World Heritage values and associated attributes and their relationship with other significant cultural and natural features and values.⁴ The fieldwork team prepared this table based on the Statement of OUV, the field visit to the site and the discussions held with local stakeholders.

Fig. 10: Table: Cultural Landscape of Honghe Hani Rice Terraces

Cultural
Natural

Values				Attributes
Categories	Description	OUV	Other	
Historical values (criteria iii and v)	<p>Outstanding reflection of elaborate and finely tuned agricultural, forestry and water distribution systems that are reinforced by long-standing and distinctive socio-economic-religious systems</p> <p>socio-economic-religious systems that express the dual relationship between people and gods and between individuals and community, <u>a system that has persisted for at least a millennium, as can be shown by extensive archival sources</u></p>	X		<p>red rice cultivation</p> <p>integrated farming and breeding system (ducks, chicken, pigs, water buffalo, snails)</p> <p>traditional vernacular buildings</p> <p>the complex system of irrigated rice terraces</p> <p>→ well-preserved setting, materials, continued use, function, traditions, techniques, and management systems</p> <p>Continuity of rituals, beliefs, and customs</p>
Landscape values Natural landscape Productive landscape	<p>Challenging environment adapted by man – complex system of rice terraces is the response of Hani people to difficulties and opportunities of their environment</p> <p>differing underlying geological characteristics</p> <p>Outstanding reflection of elaborate and finely tuned agricultural, forestry and water distribution systems that are reinforced by</p>	X		<p>high mountains</p> <p>narrow valleys crisscrossed by ravines</p> <p>dense forest</p> <p>climatic conditions (extremely high rainfall, subtropical valley climate)</p> <p>rice terraces constructed out of black clay</p> <p>three areas of terraces, Bada, Duoyishu, and Laohuzui, within three river basins, Malizhai, Dawazhe and Amengkong-Geta</p> <p>forest-village-terrace-river landscape (“four-in-one” system)</p>

⁴ The table is inspired by Tool 1 of the Enhancing our Heritage toolkit which was previously designed to assess the management effectiveness of natural heritage sites and which is currently under the process of being reviewed in order to adapt it also to cultural heritage sites (Hockings, M., et al., 2008).

Resilient landscape	<p>long-standing and distinctive socio-economic-religious systems</p> <hr/> <p>The resilient land management system that optimises social and environmental resources</p>			<p>built heritage: rice terraces, irrigation system (complex system of channels to spread water around terraces, 4 trunk canals and 392 branch ditches)</p> <p>rice-growing</p> <p>integrated farming and animal breeding system</p> <p>traditional vernacular buildings (thatched 'mushroom' houses in villages)</p> <p>climate (high rainfall, subtropical valley climate)</p> <p>water cycle (between the Ailao Mountains and the Red River)</p> <hr/> <p>High resilience of terraces against climate change and drought</p> <p>Robust and well protected traditional farming system</p>
Aesthetic values	demonstrates extraordinary harmony between people and their environment in spiritual, ecological and <u>visual terms</u>		X	<p>natural setting; Ailao Mountains;</p> <p>interplay of sunrise and sunset reflections on the water surface of irrigated fields</p> <p>dense forest</p> <p>irrigated rice terraces carved out of the dense forest</p>
Social values (criteria iii and v)	<p>elaborate socio-economic-religious systems that strengthen peoples' relationship with the environment, through obligations to both their own lands and to the wider community, and affirm the sacredness of nature</p> <p><u>Continued rice cultivation:</u> continuity of landscape function, practices, and traditional knowledge, and continuity of rituals, beliefs, and customs</p>	X		<p>"Man-God Unity social system": a system of dual interdependence -> shape of terraces is its physical manifestation</p> <p>buildings (village households)</p> <p>traditional farming techniques</p> <p>traditions linked to rice cultivation / socio-cultural manifestations / traditional festivals ("Angmatu", "Kuzhazha", "Zhalete")</p> <p>traditional food and recipes</p>

Sacred values	Sacredness of nature	X		<p>sacred forests</p> <p>abode of the Village God “<i>Angma</i>” (the soul of the village) and for the Land Protection God “<i>Misong</i>”, where villagers pray for peace, health, and prosperity</p>
Economical values	Red rice cultivation	X		<p>red rice production</p> <p>built heritage: rice terraces, irrigation system (a complex system of channels to spread water around terraces, 4 trunk canals and 392 branch ditches)</p> <p>organic agricultural and animal products</p>
Biodiversity & Scientific values	Elaborate and finely tuned agricultural, forestry and water distribution systems		X	<p>symbiotic relationships between plants and animals</p> <p>integrated farming and breeding system (ducks, chicken, pigs, water buffalo, snails)</p>

3.2.2. The natural attributes upon which the cultural values depend and how they are interconnected

Although the site was inscribed on the basis of cultural World Heritage criteria only, the underlying natural features are a predominant reason for the choice of location of the rice terraces as well as responsible for the landscape to continue to exist and thrive. The natural attributes of the terraces have allowed for the Hani people to cultivate rice in the area for over a millennium.

The agricultural, forestry and water distribution systems that characterize the Hani people’s use of the landscape depend upon these natural attributes. These systems also rely on the aforementioned socio-economic-religious systems that uphold the cultural values of the site. As **Criterion (iii)** states, the “finely tuned agricultural, forestry and water distribution systems [...] are reinforced by long-standing and distinctive socio-economic-religious systems”.

The ecological landscape of the *Hani Rice Terraces WHS* has four aspects: forest, village, terraces, and river. Forests are an essential part of the landscape and ensure their productivity by capturing and

sustaining the water needed to irrigate the rice terraces. At the time of the nomination, the forest covered about 40% of the land area. The forest is mainly located where the East Guanyin Mountain is connected with the West Guanyin Mountain. From low to high altitude, the vegetation can be described as follows: south subtropical montane rainforest, monsoon evergreen broad-leaved forest, middle-mountain mossy evergreen broad-leaved forest, mountaintop mossy elfin forest and mountaintop mossy brushwood. The south subtropical montane rainforest is found within an altitude ranging from 900 to 1,600 m above msl, while the mountaintop mossy brushwood is located at over 2,800 m. Further, the forest of the *Hani Rice Terraces* contains various wild woody plants, herbaceous plants, mushrooms, insects and animals. Their presence contributes to the high level of biodiversity of the property (State Party of People's Republic of China, 2013). In its comments to ICOMOS, IUCN noted that the Ailao Mountains are home to the large virgin subtropical montane evergreen broadleaf forest, which hold a highly significant population of the Endangered Black Gibbon (*Nomascus concolor*), threatened with a decreasing population in the IUCN Red List (IUCN, 2013).

The four types of forest each play an important part in the water distribution system of the terraces: ancient "water recharge" forest, sacred forest, consolidation forest, and village forests. The first three types of forest have important cultural significance for the Hani people and cannot be cut down (State Party of People's Republic of China, 2013).

The water recharge forests, situated at an altitude of above 1,900 m, have been maintained by the villagers across generations. The evergreen broad-leaved forest at this level has an important water storage capacity that captures the abundant rainfall of the area, with an annual average of 1,400 mm. The consolidation forest on the mountaintops and hillsides controls soil erosion and reduces landslide and flood risks. The sacred forest, called *Zhai Shen Lin*, is an important site of sacrifice located above each village. Only men are allowed to enter the sacred forest. The village forest surrounds the village, providing timber for building, food, and firewood. This forest also contributes to soil and water conservation.

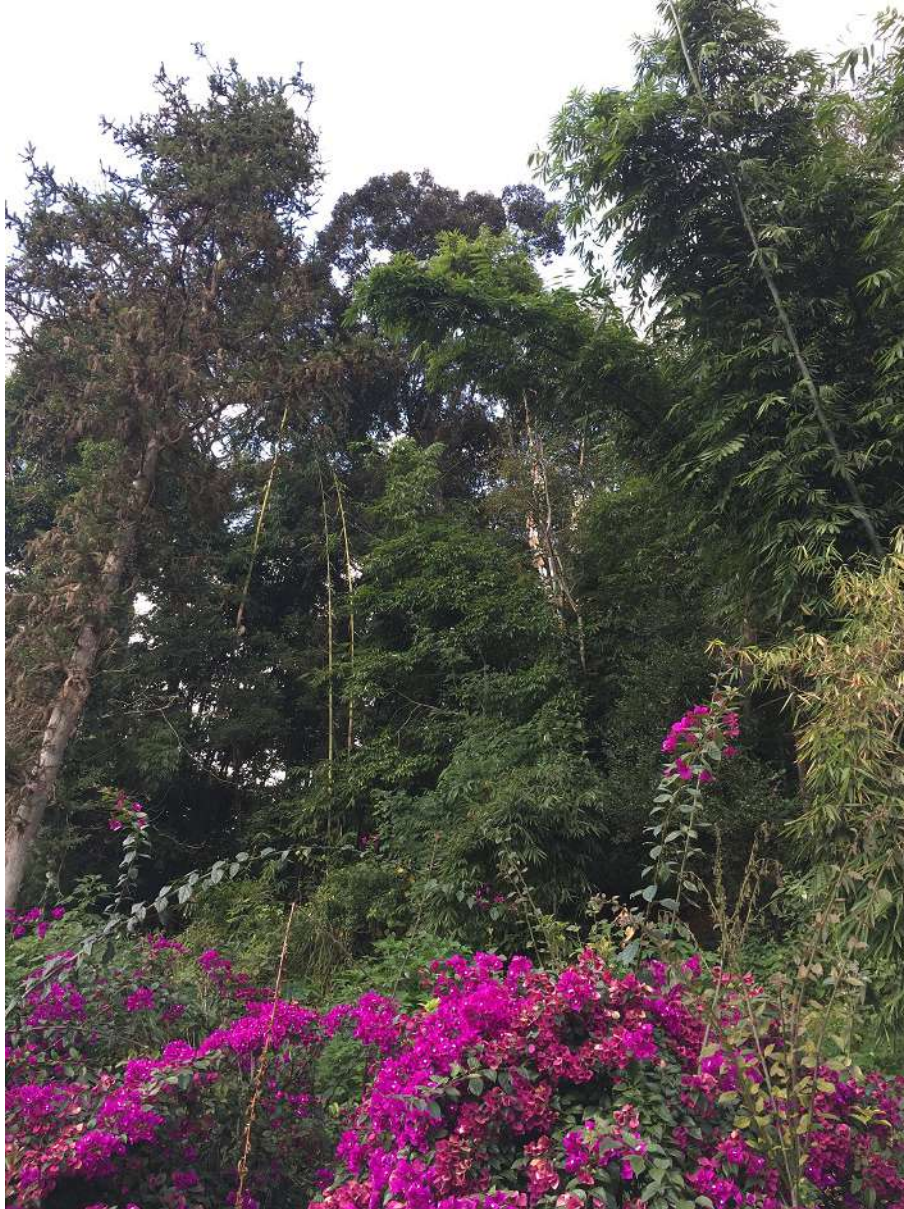


Fig. 11: Sacred woods of Yakou village (Thibault, 2019)

The forestry system of the *Hani Rice Terraces WHS* is organically connected to the water distribution system. Water is an essential element of the landscape and is vital for the daily life of the Hani people. In addition to protecting the water-preserving forests, the Hani people have created an efficient water distribution system. Irrigation channels are dug out of streams, ditches, canals and bamboo pipes with water distribution using gravity to flow downwards from brooks and natural springs within the forests to the fields and villages (ICOMOS, 2013). The water distribution system works harmoniously with the natural terrain responding to the local topography. The total length of canals and ditches in the property is 445.83 km, spread across four trunk canals with a width of 50-100 cm across a total length of 30.06 km. 392 branch ditches with a width of less than 30 cm and a total length of 415.78 km (State Party of People's Republic of China, 2013) contribute to a well-networked irrigation system. The ditch and canal system is man-made and continues to be dug and maintained by the Hani people, overseen by each

village's ditch keeper. The water conservation system relies on the natural processes of rainfall and water runoff to reuse the water with the least amount of human interference. Therefore, the climatic conditions of heavy rainfall and the water cycle between the peaks of the Ailao Mountains to the Red River valley are natural attributes essential to the traditional cultivation of rice by the Hani people. The intervention of the Hani people to harness this water cycle through an irrigation system that respects the natural environment and uses the property's topography demonstrates the interconnections between natural attributes and the cultural values of the site. The water cycle not only ensures agricultural productivity, but it also endows the *Hani Rice Terraces WHS* with "outstanding scenic value" (IUCN, 2013).



Figs. 12-13: Irrigation system of the rice terraces (Thibault, 2019)

These elements are closely integrated within the landscape. As elaborated, the natural attributes of the property are essential to upholding the cultural values of the site.

3.2.3. How cultural systems help sustain natural values

The ecological landscape of the *Hani Rice Terraces WHS* has been and continues to be sustained by the cultural traditions of the Hani people. These traditions, such as sacrificial activities and festivals, are closely linked with the annual agricultural calendar and practices.

Festivals are celebrated in each village at specific moments in the year, always linked to a terrace farming procedure. For example, the *Angmatu* celebration marks the end of winter and the start of spring ploughing. These festivals and the ritual sacrifices made to the gods of the trees, mountains and water strengthen community ties and reinforce the Hani people's respect for nature, which in turn has contributed to preserving their landscape and its biodiversity.

The traditional water distribution system, which was conceived in harmony with the landscape, has preserved the natural values of the property by using the abundant rainfall to irrigate the rice terraces. The hand-carved ditches and canals simply capture the natural flow of water downwards from the mountains to guide the rainfall into the terraces and villages. Irrigation management overseen by the village leaders, *Migu* and *Mopi*, ensures that the water is fairly and efficiently distributed among the fields, preventing excessive consumption or waste of the precious resource. The integrated farming and breeding system of buffalos, cattle, ducks, and fish contributes to maintaining the biodiversity of the property by preserving local vegetation and animals. Overall, this ancient system of agriculture, animal rearing, irrigation, settlement planning, and community organisation is in harmony with the natural environment.

During the Connecting Practice workshops with the local Hani people, the issue of preserving traditional knowledge was often raised. Many Hani people spoke about the exodus of the younger generation towards urban life. The local people noted the diminishing transmission of the Hani culture to the young in the nearby schools, where teachers are often not of Hani descent and/or are not familiar with Hani traditions. Community members highlighted the importance of passing on traditional customs and practices through the generations for the cultural system to continue preserving the natural values of the site. The pride of the Hani people towards their rice terraces and traditions was evident as was their willingness to share their culture with experts and visitors. Interactions through the Connecting Practice field visit demonstrated this belief and pride of the Hani people with regards to their traditions and their determination to ensure the transmission of their cultural values to future generations that will continue to protect the natural values of this cultural landscape.

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4.0. SOCIO-ECOLOGICAL RESILIENCE

This section applies the Socio-ecological Production Landscapes (SEPLs) resilience indicators framework developed by the United Nations University-Institute of Advanced Studies (UNU-IAS) as a guide for socio-ecological resilience and management assessment of the Honghe Hani Rice Terraces.⁵ The indicators are used as a guide for site observations and not as an assessment hence scoring of indicators is omitted. This framework has been found useful in preparing monitoring for the Rice Terraces of the Philippine Cordilleras.

4.1. Summary

The nature-culture linkages in cultural landscapes can best be exemplified in terrace communities where the natural and cultural environments are never perceived by locals as separate and distinct spaces. While those outside the system focus on the parts, locals see a system made of parts that functions as a whole. Their cyclic view comprehends that rivers and forests sustain the fields that sustain the village that in turn maintains the rivers and forests. One component cannot function without the rest and the system cannot function without the parts.

For over a thousand years, the Hani people developed a way of life anchored in their natural environment. Mountainsides were diligently carved into flowing terraces for rice paddy cultivation. Crops were planted respecting the natural cycles of sun, moon and rain. Wild migratory birds and changing foliage of endemic trees signalled the seasons for planting and harvesting. The Hani understood the role of the forests and rivers in sustaining the pond fields, affirming them as sacred spaces. Forests, pond fields and rivers sustained the villages that in turn were responsible for their upkeep. Prayers expressed through songs, dances and rituals were inspired by the production process of rice. Customary law was created from the body of knowledge accumulated through generations that protected the relationship of people with their environment. Biodiversity, food sustainability and spirituality melted into one to represent the culture of the Hani people.

⁵ A short introduction to the toolkit of Socio-ecological Production Landscapes (SEPLs) resilience indicators framework developed by the United Nations University-Institute of Advanced Studies (UNU-IAS):

National- and global-scale indicators need to be quantitative for comparison across space and time and to be able to aggregate data at larger spatial scales. They also must be scientifically valid and objective, with assessment often conducted by experts. Unlike these higher-level indicators, the Indicators of Resilience in SEPLS introduced in this toolkit are for use at the local level. They include both qualitative and quantifiable indicators, but measurement is based on the observations, perceptions and experience of the local communities themselves. These local observations can be complemented by scientific data and information from global and national observations and data sets as well as prior studies. However, external data should be able to be adopted into the local knowledge base. The indicators in this toolkit provide local communities with a framework to discuss both current conditions of resilience and potential areas for improvement as part of the process of adaptive management. This can lead to quick and proactive efforts by local communities to strengthen the resilience of their production landscapes and seascapes. It also provides a consistent process for monitoring resilience of the landscape or seascape and the implementation of measures to address components and factors that lead to reduced resilience. The Indicators of Resilience in SEPLS partially overlap and complement some of the higher-level indicators. More resilient landscapes resulting from the use of the indicators and implementation of actions identified from their use will also contribute to global and national targets, such as those of the CBD (e.g., the Aichi Biodiversity Targets and National Biodiversity Strategic Action Plans), and the FAO International Treaty on Plant Genetic Resources for Food and Agriculture.

But today the village is in the midst of change. Not that it has never been subjected to change, but this time it is different. The village has reached the world outside and the outside world has reached the village. The young people exposed to increasing globalisation aspire more than what the confines of mushroom houses and terraced fields have to offer. The elders can only watch and wonder as the young people ride out in droves, bent to explore the outside world. Alongside this loss of youth, with the opening of this landscape to the world, those from outside begin to come in. Tourists, explorers, and scientists, most of whom are strangers to this way of life, come in with their own needs and agendas. The exchange begins. The villagers have a lot to learn from the visitors and they learn in turn from the locals. It is then the landscape begins to change.

4.1.1. Indicator 1 ***Ecosystem protection and maintenance of biodiversity***

Heterogeneity and multi-functionality of the landscape:

Do land management practices maintain a heterogeneous landscape mosaic composed of different land-use types and ecosystems, for example, a combination of natural forests, home gardens, cultivated fields, and orchards?

The Hani landscape demonstrates a heterogeneous and well-connected land-use typology consisting of forests, human settlements, terraced pond fields, and other production areas. While this land-use system is apparently traditional, i.e. this has been an inherent feature of the Hani landscape, some introduced changes may be positive, adhering to customary ecological knowledge management.

Rice terraces continue to dominate the topography as in the past. Home gardens are also maintained as production areas for vegetables that mainly supply the households. Other production areas, like banana patches and other orchards, may not seem traditional as these cater to the modern market economy. The banana orchards due to the distinct leaf form have changed the aesthetic quality of the overall scene. However, locals believe that maintaining diversified land-use strengthens the overall stability of the landscape.

Other modern introductions to the landscape are the “tourist villages,” hotels and resorts that seem to emulate the village typology but in reality, rival traditional settlements both in terms of area occupied, impact on the environment and in the excess utilisation of local resources. Similar to rice terraces elsewhere in Asia, these tourist enclaves are an added, almost unavoidable function in the landscape today with a definite impact on the traditional lifeways of the people and on both the cultural and natural environments. While the State Party appears to prioritize tourism development within cultural properties, the planning and implementation of tourism activities need to always adhere to heritage guidelines so as not to compromise authenticity and integrity of the landscape as defined by existing guidelines (including WHS Management Plan for Honghe Hani Rice Terraces; World Heritage Ecotourism Sustainable Development Plan; Special Plan for Interpreting and presenting Honghe Hani Rice Terraces of World Heritage and other policy documents relevant to its protection and continuity).

Areas protected for their ecological and cultural importance:

How many landscape components that maintain ecosystem functions and services are protected? Protection may be formal or informal and include traditional forms of protection such as sacred groves.

The four landscape components, i.e., terraces, forests, villages, and water systems, appear to be primarily protected by customary practices. The traditional sacred forests are a good indicator of this protection status as their continued existence and continuing cultural significance reflect the overall ecological status of the property and have an impact on other landscape components. All these components are interconnected parts of a holistic system where the health of one may impact the status of the others. Stringent government regulations on natural resources management also contribute immensely to the maintenance of ecosystem functions and services.

Ecological links between landscape components for sustainable production:

Are ecological links between different landscape components maintained and harnessed for sustainable production e.g. pest control, pollinators, nutrient cycling, groundwater recharge, and soil erosion control?

Beneficial links between the landscape and its components are maintained and harnessed. Once a year rice cropping pattern in higher elevations is in tune with the natural cycle of the terrain. Synchronized planting of the traditional red rice variety is perhaps the most efficient for pest control as rice-eating insects are dispersed over a wide area of the property. Further, the fallow period allows for nutrient replenishment as the soil is allowed to “rest” for several months. This enhances soil fertility for the next crop, which dispenses of synthetic fertilisers. In addition, water run-off from forests above the terraces enhances soil fertility in the pond fields as nutrient-rich compost from the forest floor is carried down to the terraces during downpours. Well-maintained forests, through their “root-network”, also prevent soil erosion thereby preventing damage and facilitating maximum productivity of the terraces. The rice-fish-duck systems also work effectively in pest control, nutrient replenishment, aeration, and food sustainability ensuring income generation.

Rate of recovery from extreme environmental and climate-change-related stresses and shocks:

Does the landscape have the capacity to cope with and recover from extreme environmental and climate-change-related stresses and shocks, e.g. pests and diseases, extreme weather events, floods and droughts?

The Southwest Drought in China which lasted from September 2009 to April 2010 and affected Yunnan Province is a classic situation where the *Hani Rice Terraces* exemplified its resilience to extreme weather events. The traditional land-use is in itself a conservation system. For as long as the traditional knowledge system is maintained and observed by current farmers and community members of the Hani people, their landscape will be able to cope with extreme weather perturbations brought about by climatic changes. The traditional land-use or so-called “four-in-one” system of forest-village-terraces-

river landscape is an ecological coping mechanism honed through several generations of experience. This time-tested trial and error experiment resulted in the current traditional knowledge being practised by the Hani people (this is further elaborated in Section 5.1.3 Traditional Knowledge Systems).

4.1.2. Indicator 2 **Agricultural biodiversity**

Maintenance, documentation and conservation of agricultural biodiversity in a community:

Are local crops, varieties and animal breeds used in the community?

Is agricultural biodiversity documented and conserved in community classification systems and community seed banks?

The Hani people continue to actively use traditional varieties of plants and animals. Nearly fifty varieties of the traditional rice are still being planted on the Hani terraces. These varieties can withstand extremely cold and dry conditions in mountainous environments. The terraces growing the traditional varieties themselves serve as seed banks as does an informal exchange between village communities. However, we do not have access to information on policies or efforts related to the setting up or operation of formal seed banks for conserving the agricultural biodiversity.

Diversity of local food system:

Do communities use a diversity of traditional and locally produced foods, e.g. cereals, vegetables, fruits, nuts, wild plants, mushrooms, berries, fish and animals?

Yes. Locally sourced foods are widely cultivated and abundantly consumed. The different altitudes of the *Hani Rice Terraces* can produce diverse agricultural products including different varieties of rice, fish, duck and bird eggs, aquatic animals such as spiral shellfish, rice-field eels and loaches, aquatic plants like taro and lotus roots, wild herbal plants grown in farmland ridges containing aquatic celery, plantain herbs, etc. Moreover, the forests on the top of the mountains can also produce fruits and mushrooms for locals.

4.1.3. Indicator 3 **Knowledge, learning and innovation**

Innovation in agricultural biodiversity management for improved resilience and sustainability:

Is there improvement, development and adoption of new agricultural biodiversity management practices to adapt to changing conditions, e.g. climate change, population pressure, resource degradation?

There is continuous collaboration among the Hani communities, the academia and other government institutions which should ensure the entry of agricultural innovations in the area. These types of collaborations, however, should equally respect traditional knowledge and prioritise consultations with the local communities. Any introduction in the name of biodiversity or increased productivity should be carefully planned to avoid disastrous consequences. The rice terraces of the Philippine Cordilleras have

already suffered the consequences from the introduction of a new species by the Department of Agriculture supposedly to effect food sustainability. The golden apple snail was introduced supposedly to augment the protein diet of farmers but now it is wreaking havoc on rice plants requiring the use of molluscicides.

Such effort may be well intentioned but without adequate base work or knowledge of possible impact, they can work to the detriment of the landscape.

Access and exchange of agricultural biodiversity:

Are individuals within and between communities connected through institutions and networks for the exchange of agricultural biodiversity, seed exchange networks, local markets and animal and seed fairs?

While we were not briefed thoroughly on the agricultural programs of the local government during the field visit, the pronouncement of locals on the presence of over a hundred varieties of traditional rice seeds speaks well of a high level of agricultural biodiversity and a possible exchange between communities.

Transmission of traditional knowledge from elders, parents and peers to the young people in the community:

Is the knowledge of key concepts and practices about the land, water, biological resources and cosmology transmitted between different age groups?

The absence of or diminishing transmission of traditional ecological and agricultural knowledge seems to be a universal problem. The younger generations of the Hani people similar to the Ifugaos in the Philippine Cordilleras are drawn towards popular culture and the so-called modern sciences which in turn results in a disconnect with the traditional knowledge of their ancestors. While there are attempts to address this within the formal education sector through teaching parts of local culture to students, these current initiatives are not sufficient to holistically transmit what is contemporarily perceived as antiquated knowledge of the past.

During the field visit, one of the *Migus* expressed concern that the young generation “would not be able to bear the hardship because they cannot work as hard as we can”- referring to the labour-intensive nature of maintaining the rice terrace landscape. Nevertheless, the *Migu* expressed their generation’s hope and willingness to pass on their knowledge to the younger ones.

Unless traditional knowledge is institutionalized in all sectors of government, there will be a widening gap between the young generation and the remaining culture bearers of a traditional society.

Cultural traditions related to biodiversity:

Are cultural traditions related to biodiversity maintenance and use continued by young people, e.g. rituals, songs, festivals, etc.?

The continuity of the institution of the *Migu*, the culture bearer and host to traditional festivals is crucial to the continuity of the traditional culture among the Hani.

While cultural traditions were still palpable during the field visit, most of these were in response to popular tourism. Locals mentioned the performance of rice rituals during certain times of the year as part of the agricultural cycle but mainly initiated by the older generations. This is typical in remaining agricultural societies that maintain the old ways of agricultural production.

For as long as the four elements of the *Hani Rice Terraces* retain their use and balance within the system, the cultural traditions that are innately linked to them will persist. Any change or loss in the system will either endanger the continuity of these cultural traditions or lead them to evolve in order to adapt to a different cultural context, such as tourism.

Number of generations interacting with the landscape:

How many generations interact with the landscape for subsistence and income?

The out-migration of younger generations for employment or education has left older generations in charge of the traditional settlement and landscape. Thus, a higher number of older generation of farmers appear to take care of the landscape.

Practices of documentation and exchange of local knowledge:

Are community-based institutions and systems for documentation, exchange and acquisition of externally-sourced knowledge in place? Traditional knowledge registers, resource classification systems, biodiversity registers, farmer field schools.

While the team did not explore the documentation and exchange of local knowledge, it should be rational to assume that considering the richness and potential for scientific research, the *Hani Rice Terraces* should have been highly documented or is undergoing documentation. Several volumes of books on the oral culture of the Hani people have been compiled, translated and annotated by a Hani woman (*Reference*). Knowledge on oral culture is a priority when it comes to documentation as these components of culture easily disappear. While local officials claim that parts of the Hani culture are being taught in basic education, it should be again emphasised that the teaching of culture needs to be holistic and long-term.

Use of local terminology or indigenous languages:

Do community members use local terminology related to land and the use of biodiversity and do they speak the local language?

The Hani people still speak the local language. However, during the field visit, a local Hani official lamented on how his 13-year-old son has minimal contact with the local culture and expressed his concerns that young people are losing touch with the traditional way of life. It is important to reiterate that young people as future repositories of culture and the Hani language as the medium of transmission of this culture need to go hand in hand.

Women's knowledge about biodiversity and its use:

Are women's knowledge, experience and skills recognised as central to practices that strengthen resilience?

Subsistence economies usually have egalitarian gender roles. Hani women play a recognised role in the persistence of their culture. It was personally observed during the mission that the labour force in the everyday life of the Hani is mainly female. The leadership positions as well those positions considered traditionally important are outside the purview of women.

4.1.4. Indicator 4

Social equity and infrastructure

Local resource governance:

Are land, water and other resources effectively managed by community-based institutions? I.e. existence of traditional institutions (customary laws) and non-traditional local initiatives (government and non-governmental) for the sustainable use of resources.

Traditional institutions like the *Migu* or "water dividing leader" still exert influence in the distribution of the terraces' most important resource. On the other hand, the government assists in the construction and maintenance of water channels. The harmonious interplay of traditional and contemporary management is necessary for the continuity of cultural landscapes such as the *Hani Rice Terraces* as their socio-political context changes.

Autonomy in relation to land and resource management:

Does the community have autonomous access to indigenous lands, territories, natural resources, and sacred and ceremonial sites?

The property is located in an autonomous region so there is a presumption of relative accessibility to indigenous territories and other cultural sites. The presence of traditional leaders like the *Migu* and *Mopi* seems to convey tolerance of traditional spirituality which bodes well for the cultural property within a non-traditional political environment.

Gender:

Are women involved in decision-making and communication with outsiders? Do women have access to resources, education, information and opportunities for innovation?

The oral literature of the Hani People is well documented in several book volumes by Zhang Hóng Zhen. A Hani herself, she wrote on the Interpretation of the ‘Hani Seasonal Production Ballads, Selections of Hani Folk Legends, Myths and Legends of the Hani Ethnic group’, among others. As a Hani woman she was a strong voice of the Hani people in the bid for inscription both for GIAHS and World Heritage Status (Source: Personal correspondence).

This may be seen as a sign of gender equality in the field of academic literature. The team’s interaction with community members, however, showed a usual dominance of men at least in the number of participants as well as local leadership positions. Though the Magistrate of Honghe Hani is a woman, most political positions within the government remain male dominated.

Social infrastructure:

Is social infrastructure including roads, schools, telecommunications, markets, energy and electricity in place?

The development of the tourism industry in the region brought about by the World Heritage inscription, the GIAHS designation and a host of other government and local initiatives has seemingly boosted infrastructure development within the property. Traditional houses are being rebuilt or repaired, albeit, not strictly following conventional conservation guidelines. Resorts and hotels are being constructed with touches of traditional and western architecture. Again, caution must be taken so as not to compromise the integrity and authenticity of the cultural landscape, maintaining the very reason for its inscription and global standing.

Health care:

Do community members have access to health care? Are traditional healing methods and modern medicine present?

No observations on this.

Health risk:

Is there a health risk from epidemics, water contamination, air pollution or other threats, e.g. malnutrition?

The Hani people still maintain a relatively pristine environment free from any large-scale health risk. With the onset of tourism in the area, the delivery of basic health services should become faster and more efficient. However, the effects of mass tourism in terms of pollution need to be adequately regulated by government agencies as waste matter production and disposal is commensurate to population density and will start becoming a major challenge to the property.

More information on the traditional medicinal systems and passing of this knowledge from community practitioners to the next generation would be relevant for a deeper understanding of the community healthcare mechanism.

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From the Foreword: "Perhaps the most outstanding feature of the set of indicators first developed by Bioversity International and UNU-IAS in 2012 is that they aim not to provide hard, quantifiable numbers to measure resilience – which would be a highly difficult and problematic process – but rather focus on a community's own perceptions. By encouraging community members themselves to reflect on landscape and seascape resilience and how it can be improved, the indicators potentially give them a greater sense of ownership over management processes, hopefully leading to more lasting sustainability."

Professor Alfred Oteng-Yeboah, Ghana National Biodiversity Committee

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5.0. THE DESIGNATION OF “HANI RICE TERRACES” AS A GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEM (GIAHS)

5.1. Introduction

The Hani Rice Terraces are an outstanding reflection of elaborate and finely tuned agricultural, forestry and water distribution systems and a complex, integrated farming and breeding system. The system represents a specific interaction with the environment mediated by integrated farming and water management systems and underpinned by socio-economic-religious systems.

Because of the unique technical, natural, cultural, social, and economic values, the “Hani Rice Terraces” system was designated as a Globally Important Agricultural Heritage Systems (GIAHS)⁶ by FAO in 2010 and as a World Heritage cultural landscape by UNESCO in 2013. The GIAHS designation is an effort to promote public awareness and attribute national and international recognition to historic Agricultural landscapes that were created, shaped and maintained by generation of farmers. In response to global trends that undermine family-centred agriculture and traditional agricultural systems, in 2002, during the World Summit on Sustainable Development (WSSD, Johannesburg, South Africa), FAO launched a Global Partnership Initiative on conservation and adaptive management of “Globally Important Agricultural Heritage Systems (GIAHS)”. This was defined as “Remarkable Land Use Systems and landscapes which are rich in biological diversity evolving from the ingenious and dynamic adaptation of a community/population to its environment and the needs and aspirations for sustainable development.”

The Honghe Hani system is widely recognised the world over for its unique landscape, but it has proved to be even more important for the future. During a drought episode in 2012, (continuing since 2008) many rice production areas were devastated, but the Hani Rice Terraces were spared as the microclimate ensured continuous humidity that worked to mitigate climate change thanks to its forest and traditional landscape management. Since then, many researchers and heritage professionals have conducted research to understand the nuances of Hani Rice Terraces System that helped its survival. To ensure a holistic and balanced approach to the conservation and management of the Hani Rice Terraces System, it is necessary to understand the correlation between the World Heritage and GIAHS designations to ensure continuity of the Hani Rice Terraces system.

5.2. Characteristics and values of the Hani Rice Terraces as a GIAHS site

⁶ The development of the GIAHS Programme can be divided into three stages: preparatory stage, pilot phase and FAO official programme phase. In the preparatory stage, the concept of GIAHS was developed from 2002 to 2005 and the GIAHS project was prepared from 2005 to 2008. Subsequently, GIAHS entered the pilot phase. The project was implemented from 2009 to 2014 as an initiative hosted by FAO, supported by the Global Environment Facility Trust Fund. In August 2014, at the 148th session of the FAO Council, it was agreed that GIAHS should be vested with formal status within the FAO framework. And in July 2015, at the 39th FAO Conference, it was agreed that GIAHS be accepted as an official FAO programme. Since then, from 2016, GIAHS entered a new phase of steady development and operationalisation of its concepts under FAO framework. To date, 58 GIAHS sites from 21 countries have been designated.

The Hani Rice Terraces were created by the Hani people, who have lived in this remarkable landscape for over 1300 years. The terraces are mainly distributed along the southern part of the Honghe Ailao Mountains spread over four counties: Honghe, Yuanyang, Lvchun, and Jinping, covering an area of about 70,000 ha. Hani Rice Terraces represent an exemplary case of farmers' wisdom in China. The Hani villages are built on the mountainsides. Above the village are flourishing forests with the rice growing terraces just below the villages. In the Hani Rice Terraces there are no reservoirs, yet the water supply is abundant. The forest, village, terrace, and river compose the typical ecological landscape of the Hani Rice Terraces. The Hani People, their indigenous agricultural technologies, their selection of the site for their settlement and their traditional customs for environment protection and conservation all show a harmonious relationship between humans and nature, and their relationships within human society as well.

5.2.1. Food and livelihood security

The Hani Rice Terraces are located in the Honghe Hani and Yi Autonomous Prefecture in the southeast part of Yunnan Province and home to various indigenous communities, with Hani being the main minority group. Local economic development is relatively slow and most residents are engaged in agriculture and related industries.

Agriculture and related industries are the main sources of income for the residents in the Hani Rice Terrace System. Many job opportunities are provided through the agricultural production works within the rice terraces which include crop production, vegetable cultivation, fish farming, duck farming, etc. The biological resources industry, food processing industry, agro-products processing industry and other industries related to agricultural production also provide employment. The rice terraces efficiently ensure livelihood security for the farmers.

These crops, vegetables, fish, ducks and the livestock as well as rice fields form an organic circulation system that ensures efficient recycling of materials and energy and provide a wide range of agricultural products with excellent quality, unique taste, and rich cultural values.

5.2.2. Biodiversity

The Hani Rice Terraces are rich in agricultural biodiversity and associated biodiversity. Rice planted in Hani terraced fields is extremely diverse. According to a field survey, there used to be 195 varieties of local rice, among which 48 of them are still cultivated. With a rich diversity, common varieties of rice mainly consist of Hongjiaogu, Shuihongjiaogu, Dabaigu, Maxiangu, Mazhagu, Pizagu, Changmaogu, Shangu, Xianggu, Shuihuangnuo, Damaonuo, etc. Hani communities conserve rice diversity through seeds exchange with surrounding villages.

In addition to the agrobiodiversity of rice, the Hani terraced fields shelter many other types of plants and animals such as:

- 1) A large variety of natural aquatic animals like fish, snail, eel, loach, shrimp, river loach, stone mussels, crab and so on, as well as duckweed, lotus and other aquatic plants;
- 2) Natural & wild herbs like water celery, plantain, Houttuynia may be found growing on the ridge of the terraced fields.
- 3) Hani have raised ducks and culture a variety of fishes including carp, silver carp, crucian carp, etc. in terraced fields as well as planting soybeans on the ridges between fields.

Finally, well-preserved headwater forests, divine mountain stronghold forests, and firewood are situated at the top of the terrace. These forests belong to the middle mountain moist evergreen broad-leaved forest with high biological diversity, including a variety of wild trees⁷, wild herbs⁸, mushrooms, and insects⁹.

5.2.3. Traditional Knowledge Systems

The Hani Rice Terraces are a living testimony of the Hani people's unique knowledge. Indeed, the Hani utilise and manage the local water resources in a unique, simple, economical and efficient manner ensuring the sustainable operation of the Hani terraced rice farming system.

Hani communities have taken advantage of the geographical features of the mountains to shape unique and characteristic landscapes, making rice paddy agriculture possible. First, Hani communities constructed their villages below natural forests and above terraced fields. This configuration, based on water management engineering, allowed Hani terraces to use water as a source of power, promoter of fertilization and irrigation. This led to the development of a traditional method of "fertilization of rice fields with hydropower" comprising of two different fertilization methods using water flow. The first one is the use of communal manure ponds where the livestock manure of oxen and horses is accumulated and water is released from the ponds so that manures are washed into terraced fields. The second type of fertilization is the use of rainwater which washes dung and humus from the mountain into the ditches then being diverted into the terraced fields of rice.

This traditional method of soil fertilisation to some extent plays an energy-saving and emission-reduction role and can provide an important reference for slowing global warming and protecting the water environment. Additionally, the Hani benefit from the favourable condition of canals flowing through their villages thereby optimally using their water resources. The hydropower is utilised to save labour through such facilities as the water grind, water mill, water pestle, etc. Rice husk is removed by water grind and converted to flour using the water mill and further mashed by the water pestle to be finally processed into a variety of food items. The utilisation of the water grind, water mill, and water pestle is not only an

⁷ Handonggua, Xishu, Nansuanzao, Baicangshu, Hongmuhe, Maocihuaijiao, Xiangyeshu, Rangjiaomu, Lingmu, Xinmujiangzi, Danbingcha, Wafan, Shancha, Duancikao, Shaluoshu, Keleimu, Duomaidongqing, Bayberry, Golden bamboo, Cherry, Huahuimu, Mutong, Mao chestnut, etc

⁸ Yunnan Baizhu, Maojuecai, Chaotianjue, Zijingzelan, Youcifengweijue, Wanjue, Xiangqing, Jincuo, Riceball, Biandaxiuqiu, Baimiu, Tuerlan, Xiatianju, Hanqin, Shuiqin, Yuxingcao, Yemoyu, Huanghuacai, Tumoyu, etc

⁹ Mushroom, White fungus, Black fungus, White ginseng, green headed fungus, Ganbajun, etc.

accumulation of the Hani's wisdom but also an important manifestation of the rational use of natural resources.

The management of ditches plays an important role in terraced field irrigation. The water coming down the hills has to flow through the ditch to reach the whole terrace. The purpose of digging ditches is to catch flows from mountain forests and spring water seeping from mountains to irrigate terraces. In addition, the ditches can also be used to trap sediments before they enter the terrace to avoid continuously elevating the surface of the terrace due to sediment deposition and in turn reducing their water-retention capacity.

To provide every household reasonable and fair access to water, the Hani have invented a unique water allocation method with "water dividing wood", "water dividing stone" and "watershed distribution". As per this method, a wood or stone bar is placed at the junction of water diversion to lower ditches. The wood or stone is carved with different sizes of water outlets to divide and allocate specific volumes of water to flow to lower ditches. The size of the water outlet for each lower ditch is decided according to the irrigation area of the ditch, the water flow in the upper ditch, and the historical order of irrigation priority. This water distribution method not only enables modest terraced water conservation, but also ensures irrigation of the lower hill paddy and has set a precedent for irrigation of mountainous regions demonstrating the significance of community management of resources.

Finally, and most importantly, forest conservation at the top of the mountain is used by the Hani as an efficient tool to mitigate climate change and retain humidity in the mountainous terrain. This is elaborated in the chapter on landscape features.



Fig. 14: Wood cut system of water distribution (Prothi Khanna, 2019)

5.2.4. Cultural value systems and social organisation

Representative of the mountainous rice culture of Asian ethnic groups, the Hani Rice Terraces demonstrate historical development, ethnic cultural traditions and the local management techniques for the cultivation of terraced fields of the Hani ethnic group living along the south bank of Honghe River.

The tangible cultural heritage includes the villages, dwellings, and buildings for production, the sacred woods of the villages, irrigation works, and road sign steles, etc. Hani worship of nature is ultimately embodied in the worship of the tree. The Hani respect trees as gods safeguarding and blessing them. They believe that cutting down trees bring retributions. They worship trees as representative of nature through a series of religious activities such as "Village Deity's Day". The Hani people worship trees and nature annually, with a solemn religious ceremony to express their reverence to trees and nature.

The unique water management system is led by the "ditch leader". The ditch leader's first job is to dredge ditches and then allocate water and solve disputes arising over water use. Since the ditch leader has contributed his labour to the water management, the household whose terraced fields are irrigated by the ditches must pay "ditch rice". In general, to use certain water in a ditch for irrigation of 2 to 3 mu of

terraced fields, a household must pay a bucket for the ditch rice (2.8 ~ 3.0 kg) to the ditch leader. The collected ditch rice will be distributed to the ditch leaders as annual labour allowance.

The intangible cultural heritage includes traditional rice production and lifestyles, traditional customs and festivals, including activities and knowledge systems passed down orally (e.g. *Seasonal Production Ballad of Hani People*). Terrace farming is the foundation of Hani culture, and festivals and celebrations are important carriers to display traditional Hani culture. They blend together and are difficult to separate. Sacrificial activities held for the Hani terrace farming are combined with festivals and celebrations. From the perspective of social functions, Hani celebrations such as the New Year Festival, Ku Zhazha, Fresh Rice-tasting Festival, Offer of Sacrifices to Village God and Beginning Day of Rice Planting ensure the continuous inheritance of their rice farming culture.



Fig. 15: Sacrificial Ceremony at Angmatu Festival (Zhang, 2019)

5.2.5. Landscape features

The vertical distribution of the Forest-Village-Terrace-River ecological landscape features has been formed in the Hani terraced landscape alongside a unique system of energy and material flows. Natural rainfall falls on the ground to form surface runoff and percolate into the underground water system. Surplus runoff and springs flow through the forests, villages and terraces along the slope. Flowing water carries nutrients from forest litter, village sewage and waste, and sediments into the numerous layers of horizontal terraced fields. These nutrients, as well as sediments, are trapped and filtered in the fields. On the one hand, the filtering process can improve soil fertility in the fields. On the other, only excess sediment and less polluted water are discharged into rivers in the valley. The spatial structure of the Hani terraces performs various ecological functions, including soil and water conservation, control of soil erosion, enhancement of village safety, maintenance of system stability, improved self-purification capacity, climate change mitigation and others.

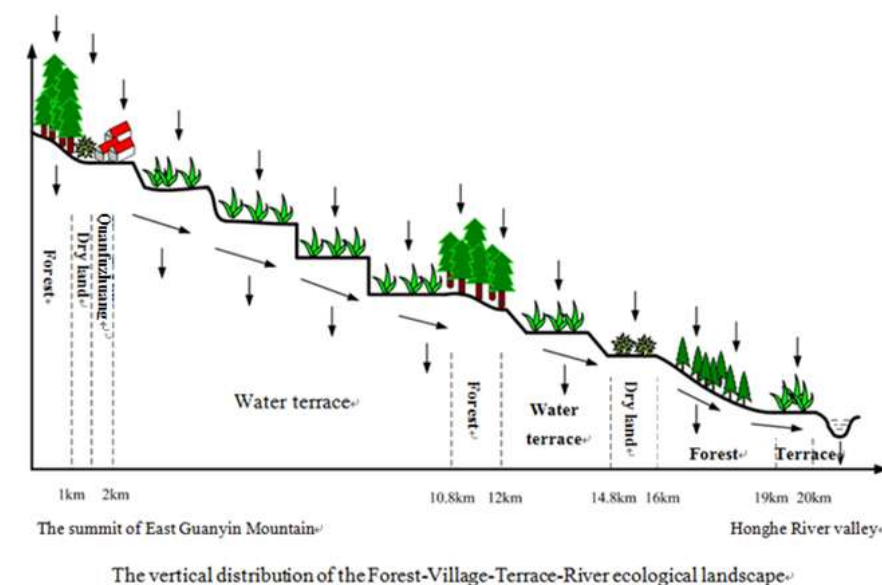


Fig. 16: Graphic section through the terraces (Proposal for GIAHS Designation, 2010)

5.3 Relationship between World Heritage and GIAHS

GIAHS sites are integrated agricultural, forestry, livestock and fishery systems resulting from the co-adaptation and co-evolution of humans with plants, animals and an ecosystem under specific environmental circumstances. Local communities have developed agricultural systems through highly adapted social and cultural practices and institutions. These systems which are important at local, national and global levels could provide food and livelihood security and contribute to social, cultural and ecosystem services. However, GIAHS sites are under threat.

As regards UNESCO, the Convention concerning the Protection of the World Cultural and Natural Heritage defines three categories which include cultural heritage, natural heritage, and mixed (cultural and natural) heritage. To respond to the evolution of changing definitions of heritage and improving global representation on the World Heritage List, new categories of heritage were included. In 1992, the World Heritage Convention became the first international legal instrument to recognize and protect cultural landscapes when the Committee at its 16th session adopted guidelines concerning their inclusion on the World Heritage List. Offering a holistic perspective, cultural landscapes represent the “combined works of nature and of man” as designated in Article 1 of the Convention and emphasize the coexistence and sustainable development of man and the environment.

Evident from the above explanation, cultural landscapes within the World Heritage Convention are the closest UNESCO Programme to the concept of GIAHS. Both emphasize the protection of biodiversity, the co-evolution of nature and human life, and human adaptation to the natural environment. In fact, several heritage sites that have been listed as World Heritage cultural landscapes are also GIAHS sites.

The inscription of World Heritage Cultural Landscapes requires sites to meet specific requirements related to integrity, authenticity, protection and management, in addition to possessing a quality of universality as with all World Heritage properties. The GIAHS designation requires the fulfilment of the following five selection criteria together with a realistic and tangible, dynamic conservation action plan. A GIAHS site should conserve the elements reflected in agricultural production and its contribution for food security and livelihood; agricultural biodiversity and ecosystems; traditional knowledge; and cultural activities and landscapes.

The GIAHS programme is focussed on the sustainable development of livelihood of rural communities and co-existence between people and their environment. In this sense, GIAHS designation is not the final goal of the applicants but aims to achieve dynamic conservation of the agricultural systems. The concept 'dynamic conservation' seeks not only the conservation of the site but also encourages the sustainable development of the systems to reach a balance between farmers' lives and the productive landscapes while maintaining the core elements of the site which make it a GIAHS.

GIAHS dynamic conservation requires the implementation of all necessary measures, initiatives and actions from both public and private sectors with the participation of all relevant stakeholders. These may include a wide range of measures and actions such as the establishment of a management committee to coordinate all actions, restoration of agricultural resources (terraces, irrigation, farmland), quality management and improvement of agricultural products, promotion of in-situ conservation of local varieties, development of value chain or branding of agricultural products, conservation of eco-services, promotion of agritourism, incorporation of new technologies, conservation of traditional knowledge, empowerment of youth or female farmers, etc. The other difference can be observed in the stakeholders and responsible ministries. For example, in the GIAHS context, the knowledge systems should represent an adaptation to the context-specific environment. How the system has evolved and its potential response to global issues like landscape erosion and climate change are important factors. Therefore, GIAHS activities are generally led by farmers' organisations and their communities, or researchers from the fields of agriculture/forestry/fisheries, agroecology and biodiversity, and supported by Ministries of Agriculture, Environment or Forestry that can handle the agronomical and technical part of conservation and knowledge dissemination.

5.4 Conservation and Dynamic Management of “Hani Rice Terraces”

The Hani Rice Terraces System represents a traditional agricultural system and a complex socio-economic-natural system. Agriculture largely lays the foundation of this system. Local farmers are the creators of this heritage, the main force behind the conservation as well as beneficiaries of these efforts. Therefore, the key to conserve and manage the system for continuity is to ensure that local farmers are willing to engage in agricultural production in the traditional way. Therefore, if we want to conserve the Hani Rice Terraces, we need to first address its agricultural practices and needs of farmers.

The Hani Terraces, as a GIAHS and an Agri-Cultural Landscape, is rich in biodiversity generating diverse ecological products and showcasing efficient land and water resources utilisation methods applying a local understanding of ecological philosophy. Beyond local significance, the system is recognised for its superior ecological environment with significant ecological value. It is living, adaptive, complex, strategic, multi-functional as well as currently endangered. Based on the above-mentioned basic characteristics of Hani Rice Terraces, the aims to conserve the system are as follows: 1) to promote the sustainable development of the sites which are ecologically fragile, economically undeveloped but bio-culturally rich; 2) to improve the livelihood security and social welfare of local residents; 3) to provide references for the development of sustainable agriculture and rural development. Therefore, the general principles of conservation are 1) conservation in priority and appropriate use; 2) overall conservation and coordinated development; 3) active conservation and function extension; 4) dynamic conservation and adaptive management; 5) in situ conservation and demonstration and extension; 6) multi participation and benefit-sharing. In general, the conservation of Hani Rice Terraces should be holistic, vivid and dynamic as well as based on the principle of sharing. The conservation work should promote the dynamic adaptation of living and evolving agricultural systems. Importantly it should be understood that any attempt to protect or conserve the Hani Rice Terraces should not be akin to fossilisation. Instead, conservation should strengthen “what is there” i.e. human management systems and cultures that underpin the sustainability and resilience of the system, creating better policy and regulatory environments and incentive structures at all levels and eventually focus on improving peoples’ livelihoods and viability.

Some challenges to conserve the Hani Rice Terraces System exist. First is the multiplicity of management departments that confuses the issue of power and responsibility when carrying out protection work. The multiple departments to be dealt with include the Ministry of Culture and Tourism (State Administration of Cultural Heritage), the Ministry of Agriculture and Rural Affairs, the Ministry of Natural Resources (State Forestry and Grassland Administration), the Ministry of Water Resources, and the Ministry of Ecology and Environment. Traditional agricultural work is the foundation of many of the aspects in the system. This type of agricultural practice requires more labour and is less efficient and productive. As more and more farmers are migrating to cities to work, this is creating a shortage of skilled farmers. However, despite the exodus the remaining rural population continues to pose a serious challenge for food availability and security.

After intensive efforts over the years, more people know of the Hani Rice Terraces now and are willing to buy its high-quality agricultural products. The prices, however, remain relatively low thereby not making it profitable for the farmers and further catalysing rural to urban migration. At the same time, the system is located in less developed areas with relatively low-income levels and relatively weak industries. The three key tasks for protecting and developing Hani Rice Terraces are ecological conservation, cultural inheritance and economic development.

In line with the FAO and GIAHS functioning, it is proposed that in order to solve these challenges, four mechanisms should be established. The first of these, "Threats and Challenges Analysis Mechanism" which investigates and analyses threats to the current Hani Rice Terrace System to then seek appropriate actions to address these factors, in collaboration with researchers. "Policy Incentive Mechanism" or innovative economic incentivisation with "Eco-Cultural Compensation" as the core is the second mechanism. Hani system not only has abundant (agri) biodiversity and spectacular agroecological landscape, but is also located in an important ecological function area. The system has high ecological value and significance. Meanwhile, Hani Rice Terraces is a remarkable rural cultural landscape which consists of ingenious traditional cultural knowledge and unique traditional farming technology. The system also has high cultural value and importance. While undertaking conservation work, ecology and culture should be equally considered within the system. The third mechanism establishes a Five-in-One Model "Multi-Stakeholders Participation Mechanism" consisting of representatives of the government, technology sector, enterprises, farmers and society. The conservation works should be led by the government, supported by scientific efforts, joined by farmers, driven by enterprises and with the involvement of the public. The last mechanism is to establish an "Industrial promotion mechanism" with organic production, function expansion, and integration of three industries as the core. The food processing industry, biological resources industry, agro-products processing industry, cultural industry, leisure agriculture, agritourism and other industries related to agricultural production should be enhanced. The GIAHS-brand of different products which include functional agro-products, distinctive agro-products, special tourism routes and tourist souvenirs should be created. High-end markets should be encouraged. The above-mentioned ways could absorb more labour thereby increase farmers' income.

Local farmers are the creators of this heritage, the main force behind conservation and in turn beneficiaries of conservation actions. Therefore, in addition to the above mechanisms, another focus of conservation works is to enhance farmers' confidence. The identity of the farmers is diverse. They are not only planters and breeders, but also performers, farmhouse receptionists and characteristic products sellers. The designation of GIAHS could enhance the confidence and consciousness of local traditional knowledge and culture. The importance of farmers should be recognised and reflected when carrying out conservation work. An important point is to make the farmers aware of their importance in the system as a result of their unique culture, traditional farming methods, brilliant landscapes, but also the value they add in their continuing to work in this landscape and efforts towards the conservation of the Hani Rice Terraces.

6.0. MANAGEMENT OF PROPERTY

6.1. Policies and Management Frameworks for the property

At the time of nomination of the Hani Rice Terraces, the State Party reiterated their commitment to respecting, studying and identifying traditional knowledge and customs; joint stakeholder participation in protection; encouraging the establishment of the Public Protection Agency (this includes protection organisations such as the Young Volunteer Team, the Hani Rice Terraces Protection and Development Association and the Yuanyang County Hani Rice Terraces Culture Preservation Institute); and villager group participation and establishment of village regulations (regulations include *Regulations on Forest Protection of Quanfuzhuang Village* which puts in place rules and punishments for deforestation and tree cutting).

The property was inscribed on the World Heritage List in 2013. Its recognition and protection and management systems within local governance in China were in place by then. The management plan for the World Heritage site was conceived to run from 2011 to 2030, and is divided into short term (from 2011 to 2012), medium-term (from 2013 to 2020), and long term (from 2021 to 2030).

To adhere to the World Heritage Convention, the PRC implemented the *Measures on the Protection and Management of World Cultural Heritage* in accordance with the *Law of the People's Republic of China on the Protection of Cultural Relics (Revision 2017)*.

In 2008, the Yuanyang County People's government designated the terraces as a historic site, the highest protective designation for cultural heritage in China to ensure appropriate conservation and management plans, local laws and regulations and village rules provide at the local level.

By 2007, the site was approved as a National Wetland Park with 5 scenic areas stretching over 3000 hectares by the State Forestry Bureau in 2007. Further protection was established under the *Water Law of the People's Republic of China, Law of the People's Republic of China on Prevention and Control of Water Pollution and Administrative Measures on National Wetland Park*.

In 2006 and 2008, the traditional heritage of *Four-season Production Ditties of Hani Minority and Hani Haba* (the ancient song of the Hani Minority) were included on the National Intangible Cultural Heritage List. *Regulations of Yunnan Province on Protection of National and Folk Traditional Culture* ensured protection at the prefecture and county level.

6.1.1. Framework to protect the cultural and natural values of the property

Regulations of the People's Republic of China on the Protection of Basic Farmland (1994) ensures that the terraces are not exploited in the overall land utilisation pattern to meet the increasing pressures of

population or socio-economic development. More than 97% of the land is owned by the collective with less than 3% under State ownership. While the State manages the land under forests, rivers and highways, the collective manages the villages, forests, and ditches. The Land Administration Law of the People's Republic of China ensures that rural and suburban land, as well as houses, private croplands and hill land are owned and managed by peasant collectives.

Water management which is vital to the survival of the terraces is managed by the Hani. The water sources from the forests, as well as channels and hydraulic facilities, are protected under traditional mechanisms. Though the creation of diversion works and collective ditches to ensure accessibility of irrigated areas is the mandate of the government, the actual repair and maintenance work is the responsibility of three elected representatives of the villages. Strict traditional rules related to water distribution, water sharing, and ditch damage evoke strict punishment to this day.

6.1.2. Local site management process

Including representatives from departments throughout the Honghe prefecture, the *Hani Rice Terraces Cultural Heritage Protection and Development Management Committee* is responsible for implementing the plan. *Hani Terraces Administration of Honghe Prefecture* 12 staff members manage the day to day running of administration with local stakeholders in the County.

While the *Migu* and *Mopi* maintain their traditional roles as spiritual and administrative leaders, the ditch keepers and forest rangers too are responsible for allocating water and managing natural resources. The local governance continues. For example, the Tusi Native Chieftain System is made up of two Tusi governments (the Mengnong and Zongwazhai governments) within the Yuanyang County.

6.2. Identification and engagement with key stakeholders

A series of visits to the rice terraces, meetings with stakeholders, presentations to government officials and community representatives led the field visit team to understand the values of this cultural landscape to the people themselves and to others, and to become aware of some of the concerns and challenges being faced in the management of the property. External change; development or tourism initiatives; breaks in transmitting their belief systems, lifestyle and practices to their youth; and the changing climatic context are altogether impacting the Hani intangible traditions, the physical integrity of the site and the natural processes that have safeguarded the property so far. These have been addressed while drafting a set of recommendations.

6.2.1. Connecting Nature and Culture in the voice of the Hani

Like any traditional culture, the Hani response to their landscape, lifestyle, and food represents a deep belief system representing the unity of nature-culture, farming and intangible traditions. The voices of the Hani people responded in unison for their landscape. At the stakeholder discussions and visits to villages and terraces within the property, this is **what was heard**, from the **Hani people**:

This is our cradle

Terraces are my mother, they gave me life

I was born here and I moved away, now I am back to revalue

Wisdom to the world

Honoured to work here as I was raised in this culture

Proud to be a Hani mother – we plant a tree when a child is born

Grandparents are the best kindergartens

Hani are hardworking people

Tourists should come for the scenery but also our traditions - songs, music and dance

I express the beauty of this place in a song

Like a beautiful painting, like a poem

Water is life

Their belief and pride in their landscape were evident and unshaken, but discussions brought forth many concerns and challenges which have been highlighted in the previous sections of the report.

The *Hani Rice Terraces* come across as a unique site not only for their values but for the following aspects noted by the field visit team:

- Diversity of microclimatic conditions create a unique palette of flora, fauna and landscapes.
- Diversity of people, costumes, food brought out the flavours of the Hani culture which were distinct even within the country.
- Sustainable farming practice rooted in hardship and hard work moves the focus from the aesthetic to a deeper experience.
- The landscape exhibited connections between cultural diversity and biodiversity.
- Passion for their Hani heritage: “We are proud to be Hani but others should be proud of us as well!”
- Hani hospitality and warmth and their love for music and dance come through vividly.

Some of the primary concerns of the community that emerged from this field visit were focussed on the continuity of their traditions and their landscapes. They have survived external pressures such as the drought in 2012, increasing tourism and provision of large scale tourism infrastructure, but their main concern, which was echoed time and again on the visit, was the migration of their youth and their loosening connection with their culture and landscape.

A question that dominated the interaction with the community representatives was, how do we bring back the younger generation that is migrating to other parts of the country in search of livelihood? How

do we inspire them to learn and practice our traditions, so they are not lost? Other concerns that highlighted the larger problems being faced at the site were centred on subjects such as tourism and related infrastructure. The tourism industry seems focussed on packaging conveying the aesthetic value of the landscape. The deep traditional ethos of hard work and farming in sync with nature and the reliance of the landscape are yet to be explored.

The dilemma to accept low production of rice terraces (sustenance farming) versus modern means of using mechanised farming, improved fertilisers, and other steps to give impetus to yields is a challenge facing the agriculture sector.

Customary laws do not segregate between cultural and natural heritage. Rather, they have set in place systems of protection of their forests, water and biodiversity to continue their agricultural production and lifestyle over generations. The management systems, laws and policies at national and prefecture-level would need to reflect this interconnectedness in all realms of protection and management including guiding new socio-economic development on this property. This is a possible pilot for demonstrating how a cultural landscape and its people are able to balance their rights and duties form a landscape to ensure its longevity.

The stakeholder discussions were held at the Hani History and Culture Museum on 5 and 6 November 2019. The notes of the discussions are in Annex 4.

On the weeklong visit, the field visit team managed to travel through a diverse landscape. As a result of the stakeholder discussions over two days, the team gathered a glimpse of the landscape from the eyes of the Hani.

6.2.2. Voice of the field visit team on how the management system can further take into account the interconnected character of natural and cultural values

A field visit to the Honghe Hani Rice terraces offered a collaborative understanding of this World Heritage Site from the perspective of its unique culture, interconnectedness of the natural cycles with traditional systems of red rice farming and rural life. The project exemplifies the relevance of a holistic approach to conservation of nature and biodiversity, safeguarding traditional agricultural systems and a unique community life entwined with the provision of food security and resilience to take on the future.

Traditional societies the world over are struggling with the question of what we should conserve and what do we let go. In response to this, how can World Heritage status and GIAHS designation help sustain the traditional landscape and agricultural systems on this property as well as represent this as a good practice project for other regions as well.

It is now time to revisit how nature-culture interconnectedness will be part of the future short, medium and long term planning for this property as per the Management Plan set in place in 2013. The



challenges of migration, tourism and changing needs and climate are asserting different pressures on this property. How can a nature-culture approach guide the property management and policies to ensure that the relationship between the community and its landscape continues?

7.0. LESSONS LEARNED AND RECOMMENDATIONS

Though local management is in place for their villages, fields and forests, the active participation of the villagers in decisions related to public projects, tourism policies and infrastructure development needs to be set in place. This will not only ensure traditional wisdom for the location of the infrastructure but also help people decide what they want to retain, protect and showcase. This is also a possible means of engaging Hani who have left their native villages to gain other education work experience not directly relevant to the farming, cattle rearing or other related agricultural practices. Involvement of the community for developing a future vision with their local authorities and formulating a specific plan for tourism management and development of the region is essential.

An information centre is being developed at Xinjie Town that will focus on the Honghe Hani Terraces and their social and religious structure, which is to be completed by 2020. There is currently an exhibition hall at the Management Centre that introduces visitors to the terraces in their context. There are also exhibition halls in Laohuzui, Duoyishu and Bada villages.

The concept of dynamic conservation proposed by GIAHS and dealt with in detail in a preceding section is an important consideration to balance the needs of the place with the needs of the people with an eye on the future. Conservation and management will need to be dynamic to address the vagaries of climate, loss of hands for the fields, erosion of traditional knowledge and changing aspirations of the community based on its changing mix with time.

From an IUCN perspective, there was a need to explore the biodiversity of global importance in the area. The nature realm offers the opportunity to learn and interpret the nature-based solutions that have been employed traditionally and bring in innovation to scale this traditional ecological knowledge for similar sites in the region. Similarly, here is an opportunity to interact with the community to present the nature perspective of IUCN to them for a dynamic exchange of concepts and information to design the way forward.

Though the commitment and formal mechanisms to protect the traditional systems and to support the cultivation of red rice are in place, there is a gap in the site presentation and tourism strategy which may prove to be challenging. There is a need to ensure a Sustainable Eco-Tourism Strategy and an Interpretation Strategy so as to ensure there is a clear understanding of what is being sustained and how tourists can support the overall management process.

One of the recommendations on the ICOMOS Evaluation was “Given the size and scale of the Honghe Hani terraces and the commitment that has been given to their support, ICOMOS would welcome the possibility of engagement between representatives of the property with representatives of other terraced properties in Asia in order that measures taken to sustain the traditional societies might be shared”.

Including a member from the Ifugao community representing the rice terraces of the Cordilleras from the Philippines was an effective step in this direction. Having a member from an Asian nation that practices this agriculture and having experts who closely understand the formal ICOMOS, IUCN and GIAHS mechanism as well as the traditional systems of land management is a positive step forward. This is a demonstration of possible future collaborations across expertise of nature-culture-agriculture and traditional expertise.

When carrying out conservation works on the Hani Rice Terraces, the role of World Heritage and GIAHS should be led in parallel. As World Heritage and FAO do not approach agricultural heritage the same way, their conservation and development actions need to be well-coordinated and integrated within a common framework. In this regard, the approach of dynamic conservation within GIAHS should be understood within its original mandate of maintaining agricultural production and strengthening sustainable development of the site. This may entail the introduction of new elements or changes that may create conflict with the principles or practice of conservation under the World Heritage framework. When local communities wish to introduce some changes for the dynamic evolution of the site, their voice should be given a priority. In other words, conserving traditional knowledge and the unique culture while ensuring the dynamic evolution of the system and spectacular landscape requires collaboration and interaction between a wide range of fields of expertise to address the many aspects of being designated as GIAHS and a World Heritage cultural landscape. Both approaches are complementary and could work together to ensure successful conservation and revitalisation of rural landscapes.

Some possible interventions over a short term can focus on nature-culture linkages in intangible practices. Bridging formal education with traditional ecological knowledge is an important impetus to transferring this knowledge to the next generation and thereby continuing these practices responsible for the upkeep of the overall Hani system. A deeper understanding of how these continuing traditions are protecting natural resources and in return protecting the settlements can be relayed through taking up nature-culture projects in this region. Besides education, the teaching and incorporation of crafts and other local practices such as indigo dying and specific art forms need to be built within the community spaces and serve to better understand the nature-culture roots. It is also important to revisit settlement planning and to understand the science behind location, building and actual space organisation and detail based on the natural context and cultural need.

7.1. Way Forward

7.1.1. Tourism

Experiencing culture is beyond seeing. Tourism at the *Hani Rice Terraces* has to move beyond the aesthetic to the experiential and to present the value of a place from nature-culture perspective. For example, the tourists see the sky and sunlight reflected in the waterlogged rice terraces. However, in the functioning of this terraces, the "...clefts in the rocks channel the rain, and sandstone beneath the

granite mountains traps the water and then later releases it as springs. A complex system of channels has been developed to spread this water around the terraces in and between different valleys. Four trunk canals and 392 branch ditches which in length total 445.83 km are maintained communally". Tourism is about telling the complete story.

Another example is related to the traditional calendar which is an important guide to undertaking activities in response to the natural cycle and is a part of the culture which should be protected. The festivals are an important celebration of the seasons and connected activities linking nature and culture. Similarly, the food, dance forms, songs and music are interlinked to the festivals, the harvest, sowing or celebration of the natural cycle.

7.1.2. Infrastructure

This plays an important part for the Hani people to return to the site to reconnect with their roots. It is also important to bring in visitors, making connectivity for people and goods easier. The location and design of the infrastructure has to directly involve the locals who have the best understanding of their terrain and culture to decide on the optimal location. Innovation centred on nature and culture needs to drive the future of the Hani people to cope with a changing context. Here it is also important for them to interact with other similar sites, sharing experiences and being inspired by solutions from other places.

7.1.3. Agriculture

The dynamic conservation proposed by GIAHS focuses on the community. The system that the community has put in place has been in use for over a millennium. This indicates that the community needs to propose, accept and implement any new systems. The majority of community landholding and practices such as ensuring that the fields are tilled even if the owners themselves are not keen for agriculture ensures long term sustainability. Promotion of organic red rice as a product helps in conserving the biodiversity of the remaining varieties that continue to be grown by also conserving the traditional milling and production systems. These traditional methods using organic cattle manuring have helped to maintain the nature-culture balance.

7.1.4. Resilience

One of the most important aspects that contributes to the future sustainability of the terraces is the decision on what to keep and what to let go. But the Honghe Hani Rice Terraces need to chart their future where what is kept or what lost is a collective decision. To cater to the future of climate change, water paucity, pollution and the emigration of the younger generation, the Hani have to call upon their inherent wisdom. This property can show the way for similar landscapes through its simple approach of preserving its past to protect its future.

The visit and interactions with the residents, managers and others brought forward the different perspectives of World Heritage, people, organisations such as ICOMOS, IUCN, GIAHS and many others. Is there a singular vision possible for the community, tourists and site managers alike? How do we address the present to safeguard this for the future from the perspective of heritage and food security? How do we communicate the principles of authenticity so the original and inspirational within this context is not lost to the aspirational of the outside influence and pull factors? When the real value is realised authenticity is not compromised. It is this reality which will probably pull the best talent back from the cities to the villages to learn from and make a difference.

ANNEX 1

TERMS OF REFERENCE

Fieldwork - Cultural Landscape of Honghe Hani Rice Terraces China

The members of the team will:

- as part of the IUCN/ICOMOS Connecting Practice project, participate in the fieldwork to the **Cultural Landscape of Honghe Hani Rice Terraces** from **3-9 November 2019**, with the overall objective of strengthening policy frameworks and management arrangements that will achieve a more genuinely integrated consideration of natural and cultural heritage of the property;
- participate fully in all activities during the mission as part of a team composed of representatives from: IUCN; ICOMOS; the GIAHS Programme (FAO); and the relevant local authorities.
- adequately prepare for the fieldwork by reviewing the documents provided, including those that supported the nomination process of the property, the GIAHS designation as well as other documents that can inform a better understanding of the context, in order to exchange views with the other team members and reach a common approach;
- be willing to work closely together with the other team members as well as with representatives of communities and government authorities (including responding to any questions they may have concerning World Heritage processes and practices), in a spirit of shared learning;
- work collectively with the others in the mission team to develop and implement an on-site program of activities that will enable the key questions of the mission (below) to be advanced, including an exploration of the inter-relatedness of cultural and natural values and practices, biocultural understandings of the landscape, and the value of the agricultural systems;
- in so far as possible, and while always keeping in mind differences between the objectives of the Connecting Practice project and the official IUCN and ICOMOS evaluation and reactive monitoring processes, engage in a meaningful and open dialogue with representatives from the government, management authorities and other stakeholders on ways to sustainably and effectively manage the World Heritage property and its wider context;
- collectively prepare a Fieldwork Report that documents the visit, provides a holistic view of the World Heritage property for its cultural and natural heritage, reflects a collective view of all those involved in the writing the report, and provides recommendations addressing the following points:

1. The interconnected character of the cultural, natural and social values of the property and associated biocultural practices:

- explore the relationships between the attributes and values that supported the inscription on the World Heritage List with other significant cultural and natural features and values;
- identify the natural attributes/features upon which the cultural values depend and how they are interconnected;
- explore how cultural systems help or are necessary to sustain natural values;

2. How to strengthen the socio-ecological resilience of the property:

- analyse the socio-ecological system embedded by the property;
- provide an understanding of the dynamics of changes at the site level and of desirable and undesirable change in the socio-ecological system in which the property is situated;
- provide guidelines on how the management plan could be further enhanced to incorporate adaptive measures in the face of change;

3. *The designation of “Hani Rice Terraces” as a GIAHS (Globally Important Agricultural Heritage System)*

- investigate and discuss the condition of the traditional agricultural practices, characteristics of the system and values that supported the designation of Hani Rice Terraces as a GIAHS site;
- investigate the status and impacts of the dynamic conservation plan detailed in the proposal together with the identification of the main stakeholders and their respective roles;
- identify the relationship between the World Heritage and GIAHS designations and how they could reinforce each other in terms of supporting dynamic conservation of the agricultural system of the property.

○ *The management system of the property:*

- explore how policies and management arrangements provide an adequate framework to protect the cultural and natural values of the property;
 - identify and engage with key stakeholders (to the extent possible during the mission program);
 - explore how the management system could be improved to take into account the interconnected character of natural and cultural values.
- Provide a reflection on the experience of the fieldwork, including a brief summary of the challenges encountered when writing the report (if any) and your reflections on whether the biocultural approach has enabled you to gain new or different insights.

ANNEX 2

STATEMENT OF OUTSTANDING UNIVERSAL VALUE

Brief synthesis

On the south banks of the Hong River in the mountainous terrain of southern Yunnan, the Honghe Hani Rice terraces cascade down the towering slopes of the Ailao mountains. Carved out of dense forest over the past 1,300 years by Hani people who migrated here from further to the north-west, the irrigated terraces support paddy fields overlooking narrow valleys. In some places there are as many as 3,000 terraces between the lower edges of the forest and the valley floor.

Responding to the difficulties and opportunities of their environment of high mountains, narrow valleys criss-crossed by ravines, extremely high rainfall (around 1400mm) and sub-tropical valley climate, the Hani people have created out of dense forest an extraordinarily complex system of irrigated rice terraces that flows around the contours of the mountains.

The property extends across an area of some 1,000 square kilometres. Three areas of terraces, Bada, Duoyishu and Laohuzui, within three river basins, Malizhai, Dawazhe and Amengkong-Geta, reflect differing underlying geological characteristics. The gradient of the terraces in Bada is gentle, in Douyishu steeper, and in Laohuzui very steep.

The landscape reflects an integrated four-fold system of forests, water supply, terraces and houses. The mountain top forests are the lifeblood of the terraces in capturing and sustaining the water needed for the irrigation. There are four types of forests, the ancient 'water recharge' forest, sacred forest, consolidation forests, and village forests for the provision of timber for building, food and firewood. The sacred forests still have strong connotations. Above the village are places for the Village God "Angma" (the soul of the village) and for the Land Protection God "Misong", where villagers pray for peace, health and prosperity.

Clefts in the rocks channel the rain, and sandstone beneath the granite mountains traps the water and then later releases it as springs. A complex system of channels has been developed to spread this water around the terraces in and between different valleys. Four trunk canals and 392 branch ditches which in length total 445.83km are maintained communally.

Eighty-two relatively small villages with between 50 and 100 households are constructed above the terraces just below the mountain top forests. The traditional vernacular buildings have walls built of rammed earth, of adobe bricks or of earth and stone under a tall, hipped, roof thatched with straw that gives the houses a distinctive 'mushroom' shape. At least half the houses in the villages are mainly or partly of traditional materials.

Each household farms one or two 'plots' of the rice terraces. Red rice is produced on the basis of a complex and integrated farming and breeding system involving buffalos, cattle, ducks, fish and eels. This system is underpinned by long-standing traditional social and religious structures, based on symbiotic relationships between plants and animals that reinforce communal obligations and the sacredness of nature and reflect a duality of approach between the individual and the community, and between people and gods, one reinforcing the other.

The Honghe Hani rice terraces are an exceptional reflection of a resilient land management system that optimises social and environmental resources, demonstrates an extraordinary harmony between people and their environment in spiritual, ecological and visual terms, and is based on a spiritual respect for nature and respect for both the individual and the community, through a system of dual interdependence known as the 'Man-God Unity social system'.

Criterion (iii): The Honghe-Hani terraces are an outstanding reflection of elaborate and finely tuned agricultural, forestry and water distribution systems that are reinforced by long-standing and distinctive socio-economic-religious systems.

Red rice, the main crop of the terraces is farmed on the basis of a complex, integrated farming and breeding system within which ducks fertilise the young rice plants, while chickens and pigs contribute fertiliser to more mature plants, water buffalo slough the fields for the next year's planting and snails growing in the water of the terraces consume various pests. The rice growing process is sustained by elaborate socio-economic-religious systems that strengthen peoples' relationship with the environment, through obligations to both their own lands and to the wider community, and affirm the sacredness of nature. This system of dual interdependence known as the 'Man-God Unity social system' and its physical manifestation in the shape of the terraces together form an exceptional still living cultural tradition.

Criterion (v): The Honghe Hani Rice terraced landscape reflects in an exceptional way a specific interaction with the environment mediated by integrated farming and water management systems, and underpinned by socio-economic-religious systems that express the dual relationship between people and gods and between individuals and community, a system that has persisted for at least a millennium, as can be shown by extensive archival sources.

Integrity

The overall boundary encompasses a large area within which the overall terraced system can be appreciated and all its attributes, forests, water system, villages and terraces are present to a sufficient degree. None of the key physical attributes are under threat and the traditional farming system is currently robust and well protected. The buffer zone protects the water-sheds and the visual setting and contains enough space to allow for coordinated social and economic development.

The terraces are said to have high resilience against climate change and drought – as has been demonstrated during the major drought of 2005. They are however vulnerable to landslides as on average the terraces are constructed on 25% slopes.

There is an overall vulnerability of the integrated farming and forestry system in relation to how far they are capable of providing an adequate living for farmers that will allow them to remain on the land. The overall farming system is also vulnerable to fluctuations in the price of red rice, but there are strategies in place to increase the price of organic agricultural products.

Currently there are no adverse impacts from tourism as this is only just beginning and some of the villages are currently off the tourist trails. But tourist number are increasing rapidly and it is acknowledged that the provision of tourism facilities and overall tourism management are challenges for the property in order that the villages are not over-whelmed by the more damaging impacts of tourism.

Authenticity

The terraced landscape has maintained its authenticity in relation to the traditional form of the landscape elements, continuity of landscape function, practices and traditional knowledge, and continuity of rituals, beliefs and customs.

An area where authenticity is or could be vulnerable is in the traditional materials for traditional houses, as these are said to be difficult to obtain. New materials in houses – such as concrete bricks that replace adobe or tiles that replace thatched roofs to– are beginning to have a marked impact on the overall image of villages in the landscape as the colour as well as the forms of the buildings are subject to change. There is a potential conflict between sustaining traditional houses and continuing to support traditional building materials and techniques and meeting modern aspirations for domestic spaces. In recent decades, extraneous architectural styles have entered into the villages, causing some negative effects.

Overall traditional farming practices are also vulnerable to increasing expectations amongst farmers which could draw them away from the valleys, and to the potential impact of tourism which currently does not have an overall defined strategy to ensure its sustainable development.

Management and protection requirements

The property is protected by law as a State Priority Protected Site designated by the State Council of China. The property was also designated in 2008 as a protected historic site by Yuanyang County People's government.

Along with all inscribed properties in China the property is protected within the Measures for Conservation and Management of World Cultural Heritage Sites, issued by the Ministry of Culture, and the supreme legislation issued by the national authority of China. This legal instrument, along with conservation and management plans, special local laws and regulations, and village rules, are combined to constitute a complete system for identification, conservation, management and monitoring of World Heritage sites. This means that these sites need to be managed in line with requirements of the Ministry of Culture.

The local government has issued the Measures for Protection and Management of the Villages and Residences of the Cultural Landscape of Honghe Hani Rice Terraces and Guidelines for Conservation, Renovation and Environmental Treatment of Traditional Hani Residences in Honghe. These two legal documents set out technical standards to be followed within all the villages to control development and construction activities. They cover the rice terraces, forests, irrigation systems, traditional villages and residences, and the traditional culture in the region. These measures are ways of delivering the obligations of the national protection for World Heritage. New construction projects within the property will be strictly examined and controlled, by the provincial authority. The Guidelines were developed in association with School of Architecture, Tsinghua University. They stress the need to acknowledge that buildings in different villages and areas have their own characteristics that need to be respected. It is anticipated that buildings that are inconsistent with traditional style but not to the extent seriously threatening the overall landscape will be gradually improved in accordance with these guidelines.

Each of the villages is under the administration of village committees. The Tusi Native Chieftain System is still an important part of the terrace culture in Ailao Mountain. Two Tusi governments, namely, Mengnong Government and Zongwazhai Government in Yuanyang County, are involved in the planned area. As the basic unit of Hani People society, each village has developed a series of customary laws for managing natural resources and solving the inner discords of villagers and exterior grievances against other villages.

A Management Plan has been written for the property. After legal approval, it will be accepted as a legal and technical document for the protection, conservation and management of the property and included in Honghe Hani & Yi Autonomous Prefecture's Urban System Plan, Master Plan for Towns and related plans of local social and economic development. The plan runs from 2011 to 2030, and is divided into short term, from 2011 to 2012, medium term from 2013 to 2020, and long term from 2021 to 2030, aims. The Hani Rice Terraces Cultural Heritage Protection and Development Management Committee is responsible for implementing the Plan. This includes members from many departments of the Honghe Prefecture. The Hani Terraces Administration of Honghe Prefecture set up in 2007 with 12 staff members services the Committee, oversees the day-to-day administration carried out at County level and liaises with local stakeholders.

Local authorities are formulating specific plans for tourism management and development of the region and these plans are expected to be completed by the end of 2013. A major information centre is being developed at Xinjie Town that will focus on the terraces and their social and religious structures and this will be completed by 2020.

So as to ensure there is a clear understanding of what is being sustained and how tourists can support the overall management process, it would be desirable if the Management Plan could be supported by a detailed Sustainable Eco-Tourism Strategy for the property and its buffer zone and by an Interpretation Strategy that allows understanding of the complex farming and water management systems and the distinctive social-economic and religious systems of the Hani communities.

ANNEX 3

Indicators of Resilience in Socio-Ecological Production Landscapes

“The mosaic features of SEPLs have been shaped over generations by a strongly interlinked set of traditional practices and production activities that have been adapted and transformed to maintain and improve the community’s well-being while absorbing shocks to the system. Consequently, the harmonious human-nature interactions that have formed SEPLs around the world have generated areas characterized by higher levels of resilience. Nevertheless, landscape resilience in the face of past crises is no guarantee that SEPLs will have the same capacity to absorb and adapt to the pressures associated with climate change, globalization, and unprecedented rates of rural to urban migration.

A resilience approach (Holling 1973; Gunderson and Holling 2002) is therefore useful when considering the potential to maintain, revitalize and rebuild such landscapes and seascapes. Fundamental changes to SEPLs have the potential to unbalance customary sustainable use processes, leading to decreased resilience and increased vulnerability. To avoid such negative trends, it is therefore crucially important not only to obtain a clearer understanding of the “components” of resilience, but also to empower local communities and provide them with the tools to understand their resilience. Such a framework would provide a strong foundation upon which to recognize negative trends and potential opportunities for further strengthening resilience.

....To measure resilience in SEPLs, which encompass all complexities a social ecological system can possibly have, developing indicators is a more useful approach to assessing resilience than trying to measure resilience itself. Because of the dynamic nature and the complexity of interrelations between the elements of SEPLs, the indicators, jointly developed by Bioversity International and UNU-IAS, are designed to capture the different aspects that are entailed and essential for sustaining a resilient landscape (e.g. cultural, social, ecological and agricultural). These indicators are based on case studies that describe communities’ strategies to cope with and adapt to change, they are meant to help measure a community’s capacity to build resilience and harness ecosystems services through innovation, adaptation, and the sustainable use of biodiversity. They are not conceived as defined set of measurements but rather as a guide to understanding and strengthening SEPLs resilience. “(Ref.:

https://www.bioversityinternational.org/fileadmin/user_upload/online_library/publications/pdfs/Indicators_of_Resilience_in_Socio-ecological_Production_Landscapes_SEPLs_1676.pdf)

For List of Indicators refer to Page 18

(https://www.bioversityinternational.org/fileadmin/_migrated/uploads/tx_news/Toolkit_for_the_indicators_of_resilience_in_socio-ecological_production_landscapes_and_seascapes_1844.pdf)

ANNEX 4

PARTICIPANTS

Fieldwork - Cultural Landscape of Honghe Hani Rice Terraces China

Name	Affiliation
HE Min	Deputy Governor, Honghe Hani and Yi Autonomous Prefecture
ZHU Buhong	Director, World Cultural Heritage Management Administration of Honghe Hani Rice Terraces
LU Guangrong	Deputy Director, World Cultural Heritage Management Administration of Honghe Hani Rice Terraces
HE Aihong	Vice Secretary of Yuanyang County Party Committee/ Magistrate of Yuanyang County/Director of Hani Rice Terraces (World Heritage) Management Council, Yuanyang County
HUANG Jianmin	Deputy Magistrate of Yuanyang County
ZHU Wenzhen	Executive Director of Hani Rice Terraces (World Heritage) Management Council, Yuanyang County
ZHONG Yanhua	Associate Research Fellow, Institute of Architectural History, China Architecture Design and Research Group
ZHANG Hongzhen	Director/Researcher, Research Centre of Honghe Hani Rice Terraces Protection and Development, Honghe University
ZHANG Rouran	ICOMOS
LI Yuxin	ICOMOS
Marlon Martin	ICOMOS
Qingwen Min	GIAHS Programme, FAO
Nupur Prothi Khanna	ICOMOS and IUCN
Maureen Thibault	ICOMOS

ANNEX 5

STAKEHOLDER DISCUSSIONS

Fieldwork - Cultural Landscape of Honghe Hani Rice Terraces China

Stakeholder Discussions Day 1

6 November 2019

Hani History and Culture Museum

Notes by LI Yuxin

1 Mr Xu Youhua, Planning Department

- The terraces that raise our ethnic group and carry our culture have become a platform to showcase our culture worldwide;
- I worry about the inheritance of terraced culture, the pollution of terraces and the disappearance of our ethnic language.

2 Mr Gu Qinghong , monitor of Administrative Committee

- After the terraces with long history were included into World Heritage List Nominations, the living standard of locals is improved;
- There are some geological disasters.

3 Mr Ya Pengbin from Office Law Enforcement Team

- Because terraces were included into the UNESCO's World Heritage List, local people enjoy a better life and local sceneries become as fascinating as artworks and poems;
- I worry about the disappearance of ethnic culture and language as well as the protection of terraces. The protection and development of terraces are mutually dependent.

4 Miss Huang, commentator of the museum

- As a girl of Hani group, I'm deeply influenced by the local traditional culture;
- Unfortunately, many our peers are not familiar with their traditional culture and language, let alone the next generation who has less chance to experience traditional culture.

5 Miss Guo Yan

- The landscapes and life of local area are fresh and attractive;
- It's pity that due to poor traffic condition, a few people have a chance to enjoy the charm of terraced culture. I hope the terraced culture will be promoted more areas and even the world.

6 Mr. Luo, commentator of the museum

- I have had a new understanding of the traditional culture in my village after serving as museum commentator;
- To my sadness, some traditional skills can't be inherited well. For example, the skill of making a characteristic costume is mastered by only a few older people. I hope our peers and later generation will pay attention to the inheritance of traditional skills.

7 Mr Gao Wenming, host of the sacrificial rituals from Quanfu Upper Village (he has engaged into the job with his father for more than 20 years.)

- I'm glad to learn from my father to host sacrificial rituals, and see many children have interested in the job;
- I'm afraid of not finding a good inheritor of the job.

8 Mr Lu Zhiming, ditch manager of Quanfu Middle Village (It is a long-history job)

- I'm proud of doing the job. In addition to cleaning ditches every month. I lead local villagers to conduct ditch maintenance every month. Locals offer a sacrifice to ditches by killing pigs in March every year;
- I worry that the white garbage in the village will pollute the terraces.

9 Mr Li Huaping, header of villager's group in Quanfu Upper Village

- I'm pleasure to see the good inheritance of traditional sacrificial rituals. What's more, locals often cut trees in the mountain for building houses in March and April, but they also plant new trees accordingly;
- I'm afraid that I can't get all things in place due to being busy and low salary.

10 Ms Li Xiufen, women cadre in Quanfu Dazai Village

- I'm proud of being a mother. The traditional customs on giving a birth are still preserved. For example, if their baby is boy, they will hang hunting tool at the gate, otherwise, a small bamboo basket for loaches will be seen at the gate. Furthermore, locals have the habits of holding a birthday ceremony by the wells and planting a tree for the birth of a child;
- I worry that many children who didn't grow up with their grandparents will leave these traditions behind.

11 Mr Li Jiguang, native Hani people working in Yuanyang Branch of Environmental Protection Bureau of Honghe Hani and Yi Autonomous Prefecture

- I'm glad that President Xi Jinping mentioned Hani Rice Terraces in two important conferences in recent two years and awarded Yuanyang County National "Clear Waters and Green Mountains are as Valuable as Mountains of Gold and Silver" Practice and Innovation Base" and "Excellent Base" titles. It showed the governments at all levels have payed attention to the protection of Hani Rice Terraces;
- I'm afraid of the disappearance of local language. My wife is among Han people, and my children

have been receiving education outside my hometown, so that there is a slim chance for our family members to communicate with our ethnic language. I really worry about the more families like us to lose their local culture.

12 Mr. Zhu from Yuanyang County's Hushan Zhongchuang Agricultural Development Co., Ltd

- I'm proud of living in a fascinating hometown;
- It's sad that due to low price of agricultural products, more locals prefer to leave home for work rather than stay home for farming;

13 Mr Lu Anli, community leader of Quanfu Village

- I'm pleasure that Hani Rice Terraces handed down by our ancestors have been paid attentions from the country and even the world;
- I worry that some traditional marriage customs will disappear. Related education and promotion on customs should be strengthened.

14 Mr Li Wei

- I take pride in being a member of Hani group and living in the core area of Hani Rice Terraces which were included in World Heritage List. I can't believe that the terraces for making living would win the world-class honor;
- Given that the fact that many younger people go out to work, I worry about the loss of agricultural culture and skills, such as farm cattle and land cultivation.

15 Mr.X, Quanfu Village Committee

- The terraces like mothers give us lives and have brought up generation of Hani people. We put terraces as our lifeline;
- I worry about how to protect, develop and manage terraces; In light of lacking understanding of agricultural culture, I hope the work on traditional agricultural model will be well-preserved as well as included into village regulations and non-government agreements. What's more, I hope the next generation of people will keep the mission of protecting terraces wherever they go.

16 Mr Li Anpan, host of traditional festivals in Quanfu Middle Village

- The locals still select the smart people to farm lands according to the custom ruled by last two or three generations; with the rapid improvement of living standard, I hope people live such a happy life all the time;
- I'm afraid that next generation can't bear hardship. Our peers set off for land cultivation with torches before daybreak three years or four years ago, but the current young people cannot pass the hardship spirit down. I hope young people will work hard.

17 Mr Li Zhengming, 5th generation of wizard of in Jingkou Village of Tuguo

- I'm proud that the wizard position has been passed down to the 5th generation of people, and it will

continue to exist. I firmly believe the terraces will not loss unless there is no water;

- I'm afraid of not cultivating an inheritor who has a comprehensive and systematic understanding of the position.

18 Mr Ma Zhengfu, leader of villagers' group in Aicun Village and forester

His reward as a forester has changed from rice given by households to salary by county-level government. He conducts two patrols in the forest every weekend.

- I take pride in being a forester;
- I worry that the old trees around the village will be destroyed by human, instead of withering. The pressure on protecting the traditional building such as for sacrificial rituals is still demanding, and more efforts should be made.

19 Mr Li Yousheng, ditch manager and village head

- I'm proud of being a ditch manager;
- I'm afraid that the rain that doesn't be cleaned up in time will destroy terraces; I hope the water source can be allocated rationally into different ditches to avoid unnecessary disputes.

20 Mr Li Zhengfu, former head of Dayutang Village and employer of Yuanyang County's Hushan Zhongchuang Agricultural Development Co., Ltd

- I'm satisfied with the current improvement of life condition. Many locals like me can gain income from renting land and laboring;
- I worry that our children can't live such a happy life and earn enough money, and so I hope they will receive better education from childhood.

21 Ms,X, Grain Purchase and Sale Company

- The red rice from the terraces has been sold to more than 30 cities nationwide. After being including into World Heritage List, planting red rice has become a vital income source of locals. Since its inception, Grain Purchase and Sale Company with focus on indirectly protecting terraces has provide many jobs for locals. I hope visitors will further promote the local red rice;
- I worry about the marketing of red rice. If there are no good marketing situation and channels, it is hard for locals to promote the sustainable development of terraces.

Q: What can you do for attracting local and foreign young people to work in terraces?

A: We should ensure young people to receive better and higher education while enhancing their awareness of admiring of local traditional culture and hometown as well as inheritance of tradition skills. We hope government will provide more channels and platforms to promote local culture. (From a girl working in museum)

B: I recently returned to work in my hometown. I think that young people should be aware of making money through labor and enhance their cognition of the cultural value behind the material. (From Director Zhu)

Q: Can you give a small solution that they can do?

Forest: Conduct crowdfunding; don't burn wood when cooking; don't use wood for building houses.

Water: Taking 1 kilogram of rice per capita as reward; addressing problems timely; financing ditch maintenance expense.

Stakeholder Discussions Day 2
7 November 2019
Hani History and Culture Museum
Notes by LI Yuxin

Q: What do you think the terraces will look like in the next 15 to 20 years?

1 Ms Qian Lisi from Dayutang Village

I believe that the near 20 years will see the improvement of locals' living standard and ditch management as well as the good harvest and sales of local rice. There will be unnecessary to plant introduced seeds for sales.

2 X

More attention will be paid to Hani group and other groups in China. All the people of ethnic groups in China will be as close as brothers and sisters. Together with rice, the beans that grow on the ridge of the field will be planted and managed well. With the development of terraces tourism the revenue of locals will increase. In short, I believe our families and hometown will be prosperity.

3 Mi Gu (Male)

The advance of agricultural technology will be more effective to prevent the pest disasters, improve the ecological fertilizer use, and ensure the rice yield. The production tools will be improved and agricultural cost will be reduced. The traditional customs of repairing roads and ditches will be passed down effectively, playing a good lead role.

4 Mr Lu Zhiming from Quanfu Middle Village

During the near 20 years, more financial and human resources will be invested in infrastructure construction; more trees will be planted to protect local water and forests; and there will be enough water flowing from mountain springs to irrigate our terraces. Young people will run restaurants and inns while cultivating terraces.

5 Mr Zhang Zihua, head of villagers' group in Huangcaoling Village

We will live a better live in 20 years. With no wood for cooking, there will be lush forest and abundant water to ensure agricultural production and farming. We will make full use of terraces regardless of busy and low agricultural seasons to protect their ecological system.

6 Mr Li Zhengfu from Dayutang Village

The terraces will be more fascinating than ever. The tradition sacrificial customs (for water and mountain) will be well-preserved. Our children with richer knowledge and ideas will do better in the development and protection of the hometown.

7 Manager for protection of Honghe County Hani Rice Terrace (Male)

An increasing number of experts and scholars will cast their eyes on southern China. During the coming 20 years, terraces will continue to play its good role in agricultural production. Even though models of production and life will be changed, traditional farming method will be preserved. Locals will enjoy a better life.

8 Manager for protection of Jinping County Hani Rice Terraces (Male)

With the advancement of farming method, locals will have more spare time to do other jobs. Along with the improvement of infrastructure and ditches, the homestay business with local characteristics will emerge and prosper, attracting more visitors to experience local customs and culture.

9 Mr Li Qiang from A'dang Village

The protection and management work will be more coordinated with people's livelihood, and communication between all parties will be smoother.

10 X

There will be both promising and worrying issues, but the former will outweigh the latter. The local residents will not struggle for living at all and focus on terraces protection as carefully as health. The exchanges and interaction among communities will be active. Those who engage in terraces will be recognized as the loftiest labors, and respected by other people. Locals will have a sense of pride for farming terraces.

11 Mr Du Mingqiang from Agricultural Bureau of Yuanyang County

The agricultural culture and nature landscape will be more attractive and harmonious than before. Despite facing many difficulties such as the loss of young people and the low price of agricultural products, we will work to improve the values of local products and industries by exploring various ways. The development of tourism industry will attract more visitors and provide opportunities for people to start businesses such as opening restaurants themed Hani culture and food. Many young people will combine their broad vision and rich experience with local traditional culture. The farmers will gain related subsidies, and the village collectives will help those who have no ability or time to manage terraces. Locals will earn money through various channels.

12 Village head (Male)

The agricultural farming and protection will be conducted based on the traditional farming procedures of four seasons, which can't be changed due to tourism and other factors. The customs related to terrace cultivation should be inherited, which is the key of terrace protection and inheritance. I believe that the terraces will be well protected in the near 20 years. The modern fertilizers and pesticides should be used cautiously.

13 Mr X, Vice director of local Culture and Tourism Bureau

We will see the improvement and harmony of four elements, the order of village management, and the increase of trees that are helpful for water conservation, and wide distribution of original ditches. After 20 years, the terraces will be run by a combined model of companies and local residents, but still farmed based on the original farming methods. Companies will give a hand to promote the local ethnic culture while respecting it.

14 Mr Zhu Wenzhen

The unique folk songs on farming and love will be passed down well. The agricultural knowledge will be given in schools, in a bid to provide a chance for children to learn about local culture and technologies. A number of local people will have a good understanding of both local ethnic language and modern management knowledge. Meanwhile, people will learn to share and promote their knowledge and ideas with later generation who then will inherit our traditions using modern concepts and methods.

15 Ms Li Miqiu

I hope children will love our people, homeland and land as much as we do.

16 Ms Wang Jue

I will share our experience with world heritage sites in China and other countries around the world. In the next 20 years, Hani Rice Terrace will emerge as one of the most famous world heritage sites worldwide based on many other practices and projects.

17 Mr Qian Qin from Terrace Administration Committee in Luopu Village of Shengcun

In the near 20 years, we will focus on terrace protection and management, infrastructure construction and transportation improvement, attracting more visitors.

18 Miss Guo Yan from the museum

The local area will be built better and many people will be attracted to come here. In addition to natives, those from other places in China and even the world will work for the terraces. All local residents will know what they are going to do, in order to better inherit and promote local features. We will be proud of what they have done, and the environment will be increasingly better.

19 Mr Che Zhengming from local Agricultural Bureau

With advanced technology and diversity of rice varieties, yield and output value of rice will increase. The combined rice, fish and duck system technology will be improved. In light of unchanged of rice gene, rice yield will increase. Based on the principle that “clean waters and green mountains are as valuable as mountains of gold and silver”, the modern fertilizers will be used in terraces to produce more green products.

The measures on physical protection and bio-pesticide promotion will be made to enhance soil fertility. The yield and output value of terraces will be increased after 20 years, which has been the core of terrace protection and management.

20 Mr Yang Huiguo from Red River Daily

I, born in northern China, was stationed here as a soldier and has been living here for 30 years. Many people have currently paid attention to the terraces and related culture. By raising the popularity and added value of Hani Rice Terraces, the people will live a better life and have a stronger sense of happiness from terrace cultivation. More young people will return to homeland to manage terraces.

ANNEX 5

Report on Questionnaire for Site Managers

Connecting Practice Project: Phase III

Report on Questionnaire for Site Managers

Introduction

A central focus of Connecting Practice Phase III has aimed to better understand the ways in which the inter-relatedness between natural and cultural heritage elements are incorporated into the management of World Heritage properties. Within Phase III, this topic has been explored through a variety of methods, including a site manager questionnaire. The overall objective of the questionnaire was to assist ICOMOS and IUCN to gain a better understanding of the perspectives of site managers regarding the management of cultural and natural heritage at site level. This perspective is considered an essential piece of the project, enabling the development of workable approaches and tools.

The questionnaire included both qualitative and quantitative questions, providing an opportunity for World Heritage site managers to contribute their insights, particularly in relation to World Heritage cultural landscapes and mixed properties. It was expected that issues of natural and cultural heritage practices are especially pertinent for those properties that have been explicitly inscribed for both their natural and cultural values – or for their ability to demonstrate in an outstanding way, the ‘combined work of nature and people’. Anecdotally, IUCN and ICOMOS are aware that these categories of World Heritage property offer opportunities to implement biocultural approaches, yet at the same time, they can be potentially complex properties to manage. However, it must be noted that mixed properties make up a very small proportion of the World Heritage List (approximately 3% of the 1121 inscribed properties); and that the cultural landscape category was introduced in 1992, 14 years after listing began, and that cultural landscapes comprise approximately 10% of the World Heritage List. It is likely that some earlier inscription of natural or cultural properties might be recognised today as cultural landscapes.

Although the questionnaire was targeted at site managers of mixed properties and cultural landscapes, other World Heritage sites managers also expressed interest, and the analysis is based on responses related to cultural, natural, and mixed properties (including some cultural landscapes). This underscores the findings of Connecting Practice in all its phases - that the issues of integrating practices for natural and cultural heritage values and issues may be of potential relevance for many World Heritage properties.

‘Site Managers’ include a broad range of roles in the daily care and decision making for World Heritage properties, and are increasingly recognised as pivotal actors in ensuring beneficial outcomes from World Heritage inscription. Since 2018, there has been a well-attended Site Managers’ Forum held in conjunction with the annual session of the World Heritage Committee. The Connecting Practice questionnaire was presented and discussed at the World Heritage Site Managers’ Forum in Baku, Azerbaijan, held in conjunction with the 43rd session of the World Heritage Committee in 2019. Following this presentation, the questionnaire was distributed on request, and to people working at 42 World Heritage properties,¹ and 27 responses were received (see Appendix 2), including 18 from *Europe and North America*, 4 from *Africa*, and 5 from *Asia and the Pacific*. No responses were received from site managers in the *Arab States* or *Latin America and the Caribbean*. These results clearly indicate a response bias towards the region of *Europe and North America*, which should be taken into account in the interpretation of the results. In some respects, this imbalance is not unexpected, and

¹ Note that we invited responses from individual site managers or site management teams. These are counted in this report according to the site (rather than the number of people that have participated).

reflects the large proportion of World Heritage properties located in Europe and North America (which currently make up 47% of the World Heritage List). Another limitation is that some responses were received from properties that are inscribed solely for natural criteria and vice versa. However, the work of Connecting Practice has found that Site Managers are often aware of heritage values beyond those recognised by their World Heritage inscription, and are seeking support and guidance to improve their ability to manage these using more holistic approaches.

The questionnaire focused on a number of key areas relevant to the purposes of Connecting Practice Phase III. The report discusses the results of the questionnaire in relation to these in turn:

1. Understanding Values, Attributes and Key Concepts at Sites
2. Integration of Natural and Cultural Values at Site Management Level
3. Benefits and Issues with Integrated Management of Mixed Sites and Cultural Landscapes
4. Understanding the Involvement of local Communities and Stakeholders

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Methods

In February 2019, a Connecting Practice workshop was held at the ICOMOS Secretariat in Paris to present work completed to date, and to plan the next steps of Connecting Practice Phase III.² As a component of the workshop, participants exchanged ideas on how to develop and improve the draft

² Gretchen Walters of Université de Lausanne (UNIL) led the workshop, and together with Oliver Hymas (University College London), completed the primary development of the initial questionnaire, in collaboration with Gwenaëlle Bourdin and Maureen Thibault from the ICOMOS International Secretariat, and with ICOMOS advisors Kristal Buckley and Luisa de Marco. The Analysis of the Questionnaire responses was done by Maureen Thibault and Leanna Wigboldus.

questionnaire. In May 2019, a test questionnaire was distributed to two site managers that had participated in Phase II of Connecting Practice (Zsuzsa Tolnay and Oscar Mthimkhulu) in order to gain further feedback from a site manager's perspective. These were completed and returned to ICOMOS, along with a number of recommendations and comments on improvements. Once finalised, the questionnaire was prepared in both English and French. However, ICOMOS and IUCN recognise that language poses barriers to participation, and several further arrangements were made where possible. For example, the questionnaire was subsequently translated into Mandarin by ICOMOS China member Rouran Zhang, and answers from site managers of the 'Sacred Site and Pilgrimage Routes in the Kii Mountain Range' were translated from Japanese to English by ICCROM staff member Fujio Ichihara.

As noted in the Introduction, in June 2019, the Connecting Practice team presented the questionnaire at the World Heritage Site Managers' Forum as part of the World Heritage Committee meeting in Baku. Following the discussions in Baku, the questionnaire was emailed to all site managers in attendance, and focal points were approached by the Connecting Practice team in order to encourage a wide participation.

In addition to distributing the questionnaires to the participants at the Site Managers Forum, all site managers who had been involved in previous phases of Connecting Practice were invited to participate. IUCN and ICOMOS distributed the questionnaire within relative networks, including social media platforms. The UNESCO Category II Centres of ARC-WH in Bahrain (Arab States) and the African World Heritage Fund (Africa) also assisted with the distribution of the questionnaire to the people associated with relevant sites in their regions. The widest possible participation was sought.

This report presents results based on the responses received by December 2019. Given the small sample size, the diversity of World Heritage property types represented, and the imbalance in the regional distribution of responses, it is important to note that the numbers presented in this report are not statistically significant, but rather contribute qualitative data that are indicative of issues and trends.

1. Understanding Values, Attributes and Key Concepts at Sites

Understanding Values and Attributes at Site Level

Question 3.1 (List the World Heritage values/attributes that you are managing at this site) explored the views and understanding of values and attributes at site level. Site managers were asked about the presence of natural and cultural elements/features, the meaning and interpretation of these in management, and the understanding of what constituted 'values' and 'attributes' at site level. In the heading for **Section 3: Understanding how Values/Attributes/Resources are managed**, definitions of 'values' and 'attributes' were provided.³ Despite providing this, there was little consistency among the answers provided for what constituted 'values' and 'attributes', underscoring the already-existing awareness that World Heritage terminology is not necessarily widely shared. While many of the responses closely followed the description of the values recognised as being of Outstanding Universal Value (OUV), only three identified specific World Heritage criteria in connection with the various attributes in the relevant questionnaire boxes. Many responses indicated additional values to those identified in the Statement of OUV. These included entries such as 'landscape value', 'economic value', 'human intelligence value', 'land-use practices value', and 'intangible values'. Although the original

³ "the values relate to the reasons why a property has been included in the World Heritage List, and the attributes are the features, elements, objects, beliefs and practices that demonstrate and transmit those values"

purpose of the ‘values’ category in the questionnaire was to identify the specific values recognised by the World Heritage inscription, the responses indicate that site managers often understand values as broader and more diverse, requiring a more holistic understanding within day-to-day management. Four responses specifically emphasised the value of local and traditional knowledge; and one response associated with a *natural* World Heritage property noted ‘diverse ethnic cultures’ as a value, indicating the central importance of the associated communities and their cultural values to the property. This last response also noted that the intangible heritage was recognised in the national intangible cultural heritage inventory, suggesting that notions of ‘multiple designations’ might increasingly cross the nature-culture divide.

Key Concepts

Key concepts for this phase of Connecting Practice were listed as: Resilience, Biocultural Diversity, Traditional Knowledge, Cultural Landscape, and Adaptive Management.

As is shown Figure 1, the majority of respondents noted that these concepts were relevant to site management and were being applied. Perhaps unsurprisingly, given that they are already used in the World Heritage Operational Guidelines, Traditional Knowledge and Cultural Landscape concepts were the most widely understood and used. In contrast, the concept of biocultural diversity drew a more mixed set of responses, with an almost even division between responses indicating that it is relevant to their work, and those that did not consider it to be relevant. This reflects its more recent inclusion in the dialogues concerning heritage management, and possibly indicates the need for further work on how biocultural diversity can be operationally applied at the site level. This is explored further in the work during Connecting Practice on keywords.⁴ As noted in the Introduction, language diversity is an issue in relation to developing new concepts (or redefining existing ones). An important area of future research is therefore to better understand the concepts that site managers find useful, including those that are expressed more clearly local languages.⁵

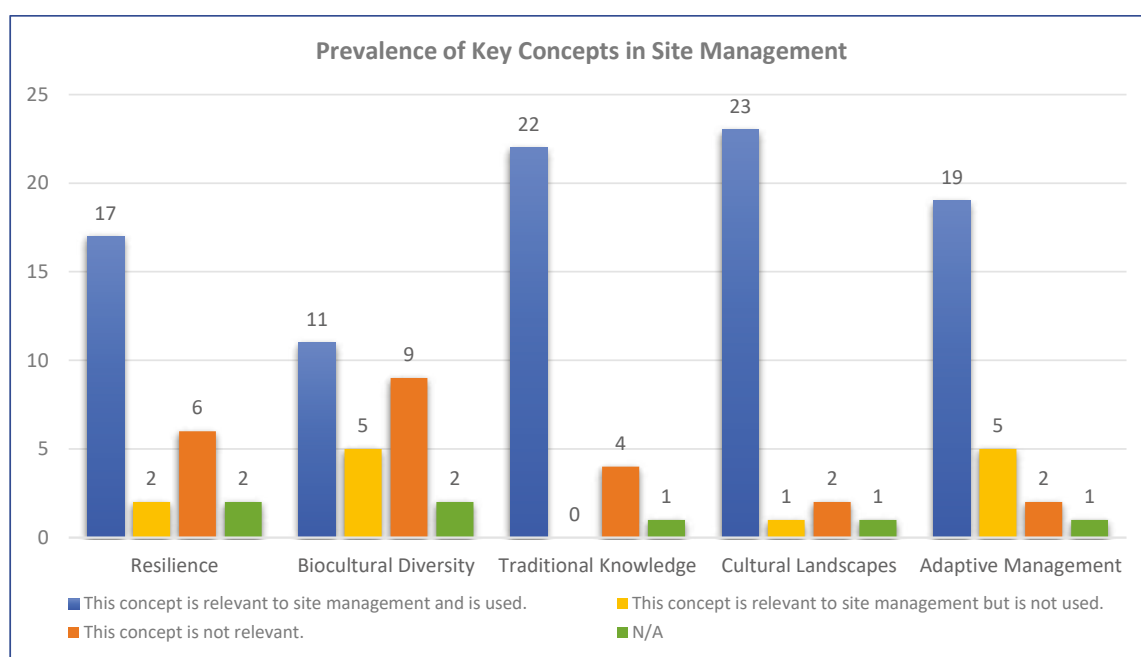


Figure 1: Bar graph indicating responses to question 3.8 regarding the prevalence of these concepts in site management.

⁴ *Connecting Practice: A Commentary on Emerging Key Words*

⁵ Work to collect words that mean caring for nature, culture and people together is ongoing within the World Heritage Leadership Programme (led by ICCROM and IUCN).

2. Integration of Natural and Cultural Values at Site Management Level

A key theme in the questionnaire is related to the integration of natural and cultural values and attributes at World Heritage properties, and relevant responses are discussed in this section of the report. When asked whether natural and cultural values/attributes were managed jointly at the site,⁶ 17 responded 'Yes', 9 responded 'No' and 1 stated 'N/A' (see Figure 2). Three responses indicated that because their sites were only inscribed under natural criteria, the joint management of cultural and natural values was not relevant to their site management.

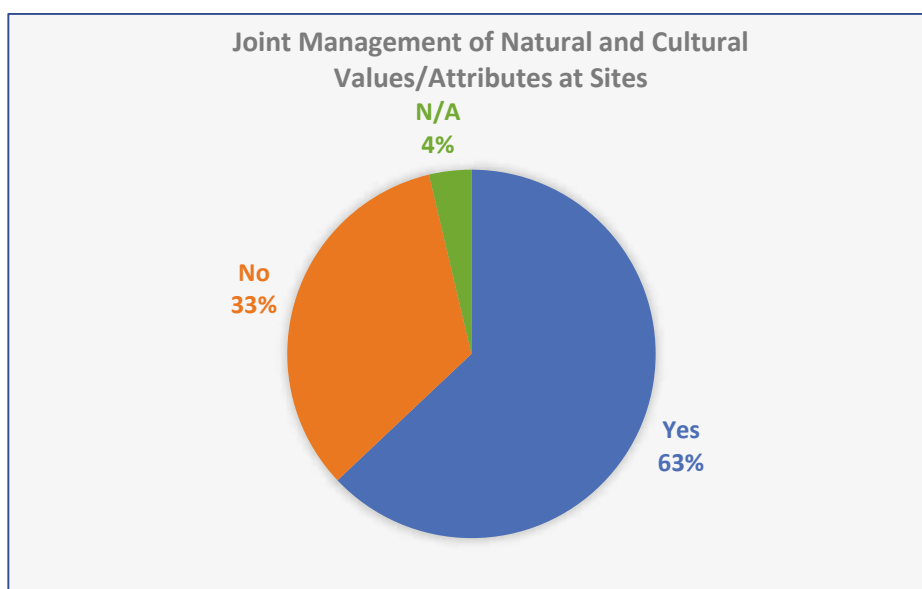


Figure 2: Pie chart showing the responses to question 3.6: 'Do you manage the natural and cultural values/attributes of the site together?'

⁶ Question 3.6: Do you manage the natural and cultural values/attributes of the site together?

A related question regarding the integration of natural and cultural values on-site was outlined in question 6.3: *Do you feel that management is biased to one or the other (natural or cultural values)?* The results were not as robust. From the 27 responses:

- 10 responses did not enter an answer to the question
- 9 of the responses confirmed a bias toward either nature or culture
- 7 responded 'No'.
- 1 response indicated both 'Yes' and 'No', stating that the answer to the question was dependent on who responded to the question.

This last answer is intriguing, and an important reminder that management often occurs within team structures (or community organisations), rather than resting on a single person.

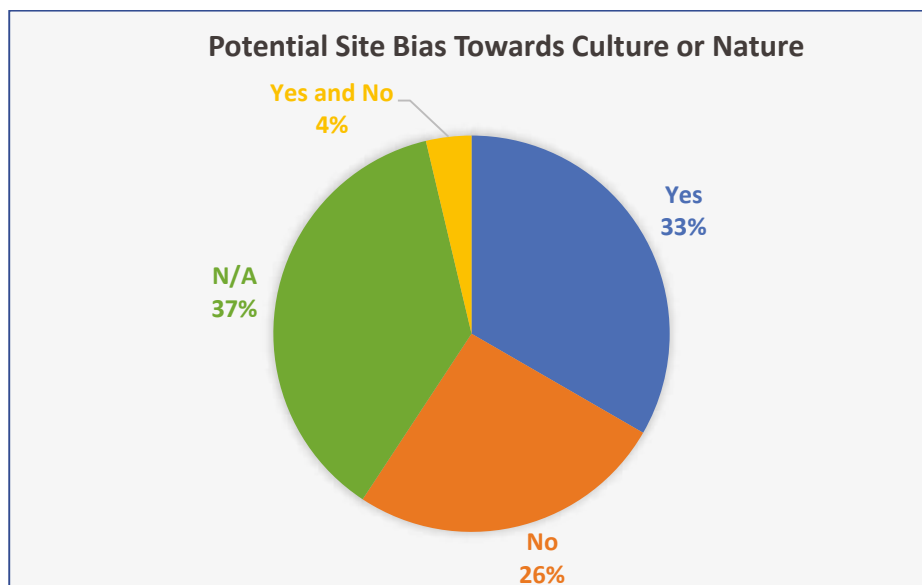


Figure 3: Pie chart representing the answers to question 6.3: 'Do you feel that management is biased to one or the other (natural or cultural values)?'

Thirteen of the responses to this question added further information to elaborate on their answers.

- A number of the responses referred to the fact that their sites were inscribed according to either cultural or natural criteria (but not both), resulting in a bias towards those values.
- Other responses mentioned that local communities recognised either cultural or natural criteria as more important to the property, which has influenced management. Two responses also stated that people living on the site understood their own cultural values and the importance of the site for their cultural identity, but that there is less community understanding of the natural values.
- Several responses confirmed that there was an emphasis on protection and management of the attributes associated with the OUV, but that there were conflicts with promoting other natural or cultural values/attributes, even when there were linkages between these attributes and values to the OUV.
- One response stated that because most of the site managers were from the cultural heritage and tourism sector, this influenced how the site was presented and managed.
- One response indicated that one consequence of the World Heritage inscription has been that visitors tend to understand the inscribed values better than local people do.
- One site manager noted that government programmes and support were an essential part of values-based management and decision-making processes.

One of the most interesting aspects of these responses was that perceptions of bias (in either direction) was dependent on who was asked within management structures: natural conservation stakeholders would focus on certain elements while cultural heritage organisations would focus on others. Some of the responses pointed out that although there was a bias at the site management at present, this should not be the case if the values of the site were fully understood and appreciated, and a more holistic approach to the management of cultural and natural values would be preferred.

Another potential area of bias was explored in **Section 7: 'Background of the Respondent'** which asked about the site managers' background and experience. While the number of responses (27) represents a small sample, it is important to briefly note these as influencing the outcomes presented in this report:

- 59.2% (16) had a background in cultural heritage
- 25.9% (7) had a background in natural heritage
- 22.2% (6) listed their careers in 'other' categories, including occupations in youth and participation, theatre and museum work, development and planning, and other areas of conservation

Site managers were also asked about possible gaps in expertise that needed to be filled in order to properly manage the values of their property. As outlined in Figure 4 below, from the 27 responses:

- 14 stated that 'Yes', there are gaps in the expertise needed to manage the heritage values of the property
- 10 stated there were no gaps
- 2 responses listed both 'Yes' and 'No'
- 1 responded that this was not applicable.

The professional background of site managers, and gaps in the expertise available at site level, will often influence the focus of site management on either cultural or natural values/attributes. The use

of interdisciplinary and multidisciplinary teams for management of World Heritage sites could reduce perceptions of bias and create more integrated and comprehensive approaches.

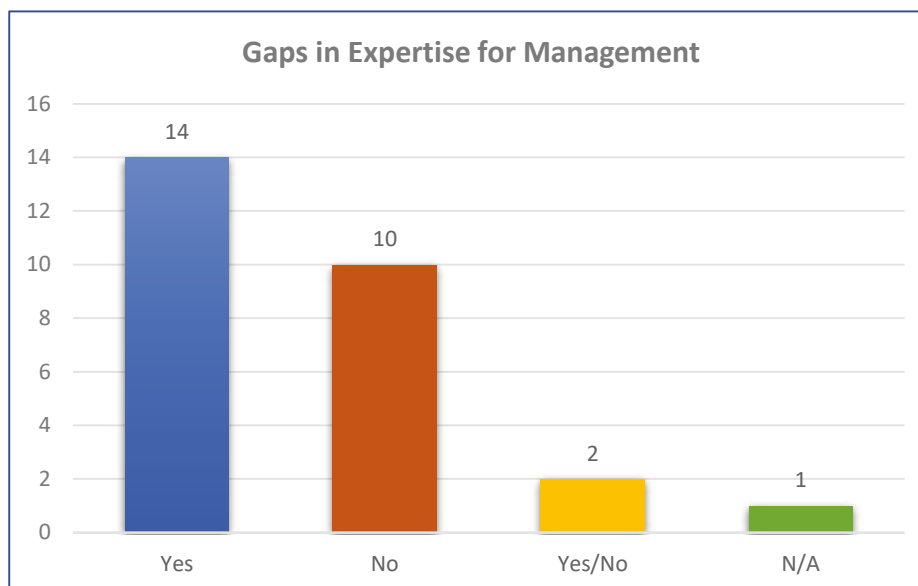


Figure 4: Bar graph showing responses to question 5.7: 'Do you think there are gaps in the expertise needed to manage the heritage of the property where you work?'

In response to the question about how the site management accesses natural and cultural expertise when outside help is needed, the respondents often noted the use of consultants and external experts on contract (for example, in the areas of natural environment, cultural heritage, forestry, farming, ecology, and tourism).

- In some instances, expertise was needed for improved access to funding and development programmes, to provide information on long-term management issues, planning and managing large scale projects, and for capacity building.
- Volunteer programmes, agreements with provincial heritage groups, engagement with breeding associations, and increased collaboration with nature conservation NGOs were also ways that site managers accessed external support.
- Many responses noted that contact with experts from universities and research bodies was an important means to gain greater expert advice.
- One response noted the importance of further research to be undertaken by history experts in order to encourage investigation into the past of an area and to assist with documenting existing knowledge structures.

The use of external assistance often depended on the expertise of the site management team with respect to the natural or cultural heritage of the site.

- One response noted that World Heritage site managers without specific expertise in natural and geological values relied upon natural heritage experts accessed by virtue of its multiple designations (eg. through the Global Geopark and Biosphere Reserve status). This enabled enhanced assistance with natural heritage management.
- Interaction between relevant government institutions also provided an essential source of external expertise, particularly those responsible for the environment, heritage, culture and tourism.

- Where site managers did not use external parties to assist or provide expertise, a key issue with gaining access to expertise was that the current administration bodies do not adequately collaborate with each other.

Site managers also provided recommendations for future work to be undertaken at their individual sites:

- One response suggested the creation of exchange visits by national heritage groups, stakeholder bodies, and site managers from various World Heritage properties to others for joint meetings which could facilitate the exchange of ideas and improve daily site management.
- The use of organised workshops to encourage collaboration among experts and management stakeholders was suggested as a means to share ideas, empower the heritage teams and provide additional information to assist with management practices.
- One response also noted that it has been common practice to review the expertise of natural and cultural heritage at the site every two years in order to assess the work being done for both natural and cultural heritage.
- Finally, another response noted that increased training in relation to specific issues identified at site-level should be initiated to assist with growing the on-site expertise.

3. Benefits and Issues with Integrated Management of Mixed Sites and Cultural Landscapes

The questionnaire explored the management systems in place, as well as the benefits and challenges relating to the integration of natural and cultural heritage site practices and traditional management frameworks. **Section 6: 'Issues with management of World Heritage mixed sites and cultural landscapes'** covers these aspects.

- A number of responses indicated that questions related to the management of mixed sites and cultural landscapes did not apply to sites that had been inscribed as a cultural or a natural property only.
- Three responses did not provide answers to any portions of Section 6; and a number of other responses answered partially.
- One response noted succinctly that the property "*currently has only natural heritage, and there is no human, historical, or religious heritage in the heritage site*", indicating that in some cases joint or integrated management was not considered to be relevant.

6.2: Benefits of simultaneous management for natural and cultural values.

A majority of respondents commented on integrated management and its importance for their sites. An integrated (or 'holistic') approach encourages connected practices for many components of the management system, including interpretation, communication and understanding of the site. In addition, integrated management can assist in the reduction of conflicts between opposing interests by encouraging all parties to work together, from local administrations to international organisations. It was noted that the close, interconnected character of the values often means that managing nature and culture separately causes more problems than it solves.

- Four responses specifically stated that managing natural and cultural values in a collaborative way provides a stronger basis for maintaining the Outstanding Universal Value (OUV) of the site and assists with conservation.

- In addition, these responses mentioned that the use of more holistic approaches to management could contribute to fulfilling the Sustainable Development Goals, particularly for those sites which cover a large area.
- Integrated approaches were noted by one response as contributing to the removal of misconceptions, particularly about World Heritage designations and regulations, which in turn created better understanding for all stakeholders.
- One response specifically mentioned that the site's goal was to achieve a fully integrated management for natural and cultural heritage in order to clarify its significance and make it more appealing for locals and visitors.
- Another response mentioned that natural and cultural values are complementary, and managing them together broadens the scope of understanding for site managers to improve management. An example of rock art paintings was provided, explaining that if the landforms and paintings are not managed as one entity, the whole value of the rock art and of the site will be detrimentally affected.

The responses noted that connecting natural and cultural values provides the opportunity for greater empowerment and understanding of the values of heritage, particularly for local citizens who understand these places as sources of local identity, 'sense of place' and belonging.

- One response noted that the recognition of the cultural values has generated a greater awareness among the local population as to the importance of conserving natural heritage values because of their interconnected nature. The integration of various management bodies and frameworks with the natural and cultural values helps create common messages and outcomes that are supported and developed on a local scale.
- The responses also indicated that the adoption of a more holistic approach to management would give more prominence to the role of traditional knowledges. This would not only help maintain the traditional livelihoods of local people, but could also create community-led tourism opportunities.

Site managers noted that integration between nature and culture is common for local people and traditional methods of management, these forms of management can provide benefits for future generations. Other benefits included increasing enjoyment from heritage, assisting with changing heritage policies, creating vibrant communities with diversified local economies, assisting in nature recovery and ecosystem services, and the creation of more resilient landscapes which can support tangible and intangible heritage systems.

6.1: Issues with integrated management for natural and cultural values/attributes.

The questionnaire responses identified two main issues for integrated management of natural and cultural values. These were: opposing/conflicting interests, and a lack of capacity and resources.

The responses that mentioned issues related to opposing interests focused on conflict between management entities as well as divergent uses. In some cases, natural and cultural heritage are managed by different authorities, and collaboration and cooperation between these authorities is not always easy or efficient. Separate management authorities often have different interests that need to be recognised and reconciled, and may also choose to employ experts from a specific sector or field, benefitting either nature or culture, to the neglect of the other. For example, one response commented that there was often more focus on conservation of cultural values rather than natural, as the site managers had backgrounds in the cultural heritage and tourism sectors with no expertise in natural heritage or environmental management. Conflicting interests also exist between the public

and private sectors, user groups and site managers, and labour and safety organisations in relation to traditional practices. There are also possibilities for conflict for those World Heritage properties that have multiple heritage/conservation designations (e.g. Geopark, Biosphere Reserve, Ramsar). In one response, the site manager described an ongoing debate between stakeholders involved with the natural and cultural elements of the site, centred on concerns that World Heritage designation would prevent change and adaptation to the natural environment, in favour of retaining the ongoing cultural practices.

Conflicting understandings of the relative value of the cultural and natural elements was identified by respondents as causing issues for effective integrated management, particularly if there was a pre-existing bias relating to one or the other.

- A few responses noted that issues for holistic management existed because of competing interests between the cultural sector (e.g. archaeological investigation, reconstruction or re-use of heritage buildings) and the natural sector (e.g. protection of habitats, maintaining green spaces).
- One response considered that a key issue is the tension between the dynamic and ongoing development at the site and the conservation of the property, particularly as the site is a living cultural landscape. These issues are difficult to reconcile.
- Another response indicated that the ongoing debate between culture and nature has caused concerns for some stakeholder organisations that the World Heritage designation and status will prevent nature conservation efforts, specifically as the site's inscription includes attributes related to specific farming practices (cultural heritage).

The second set of issues identified concerned insufficient capacity and resources for connected management approaches. Some responses mentioned that they had little or no in-house expertise to ensure the adequate management of both cultural and natural values. This included a lack of capacity to deal with challenges in the wider area, increasing community involvement in property governance, decreased availability of financial resources, and issues caused by tourism pressures. Some responses noted that government restrictions prevented collaboration between natural and cultural heritage bodies, with few organisations equipped to handle the dual responsibility. Laws and regulations created issues for site managers as well. Some of the site management authorities have begun creating sub-groups to look into the issues of managing nature and culture in a holistic way, but this is an ongoing process.

Questions 5-7 in Part 6 of the Questionnaire⁷ addressed challenges related to natural and cultural heritage management at the sites, and the attempted resolution of these issues. Six responses did not answer any of these questions. Responses primarily identified issues related to the management or protection of either cultural *or* natural heritage at the sites, rather than outlining problems relating to specific issues on the inter-relations between natural *and* cultural values.

Issues Related to Management of Cultural and Natural Heritage

One of the most pressing issues identified by the responses is the impact on cultural practices of the abandonment of traditional agricultural activities. Some site managers noted challenges such as changing demographics, aging farmer and landowner populations, and depopulation of traditional areas which have begun to affect and degrade local traditional methods and knowledges.

⁷ Question 6.5: What management problems related to the protection and management of the natural or cultural heritage of the property where you work have you had in the last 6 years? Give the three most important examples.

Question 6.6: How were these problems resolved?

Question 6.7: Did you have to get outside help to resolve the problems? If so, from whom?

Incompatible land uses, diminishing numbers of herdsman and farmers, lack of safeguarding of traditional knowledge and practices at site-level, and pressures on traditional farming systems all threaten the management of the land, and can also be detrimental to authenticity in relation to OUV of the sites. An example provided was the lack of institutional support to assist with socio-economic development at the site.

Various other issues associated with the management of natural resources were raised in the responses. Some responses referred to issues related to maintaining the quality of the soil; another raised issues with, finding opportunities for sustainable fishing tourism; others spoke about managing the impact of grazing animals on natural heritage values; and so on. Several responses mentioned issues of monitoring – for example the incidence of tree diseases; and the need to better understand carrying capacity, particularly in relation to drainage systems and water supplies. One response discussed difficulties with managing the wild boar population that creates issues for both tourists and farms, adding to the pressures for farm abandonment.

Other pressing problems for cultural heritage management at various sites included:

- Ensuring that there is an appropriate balance between archaeological excavation/research and *in situ* conservation, as well as ensuring the ongoing preservation of archaeological sites and materials;
- Technical challenges of conservation;
- Lack of maintenance personnel and mechanical failures;
- Increasing presence of warehouses and buildings in the buffer zone which can affect the aesthetics of the setting;
- Access to the site by religious and other communities and groups who use the site for personal purposes without collaboration with management authorities.

The most commonly noted problems for natural heritage were associated with climate change impacts and adaptations. Many of the responses noted that climate change affects the natural ecosystems of the sites, including species protection, migration and breeding; and can result in detrimental effects for cultural heritage as well (e.g. climate change can dramatically affect traditional herding or agricultural practices). Some responses stated that they have had to deal with increased severity of wave currents and wind, and that fire has become a growing threat at some sites. One site manager identified a substantial loss due to typhoon flooding which destroyed a large part of the World Heritage property's on-site routes.

Increased education, communication and information about the sites and their values, as well as increased stakeholder involvement in management practices were listed as essential components of management which were not always instituted at the sites.

The results from this section of the questionnaire are specific to either natural or cultural heritage values, rather than pointing to specific challenges relating to more integrated management of both natural and cultural values at site-level.

Issues Related to Government and Institutional Involvement at Sites

One of the most common management problems raised in the responses to the questionnaire was increased tourism and associated pressures on individual sites and management teams. Comments about tourism management were often linked directly to discussions about limited resources, particularly during peak tourism seasons. Increased tourism also puts pressure on local residents, and creates strains for the local economy and administrative structures that provide tourism facilities and

amenities. Several sites noted specific examples of the effects of tourism, including the number of vehicles and off-road drivers visiting the site, tourists wanting to camp on-site while doing self-guided tours, and increases in vandalism and damage due to a failure by visitors to adhere to the signage provided. Another issue identified was the lack of appropriate management plans and procedures available to address these issues, and guidelines for sustainable tourism. Without these, it is difficult to establish a line of action, resulting in a lack of action at site-level.

Another problem area mentioned was urban development, infrastructure and building activities, construction projects, inappropriate zoning regulations and illegal constructions within or near World Heritage properties. A related issue was increased garbage and waste at the site. Others referring to an increase in renewable energy development nearby, including wind turbines, solar energy panels and mobile phone base stations, particularly in situations where adequate buffer zones were lacking.

Many of these areas of concern are tied to adequate financial support. In many cases, funding was either delayed or lacking at site level and due to inadequate resources, some actions and projects planned for safeguarding cultural and natural heritage could not be implemented. Adequate funding also affected the maintenance and support of ongoing traditional practices at the site, which in turn could have an impact on decision-making and traditional land-use systems and impact the OUV of the site. In responses that indicated that adequate funding was available, issues concerning government decision-making processes could restrict changes to the site, limit traditional land-use, or allow improper land-use practices to take precedence.

Resolution of Issues Relating to Site Management

A few of the respondents considered that they were able to resolve the issues that they mentioned, often through engagement and consultation programmes; and one noted that the only way to protect the OUV and resolve a specific issue was to cancel a particular on-site project to ensure sustainable future development.

Most of the responses noted that the resolution of the problems identified were continuing ones, that their resolution was ongoing. Some responses noted that the specific issues that were raised are already identified in management plans, and that work was ongoing to implement the strategies and procedures outlined by these plans.

- One respondent explained that tourism pressures are being dealt with through new management arrangements to teach guides and tourists new ways of navigating and visiting the site.
- Another reported approach was to set up a series of sub-groups to deal with various ongoing challenges. These included teams looking into traditional farming practices, nature recovery, climate change, peatland restoration, support for local communities and energy projects, and sustainable transportation.

Most of the responses indicated that additional outside assistance was used to resolve on-site problems and only three responses stated that they had received no outside help.

- Some responses mentioned included the use of independent consultants for research and communication, collaboration with owners and stakeholders both in and around the property.
- Alliances with and support from government departments responsible for nature and cultural heritage conservation were also commonly mentioned, including both regional and national bodies for agriculture, heritage, planning or development; and other conservation authorities and municipal services that were integral to management processes and the resolution of specific issues.

- Some responses noted EU programmes or potential partnerships that assisted with site issues, through the provision of subsidies, or implementation of strategies for tourism or sustainable agricultural practices.
- Some site managers specifically noted assistance from the Advisory Bodies, and one site manager stated that assistance had been received from the World Heritage Centre's programme on sustainable tourism. Another site manager added that international assistance had been provided by UNESCO to fund a project to protect mangrove plantations from ocean winds and waves.

Responses that listed the issues as ongoing or resolved outlined various support systems that assisted in problem management, including:

Management plans were confirmed to be available in 22 of the 27 properties covered by the questionnaire responses; and the 5 remaining responded 'No/Not sure'. Of these 5 responses, one noted that a previous management plan was dated 2004, but had not been updated to reflect current site conditions; and two noted that there were other management documents, but that these were not in the form of a management plan. Other elements of management systems described included visitor guidance systems and research plans. One response noted the importance of creating plans through joint involvement of individual communities, towns and regional development offices in order to ensure collaboration. Tourism management plans and sustainable tourism strategies were listed as important elements, particularly joint strategies created through partnership with tourism operators, nature conservation organisations, regional and local stakeholders and NGOs.

Increased promotion and education strategies were also noted as effective in enhancing understanding and awareness among stakeholders and local communities, which in turn improved the levels of support for conservation. One response from a transboundary property noted that a collaborative World Heritage education strategy and action plan was in place to enhance a network of over 60 information centres. Education for local communities was noted as a key for increased success, particularly in relation to realising the importance of direct engagement with communities, the protection of the property, and a better appreciation of the dangers of allowing grazing too close to various heritage elements. Research programmes and strategies to enhance collaboration and studies was also mentioned, as was increased collaboration with external expertise (including the Advisory Bodies).

Local engagement was listed as one of the most successful elements for problem solving. The responses included examples such as assistance from local administrations, increased engagement of work personnel, increased interaction with developers and infrastructure associations, increased collaboration between local, regional and site management organisations, and regular meetings to ensure collaboration and safeguarding. In one example, reaching out to religious groups to find workable arrangements for site access was described; in another, a Partnership Centre and Foundation was established to encourage stakeholder participation and to increase understanding of site protection and benefits; and finally, another response described work towards indigenous and local representation within the governance frameworks to assist with management solutions.

Increased restrictions were implemented by some managers and authorities to resolve site management issues. These included restrictions to site access (closure of areas for private vehicles and tourists not accompanied by a guide, closure of specific areas or monuments, etc.), fines for transgressions at the site, increased security at boundaries (increase in guards patrolling gates and visitor movements), and more specific delineations of World Heritage property boundaries. Two responses noted climate change as a factor driving increased restrictions and changes: one noted that

a protective sea wall had been built to prevent water erosion of ancient buildings; and the other commented that the management organisation is trying to work in an environmentally-friendly way, through carpooling, increased web meetings, etc.

Increases in financial support, together with increased institutional attention, were identified as supporting drivers for improved management. Financial support from local, national and regional authorities, as well as from additional sponsors and subsidies were noted as important for supporting management practices, and particularly in the recovery and management of agricultural areas. Changes to institutional frameworks were also mentioned, including a review of urban planning instruments near the site, the development of new conservation practices and building practices, and the creation of action plans for improved site management (such as a climate change adaptation strategy, an action plan for fish populations and sustainable fisheries, and the implementation of a bird breeding action plan for migratory birds).

Implications of Multiple Site Designation(s)

The questionnaire also sought further insight into the potential impact of multiple designations on the management of World Heritage properties. One of the ambitions of Phase III was increased cooperation between the Connecting Practice Project and other international programmes and organisations, including the GIAHS (Globally Important Agricultural Heritage Systems) programme of the Food and Agriculture Organization of the United Nations (FAO). During Connecting Practice fieldwork in Phase III, the connections and interaction between the World Heritage and the GIAHS designations was explored and assessed at two case study locations: the Cultural Sites of Al Ain (United Arab Emirates), and the Cultural Landscape of the Honghe Hani Rice Terraces (China).

In line with this cooperation, some questions focused on whether multiple international heritage designations are in place, and if so how site managers work with these different regimes of recognition. Of the 27 responses received, it was an almost even split between properties that did have multiple international designations (14) and those that did not (13). Of the 14 responses received from site managers working with multiple international designations, the common listings/programmes were UNESCO Global Geoparks, Biosphere Reserves, Ramsar listings, EU Natura 2000 designations, and Dark Sky Park designations. In addition, two of the responses indicated that their properties were associated with cultural traditions included in the lists established by the UNESCO Convention for Intangible Heritage Convention.

For those respondents working with multiple international heritage designations, the questionnaire asked whether this had an impact on the resources, requirements or needed expertise for management of the property. In half of these cases (7), the response was 'Yes'.

Site managers were also asked about whether World Heritage designation had changed the way the management team perceives the property. There was an overwhelming affirmative answer in this regard, with more than three-quarters of the responses (21) stating that World Heritage inscription changed the way the management team perceived the site.

Question 6.8 Did the World Heritage designation help in resolving the problems? explored the impact of World Heritage designations on sites in connection with their potential to assist with the resolution of issues. Nine confirmed that World Heritage designation had both changed the way the management team perceived the site, and that designation had assisted in resolving issues at site level (see Figure 5).

- One response stated that World Heritage designation significantly influenced the perception of local property owners and site inhabitants, improving active community engagement in various issues at the site.
- One site manager considered that World Heritage designation had assisted with policy changes.
- Two responses stated that the World Heritage designation facilitated the procurement of additional funding for the site.

Responses that indicated that World Heritage designation had not contributed to resolving issues at the site focused mainly on the need for increased coordination between stakeholders and for new policy planning to protect the site.

- One site manager stated that World Heritage designation did not seem to have been directly useful to the site, but had indirect benefits, such as accessing examples of how other, similar World Heritage sites dealt with tourism.
- Two responses stated that World Heritage designation had negatively affected the site as a result of increased tourism.



Figure 5: Bar graph showing a comparison of the responses for question 2.8: 'Has World Heritage listing changed the way the management team perceives the place where you work?' and question 6.8: 'Did the World Heritage designation help in resolving the problems?'

4. Understanding the Involvement of Associated Communities and Stakeholders

Section 4 of the questionnaire, entitled '**Understanding Associated Communities and Stakeholders**', was intended to provide information about the various types of people and organisations living or operating in and around the World Heritage property. Focusing on stakeholder integration at site level, four central stakeholder categories were identified in the questionnaire for purposes of assessing their involvement at individual site. These were: Indigenous Peoples, Peoples or Groups with Historical/Cultural Associations to the Property, Tourism or Other Business Operators, Other People/Groups.

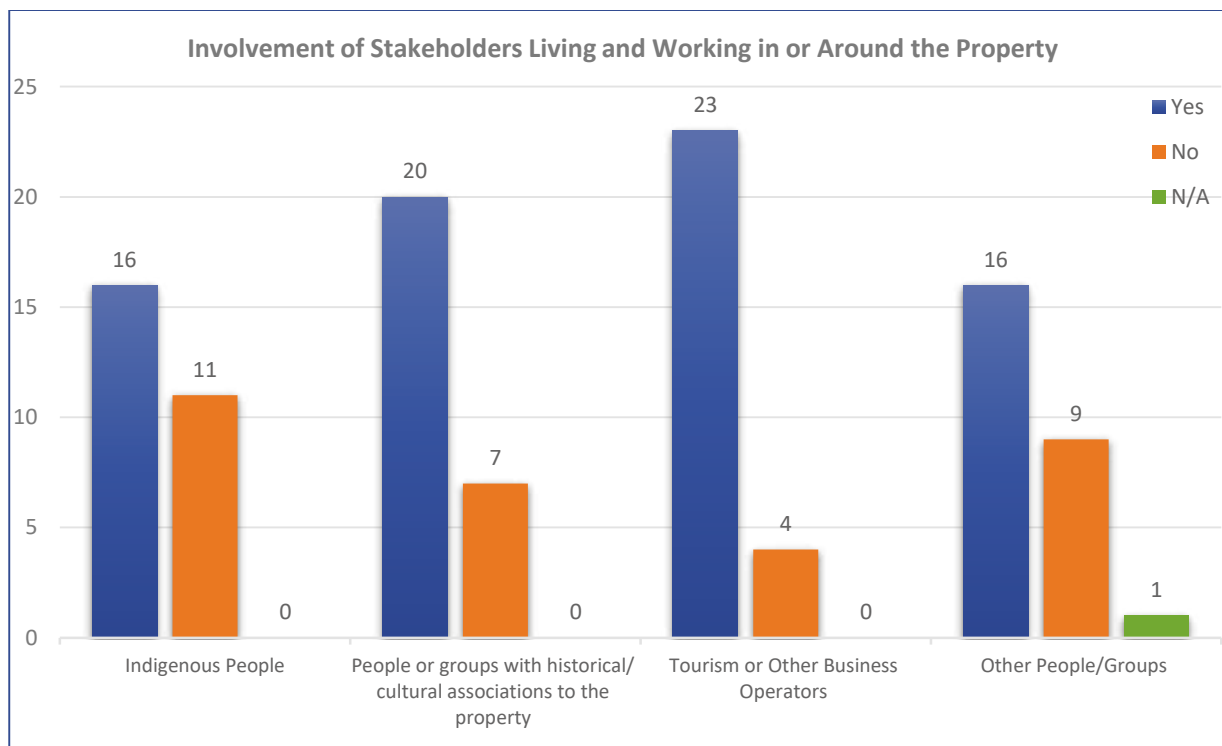


Figure 6: Bar graph showing the presence of various stakeholders at site level. Responses are from Section 4: Understanding Associated Communities and Stakeholders.

Regarding *Indigenous peoples'* continued presence and interaction with site management, of the 16 response that recognised Indigenous peoples in or near the site, 14 listed the interaction between site management and Indigenous peoples to be 'collaborative', and one listed interaction as 'neutral'. None of these considered that the interaction was 'tense', although one respondent noted that the interaction was all three of these: collaborative, tense, and neutral. Site managers that confirmed that Indigenous peoples live inside or near the World Heritage property where they work, 94% (15) considered that these communities were aware of the World Heritage designation. One response commented that Indigenous Peoples used to live in the site but that during the World Heritage nomination process, it was recommended that they move to the buffer zone with their livestock.

Of the 20 site managers who indicated that there was interaction with *People or Groups with Historical/Cultural Associations to the Property*, 17 noted that the interaction was 'collaborative', 2 noted that the interaction was 'collaborative, tense and neutral', and one did not answer.

Most site managers (23) site managers indicated that there were *Tourism or Other Business Operators* interacting with site management. Of these, 14 considered the interaction to be 'collaborative', 2 reported a 'neutral' interaction, and one noted that the interaction was 'tense'. Two responses stated that interactions were both 'collaborative and tense' and one noted that it was 'collaborative and neutral' (presumably reflecting that there are a number of such stakeholders).

Finally, 16 responses indicated that there were interactions with *Other People/Groups* (falling outside the other categories provided). Most of these noted 'collaborative' interaction; one considered the interaction to be 'tense', and one rated this as 'neutral'. One response also noted that the interaction was 'collaborative and neutral' and another stated that interaction was 'collaborative, tense, and neutral'.

Overall, the general outcome of these questions is that site managers consider most of the interactions they have with communities and stakeholders to be 'collaborative', with very few 'tense' or 'neutral' relationships. For site managers, most interactions with other stakeholders are seen as positive. It is interesting to note that only two site managers stated that there were any 'tense' relationships on site.

The complex issue of language and definitions must be noted in relation to this section of the questionnaire, as some responses seemed to be unclear as to what the term 'Indigenous Peoples' means. One response commented that a definition was required, as without a clearly defined meaning, the respondent was unsure of how to properly answer the question. Of those responses identifying Indigenous Peoples living inside or near the World Heritage property, a number also seemed to have diverse understandings of what the term 'Indigenous Peoples' represented. Some seemed to understand 'Indigenous' as synonymous with 'local', meaning local people and communities living inside or just outside of the property; while others understood the term as meaning 'native' populations, 'permanent residents' of the area, 'descendants' of local communities that still lived in the area, 'inhabitants' of surrounding towns and settlements, and 'citizens' of the country who have re-inhabited and often restored various buildings or areas in and around the site and continue to live in them.

Question 5.11 Are there aspects of the management system that integrate or rely on traditional management knowledge or techniques? explored whether there were aspects of the management system that integrated or relied upon traditional management, knowledge or techniques. Most responded 'Yes'.

- Of the 22 responses that stated that traditional knowledge or techniques were relevant at the site: 7 indicated that the management system was based entirely or mostly on traditional knowledge, management and techniques; and 15 stated that traditional knowledge was directly relevant to the property management.
- Of these 15 responses, 11 responses stated that traditional knowledge and/or techniques were effectively integrated into management systems, and 4 responses stated that these elements were not effectively integrated into the management systems.

Five responses indicated that traditional knowledge or techniques were not relevant to the property, and 4 respondents were unsure about the question.

- Of the 5 sites which indicated that these elements were not relevant, some suggested that this was because the property was inscribed according to natural criteria, and it would not therefore be expected to have traditional management.
- It must be noted that some site managers provided multiple answers for the one question, which led to a variation in the number of answers received. For example, one site manager selected all three of the 'YES' responses for this question, indicating that traditional management systems were relevant and effectively integrated into the management systems, that they were relevant but *not* integrated into the management systems, and that the management system was also based entirely/mostly on traditional knowledge, management and techniques. This provides an

interesting point of view that indicates that there may be different ways of understanding traditional management and knowledge within their management systems and structures.

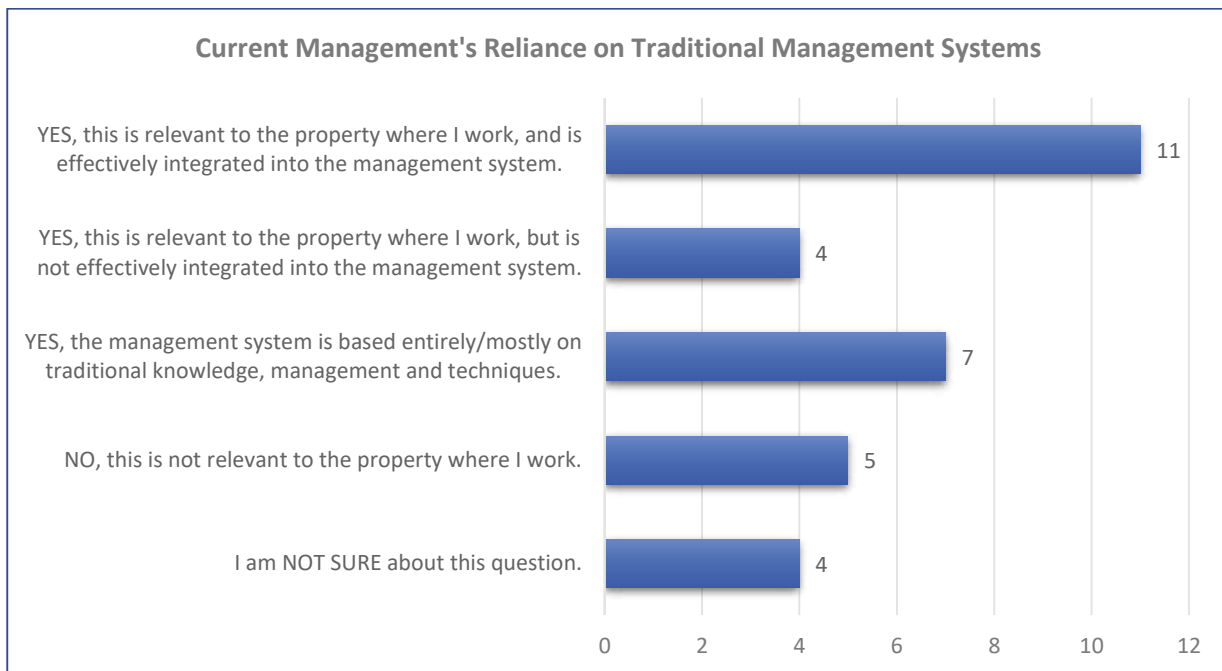


Figure 7: Bar graph showing responses to question 5.11: 'Are there aspects of the management system that integrate or rely on traditional management knowledge or techniques?'

Conclusions

The analysis of the data collected through this questionnaire section of Phase III reveals certain findings and messages from the perspective of site managers that can be the basis of future engagements and thinking. The first is the importance of recognising the interactions between cultural and natural elements within World Heritage properties and the value of a more connected management approaches. It was noted by many site managers that the inter-relatedness of cultural and natural elements should be recognised, and that there are opportunities for more holistic management. The questionnaire responses indicate that site managers recognise the importance of these elements and that, to some extent, they are already managing cultural and natural values together, despite the separation of institutional arrangements. Although challenges are identified, site managers seem generally committed to working towards a more connected understandings and management structures. The ways in which such practices are developed and applied – and the characteristics of integrated management approaches invite further exploration.

The second finding is related to the lack of clarity about the terminology of 'values and 'attributes'. Many responses suggest that there is not a consistent understanding between the site management and institutional levels. Because the inter-relationship between values and attributes is a foundation of World Heritage management and monitoring frameworks, needed further work is indicated.

The third finding is that many challenges for holistic management are caused by diverse interests and priorities among managing organisations, partners, stakeholders, and other interested parties. While these conflicts are acknowledged as being a result of different, yet valid perspectives and knowledges, there is also an understanding that action is required. The questionnaire responses identify the need for more consistent support from local and external actors to improve education, local engagement

and financial opportunities at the site level. This was particularly apparent in responses related to gaps in expertise. Many site managers confirmed that one of the main benefits of a more integrated approach would be increased collaboration among various stakeholder parties involved in management, governance, protection and site conservation, which would benefit both the property and the parties involved. These responses support the overall goal of the Connecting Practice project, confirming the need to find practical means of protecting and managing natural and cultural heritage more seamlessly.

The questionnaire responses also highlighted a number of areas requiring future work.

- Traditional knowledges and traditional management practices need to be better understood and integrated into site management systems, and further focus on this topic could provide useful tools for site managers, particularly those working with continuing cultural landscapes.
- The practical impact of multiple International designations (including both cultural and natural heritage regimes) on site management is an area that should receive greater attention.⁸ It is important to improve the shared understanding of how these designations could reinforce each other for enhanced and supported management (rather than creating disconnected and onerous reporting arrangements for site managers).
- Finally, the responses confirm the interest in further development and application of key terms that are helpful in using biocultural approaches. Phase III of Connecting Practice has made some initial attempts to advance in this area – see the '*Connecting Practice: A Commentary on Emerging Keywords*'. However, as that section of this report explains, additional work is required, including the incorporation of multiple languages to capture the full meaning of these ideas.

Acknowledgements

The Connecting Practice project would like to thank all the site managers who took the time to respond to this questionnaire. The Connecting Practice team looks forward to working with you as new members of the Connecting Practice project network, and to expanding these connections for work in the future. The contributions received provide valuable input from site managers in the field who work every day with on-site issues relating to management and conservation of these unique and important World Heritage properties. The answers provided in this questionnaire have helped to enhance the scope of this project, and together with the results presented in the Connecting Practice project reports, will inform the future work of Connecting Practice and assist other initiatives and site managers on a global scale.

For a full list of properties represented in the results, please see Appendix 2.

⁸ There is an excellent IUCN report on this subject, but it does not include international cultural heritage designations or fully articulate the cultural heritage outcomes. Similarly, while there have been studies of the overlaps between the World Heritage and ICH Conventions for some locations/communities, these have not examined the natural heritage dimensions.

Appendix 1: Copy of English, French and Chinese Questionnaire for the Connecting Practice Project

Connecting Practice: Phase III Questionnaire

Thank you for agreeing to assist ICOMOS and IUCN in this project.

This questionnaire is an opportunity for site managers of **World Heritage mixed properties and cultural landscapes** to contribute insights on the challenges and opportunities of managing these types of World Heritage properties. The overall objective is to assist ICOMOS and IUCN to better understand the perspectives of site managers regarding cultural and natural heritage management concepts and issues.

The responses to this questionnaire are confidential. They will be analysed in such a way to retain your anonymity.

If you wish to provide additional information for any of your answers, please just attach a page and clearly indicate which question. However, we are not seeking lengthy answers from you.

Please submit your filled out questionnaire to maureen.thibault@icomos.org by **15 September 2019**.

1. BACKGROUND INFORMATION

This section seeks to gather some basic background about the World Heritage property where you work.

1.1 Property name:

1.2 Date of inscription:

1.3 World Heritage criteria:

2. UNDERSTANDING THE PROPERTY'S VALUES/ ATTRIBUTES/ RESOURCES

This section investigates the natural and cultural values of the World Heritage property and how they are integrated into its management. It is recognised that these values can be managed separately, or might be considered inseparable.

2.1 Briefly describe the property in your own words. What makes this site important?

2.2 Is the area recognised by other any **international** designations for nature and/or culture? (e.g. Ramsar, UNESCO Geopark, Biosphere Reserve, Intangible Heritage Convention Lists, etc.)

YES NO – *please skip to question 2.4*

2.3 If YES, please list them, and indicate whether the World Heritage property is partly or fully covered by each designation.

Designation	Partly covers WH property	Fully covers WH property	Comments
-------------	---------------------------	--------------------------	----------

	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

2.4 Is the area recognised by any **national** designations for natural and/or cultural heritage? (e.g. national park, forest reserve, community resource management area, historic site/monument, cultural landscape)

YES NO – *please skip to question 2.8*

2.5 If YES, please briefly list the national designations for natural and/or cultural heritage that apply.

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2.6 If YES, are there any differences between the World Heritage values of the site and the reasons for the national level designation?

YES NO

2.7 If YES, please briefly explain.

--

2.8 Has World Heritage listing changed the way the management team perceives the place where you work?

YES NO

2.9 Please explain your answer.

--

2.10 Does the property contain the following natural values/attributes/features? Please add comments if needed.

	Present	Absent	Not sure	Comments
Extinct species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Endangered species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Endemic species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Important introduced species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important Biodiversity Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important Ecosystem Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Waterways, water bodies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Coastal and/or marine areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important geological features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important geomorphological characteristics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Important fossils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Superlative Nature and/or Scenic Beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Natural Resources important to human livelihoods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wilderness (relatively pristine nature)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Socio-economic benefits associated with natural values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.11 Does the property contain the following cultural values/attributes/features? Please add comments if needed.

	Present	Absent	Not sure	Comments
Sacred places/associations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Living traditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pastoralism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hunting/Gathering/ Fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Agriculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Buildings and/or architectural monuments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Archaeological sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Places of Memory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rock Art and/or elements of artistic expression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Industrial Sites/Complexes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vernacular architecture, settlements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of Human Evolution and Dispersal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. UNDERSTANDING HOW VALUES/ATTRIBUTES/ RESOURCES ARE MANAGED

The terms 'values' and 'attributes' might not be in common use in your country. In World Heritage practice, the values relate to the reasons why a property has been included in the World Heritage List, and the attributes are the features, elements, objects, beliefs and practices that demonstrate and transmit those values. In other words, conservation and site management generally apply to the

attributes in order to sustain the values for the long term. This section ask you to think about the values and attributes of the World Heritage property where you work.

3.1 List the **World Heritage values/attributes** that you are managing at this site.

List the World Heritage VALUES here	For each VALUE, what are the key ATTRIBUTES	Comments

3.2 Based on your knowledge, do you think that the list of World Heritage values/ attributes is fully complete for the property where you work?

YES NO

3.3 If NO, what is missing?

3.4 Briefly explain how the **natural** values and attributes of the property are managed.

3.5 Briefly explain how the **cultural** values and attributes of the property are managed.

3.6 Do you manage the natural and cultural values/attributes of the site together?

YES NO

3.7 Please briefly explain your answer.

3.8 Please indicate the use of each of the following concepts in site management (tick as many boxes as needed):

<i>In relation to the World Heritage property where you work:</i>	This concept is relevant to site management and is used .	This concept is relevant to site management but is not used .	This concept is not relevant .	Other terms are used for this concept in English or the local language (please list them below)
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Resilience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Biocultural diversity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Traditional Knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cultural Landscape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Adaptive Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. UNDERSTANDING ASSOCIATED COMMUNITIES AND STAKEHOLDERS

In this section, we wish to know about the different groups of people living or operating in and around the World Heritage property where you work.

4.1 Are there **Indigenous Peoples** living inside or near the World Heritage Property?

YES NO/ Not Sure – *please skip to question 4.9*

4.2 If YES, briefly describe.

4.3 In my experience, these people are **aware** of the World Heritage designation.

YES NO/ Not Sure

4.4 In my experience, these people are **aware** of the World Heritage designation, and generally **supportive**.

YES NO/ Not Sure

4.5 In my experience, these people are **aware** of the World Heritage designation, but are **not generally supportive**.

YES NO/ Not Sure

4.6 I **interact** with these people in my role.

YES NO – *please skip to question 4.9*

4.7 I **interact** with these people in my role and would describe our relationship as (generally):

Collaborative Tense Neutral

4.8 Please use this box to explain your answers briefly (if needed).

4.9 Are there **People or groups with historical/ cultural associations to the property** living inside or near the World Heritage Property?

YES NO/ Not Sure – *please skip to question 4.17*

4.10 If YES, briefly describe.

4.11 In my experience, these people are **aware** of the World Heritage designation.

YES NO/ Not Sure

4.12 In my experience, these people are **aware** of the World Heritage designation, and generally **supportive**.

YES NO/ Not Sure

4.13 In my experience, these people are **aware** of the World Heritage designation, but are **not generally supportive**.

YES NO/ Not Sure

4.14 I **interact** with these people in my role.

YES NO – *please skip to question 4.17*

4.15 I **interact** with these people in my role and would describe our relationship as (generally):

Collaborative Tense Neutral

4.16 Please use this box to explain your answers briefly (if needed).

4.17 Are there **Tourism or Other Business Operators** living inside or near the World Heritage Property?

YES NO/ Not Sure – *please skip to question 4.25*

4.18 If YES, briefly describe.

4.19 In my experience, these people are **aware** of the World Heritage designation.

YES NO/ Not Sure

4.20 In my experience, these people are **aware** of the World Heritage designation, and generally **supportive**.

YES NO/ Not Sure

4.21 In my experience, these people are **aware** of the World Heritage designation, but are **not generally supportive**.

YES NO/ Not Sure

4.22 I **interact** with these people in my role.

YES NO – *please skip to question 4.25*

4.23 I **interact** with these people in my role and would describe our relationship as (generally):

Collaborative Tense Neutral

4.24 Please use this box to explain your answers briefly (if needed).

4.25 Are there **Other People/Groups** living inside or near the World Heritage Property?

YES NO/ Not Sure – *please skip to question 4.33*

4.26 If YES, briefly describe.

4.27 In my experience, these people are **aware** of the World Heritage designation.

YES NO/ Not Sure

4.28 In my experience, these people are **aware** of the World Heritage designation, and generally **supportive**.

YES NO/ Not Sure

4.29 In my experience, these people are **aware** of the World Heritage designation, but are **not generally supportive**.

YES NO/ Not Sure

4.30 I **interact** with these people in my role.

YES NO – *please skip to question 4.33*

4.31 I **interact** with these people in my role and would describe our relationship as (generally):

Collaborative Tense Neutral

4.32 Please use this box to explain your answers briefly (if needed).

4.33 Please briefly describe how you communicate and/or interact with the people that you interact with in your role (as indicated above), and indicate any differences between them.

5. GOVERNANCE/ MANAGEMENT AT THE SITE LEVEL

Governance and management are closely linked. Management is about what is done in pursuit of specific objectives as well as the means and actions to achieve those objectives, while governance is about who defines the objectives, how they will be pursued, and with what means. The purpose of a management system is to ensure the effective protection of the nominated property for present and future generations.

5.1 Briefly describe the management system for the property where you work.

5.2 Which government department, ministry or agency is ultimately responsible to UNESCO for its management?

5.3 Is the site managed by a single person or is there a management team?

SINGLE PERSON TEAM

5.4 If TEAM, how many people are responsible for the site management? _____

5.5 If TEAM, what areas of expertise relevant to the heritage management of the property are represented on the team?

5.6 If SINGLE PERSON, what expertise relevant to the heritage management at the property do you have?

5.7 Do you think there are gaps in the expertise needed to manage the heritage of the property where you work?

YES NO – *please skip to question 5.9*

5.8 If YES, when needed, how does the site management access nature and cultural expertise that is outside the competence of the current team?

5.9 If there are multiple international heritage designations, does this have any practical impacts on the resources, requirements or needed expertise for management of the property?

YES NO NOT APPLICABLE

5.10 If YES, briefly explain.

5.11 Are there aspects of the management system that integrate or rely on traditional management knowledge or techniques?

- NO, this is **not** relevant to the property where I work.
- YES, the management system is based entirely/mostly on traditional knowledge, management and techniques.
- YES, this is relevant to the property where I work, and is effectively integrated into the management system.
- YES, this is relevant to the property where I work, but is **not** effectively integrated into the management system.
- I am NOT SURE about this question.

5.12 Please briefly explain your answer.

5.13 Are there other organisations that participate in the management of the property (such as NGOs, community organisations, business, religious groups, etc.)?

- YES NO

5.14 If YES, list them and briefly explain their involvement (e.g. contributions and potential areas of tension, alignment/lack of alignment with the site management system, etc.).

5.15 Is there a current management plan in place for the property where you work?

- YES NO/Not Sure

5.16 Are there other management plans/documents that guide the management of the property where you work?

- YES NO – *please skip to question 5.19*

5.17 If YES, list them.

5.18 If YES, are the objectives/priorities in these guiding documents generally similar or different to the World Heritage management system/plan?

- YES NO

5.19 Based on the World Heritage management plan/management system in place at the property where you work, what are the most important current management priorities?

5.20 Are there other management priorities at the site that are not stated in the World Heritage management plan/system?



6. ISSUES WITH MANAGEMENT OF WORLD HERITAGE MIXED SITES AND CULTURAL LANDSCAPES

In this section, and the next, we are seeking site manager feedback about potential areas for improvement.

6.1 What are the **issues** with simultaneous managing for natural and cultural values/ attributes?

6.2 What are the **benefits** with simultaneous managing for natural and cultural values?

6.3 Do you feel that management is biased to one or the other (natural or cultural values)?

YES NO

6.4 If YES, please describe.

6.5 What management problems related to the protection and management of the natural or cultural heritage of the property where you work have you had in the last 6 years? Give the three most important examples.

1.

2.

3.

6.6 How were these problems resolved?

6.7 Did you have to get outside help to resolve the problems? If so, from whom?

6.8 Did the World Heritage designation help in resolving the problems?

6.9 Do you, as site manager, have observations about the opportunities or constraints in managing both natural and cultural heritage at the property where you work?

**7. BACKGROUND OF THE RESPONDENT**

7.1 Job title: _____

7.2 Age:

 Under 30 30-39 40-49 50-59 60 and over

7.3 Gender:

 Male Female Other

7.4 Is the property located in the country that you come from?

 YES NO

7.5 In which discipline(s) are you trained? _____

7.6 In which country did you complete most of your education/training (relevant to your role)?

7.7 Have you worked at other World Heritage sites?

 YES NO

7.8 If YES, please briefly indicate where.

7.8 How many years have you been working at this property? _____

7.9 In which domain has most of your career been?

 Cultural Heritage Natural Heritage Other (please briefly specify): _____

7.10 Do you have any additional comments?

7.11 Could we contact you to discuss your answers further?

 YES NO

7.12 If YES, please write your name and email contact in the box below.

Thank You!

Connecting Practice : Phase III

Questionnaire

Merci d'avoir accepté d'aider l'ICOMOS et l'UICN dans ce projet.

Ce questionnaire est une opportunité pour les gestionnaires de sites de **biens mixtes et de paysages culturels du patrimoine mondial** de donner un aperçu des défis et des opportunités liés à la gestion de ces types de biens du patrimoine mondial.

L'objectif général est d'aider l'ICOMOS et l'UICN à mieux comprendre les perspectives des gestionnaires de sites en ce qui concerne les concepts et les problèmes de gestion du patrimoine naturel et culturel.

Les réponses à ce questionnaire sont confidentielles. Elles seront analysées de manière à ce que votre anonymat soit préservé.

Si vous souhaitez fournir des informations supplémentaires pour l'une de vos réponses, veuillez joindre une page et indiquer clairement la question concernée. Cependant, nous n'attendons pas de longues réponses de votre part.

Veuillez envoyer votre questionnaire dûment rempli à maureen.thibault@icomos.org avant le **15 septembre 2019**.

1. INFORMATIONS GENERALES

Cette section sert à rassembler quelques informations de base sur le site du patrimoine mondial sur lequel vous travaillez.

1.1 Nom du bien : _____

1.2 Date d'inscription : _____

1.3 Critères du patrimoine mondial : _____

2. COMPRENDRE LES VALEURS / ATTRIBUTS / RESSOURCES DU BIEN

Cette section examine les valeurs naturelles et culturelles du bien du patrimoine mondial et la manière dont elles sont intégrées à sa gestion. Il est admis que ces valeurs peuvent être gérées séparément ou peuvent être considérées comme indissociables.

2.1 Décrivez brièvement le bien avec vos propres mots. Qu'est-ce qui rend ce site important ?

2.2 La zone est-elle reconnue par d'autres désignations **internationales** pour la nature et/ou la culture ? (p. ex. Ramsar, géoparc UNESCO, réserve de biosphère, liste de la Convention sur le patrimoine immatériel, etc.)

OUI NON – *veuillez passer à la question 2.4*

2.3 Si vous avez répondu OUI, veuillez les énumérer et indiquer si le bien du patrimoine mondial est partiellement ou totalement couvert par chacune des désignations.

Désignation	Couvre partiellement le bien du PM	Couvre intégralement le bien du PM	Informations complémentaires
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

2.4 La zone est-elle reconnue par des désignations **nationales** de patrimoine naturel et/ou culturel ? (p. ex. parc national, réserve forestière, zone de gestion des ressources communautaires, site/monument historique, paysage culturel)

OUI NON – *veuillez passer à la question 2.8*

2.5 Si vous avez répondu OUI, veuillez énumérer brièvement les désignations nationales du patrimoine naturel et/ou culturel qui s'appliquent.

2.6 Si vous avez répondu OUI, existe-t-il des différences entre les valeurs du site relatives au patrimoine mondial et celles relatives à la désignation au niveau national ?

OUI NON

2.7 Si vous avez répondu OUI, veuillez expliquer brièvement votre réponse.

2.8 L'inscription sur la Liste du patrimoine mondial a-t-elle modifié la perception de l'équipe de gestion de l'endroit où vous travaillez sur le site ?

OUI NON

2.9 Veuillez expliquer votre réponse.

2.10 Le bien contient-il les valeurs, attributs et caractéristiques naturels suivants ? Veuillez ajouter des informations complémentaires si nécessaire.

	Présent	Absent	Ne sait pas	Informations complémentaires
Espèces disparues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Espèces menacées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Espèces endémiques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Espèces introduites importantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Zone importante de biodiversité	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Habitat important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Services écosystémiques importants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Voies d'eau et plans d'eau	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Zones côtières et/ou marines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Caractéristiques géologiques importantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Caractéristiques géomorphologiques importantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fossiles importants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nature exceptionnelle et/ou beauté des paysages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ressources naturelles importantes à la subsistance humaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nature sauvage (nature relativement préservée)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Bénéfices sociaux-économiques associés aux valeurs naturelles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Autre (veuillez préciser)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.11 Le bien contient-il les valeurs, attributs et caractéristiques culturels suivants ? Veuillez ajouter des informations complémentaires si nécessaire.

	Présent	Absent	Ne sait pas	Informations complémentaires
Lieux sacrés	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Traditions vivantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pastoralisme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chasse/cueillette/pêche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Agriculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bâtiments et/ou monuments architecturaux	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sites archéologiques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lieux de mémoire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Art rupestre et/ou éléments d'expression artistique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sites/complexes industriels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Architectures vernaculaires, établissements humains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Preuve de l'évolution et de la dispersion humaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Autre (veuillez préciser)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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3. COMPRENDRE LA GESTION DES VALEURS / ATTRIBUTS / RESSOURCES

Les termes « **valeurs** » et « **attributs** » peuvent ne pas être d'usage courant dans votre pays. Dans la pratique du patrimoine mondial, les valeurs ont trait aux raisons pour lesquelles un bien a été inscrit sur la Liste du patrimoine mondial, et les attributs sont les caractéristiques, éléments, objets, croyances et pratiques qui témoignent de ces valeurs et les transmettent. En d'autres termes, la conservation et la gestion du site s'appliquent généralement aux **attributs** afin de préserver les valeurs à long terme. Cette section vous demande de réfléchir aux valeurs et aux attributs du site du patrimoine mondial sur lequel vous travaillez.

3.1 Énumérez les **valeurs/attributs du patrimoine mondial** que vous gérez sur ce site.

Énumérez les VALEURS du patrimoine mondial ici	Pour chaque VALEUR, quels sont les ATTRIBUTS clés	Informations complémentaires

3.2 Sur la base de vos connaissances, pensez-vous que la liste des valeurs/attributs du patrimoine mondial est complète pour le bien ?

OUI NON

3.3 Si vous avez répondu NON, que manque-t-il ?

--

3.4 Expliquez brièvement comment sont gérés les valeurs et les attributs **naturels** du bien.

--

3.5 Expliquez brièvement comment sont gérés les valeurs et les attributs **culturels** du bien.

--

3.6 Gérez-vous les valeurs/attributs naturels et culturels du site ensemble ?

OUI NON

3.7 Veuillez expliquer brièvement votre réponse.

--

3.8 Veuillez indiquer l'utilisation de chacun des concepts suivants dans la gestion de site (cochez autant de cases que nécessaire):

<i>En ce qui concerne le site du patrimoine mondial sur lequel vous travaillez</i>	Ce concept est pertinent pour la gestion du site et est utilisé .	Ce concept est pertinent pour la gestion du site mais n'est pas utilisé .	Ce concept n'est pas pertinent .	D'autres termes sont utilisés pour ce concept en français ou dans la langue locale (veuillez les énumérer ci-dessous)
Résilience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diversité bioculturelle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Savoir traditionnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Paysage culturel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Gestion adaptative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. COMPRENDRE LES COMMUNAUTÉS ET LES PARTIES PRENANTES ASSOCIÉES

Dans cette section, nous souhaitons connaître les différents groupes de personnes qui vivent ou opèrent dans et autour du bien du patrimoine mondial.

4.1 Des **peuples autochtones** vivent-ils à l'intérieur ou à proximité du bien du patrimoine mondial ?

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.9*

4.2 Si vous avez répondu OUI, expliquez brièvement votre réponse.

--

4.3 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial.

OUI NON/ Ne sait pas.

4.4 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial et apportent généralement leur **soutien**.

OUI NON/ Ne sait pas.

4.5 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial, mais **ne le soutiennent généralement pas**.

OUI NON/ Ne sait pas.

4.6 **J'interagis** avec ces personnes dans mon rôle.

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.9*

4.7 **J'interagis** avec ces personnes dans mon rôle et décrirait notre relation comme étant (généralement)

Collaborative Tendue Neutre

4.8 Veuillez utiliser cette case pour expliquer brièvement vos réponses (si nécessaire).

4.9 Existe-t-il des **personnes ou des groupes ayant des associations historiques/culturelles avec le bien** vivant à l'intérieur ou à proximité du bien du patrimoine mondial ?

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.17*

4.10 Si vous avez répondu OUI, expliquez brièvement votre réponse.

4.11 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial.

OUI NON/ Ne sait pas.

4.12 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial et apportent généralement leur **soutien**.

OUI NON/ Ne sait pas.

4.13 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial, mais **ne le soutiennent généralement pas**.

OUI NON/ Ne sait pas.

4.14 **J'interagis** avec ces personnes dans mon rôle.

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.17*

4.15 **J'interagis** avec ces personnes dans mon rôle et décrirait notre relation comme étant (généralement)

Collaborative Tendue Neutre

4.16 Veuillez utiliser cette case pour expliquer brièvement vos réponses (si nécessaire).

4.17 Existe-t-il des **opérateurs touristiques ou autres opérateurs économiques** vivant à l'intérieur ou à proximité du bien du patrimoine mondial ?

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.25*

4.18 Si vous avez répondu OUI, expliquez brièvement votre réponse.

4.19 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial.

OUI NON/ Ne sait pas.

4.20 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial et apportent généralement leur **soutien**.

OUI NON/ Ne sait pas.

4.21 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial, mais **ne le soutiennent généralement pas**.

OUI NON/ Ne sait pas.

4.22 **J'interagis** avec ces personnes dans mon rôle.

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.25*

4.23 **J'interagis** avec ces personnes dans mon rôle et décrirait notre relation comme étant (généralement)

Collaborative Tendue Neutre

4.24 Veuillez utiliser cette case pour expliquer brièvement vos réponses (si nécessaire).

4.25 Existe-t-il **d'autres personnes / groupes** vivant à l'intérieur ou à proximité du bien du patrimoine mondial ?

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.33*

4.26 Si vous avez répondu OUI, expliquez brièvement votre réponse.

4.27 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial.

OUI NON/ Ne sait pas.

4.28 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial et apportent généralement leur **soutien**.

OUI NON/ Ne sait pas.

4.29 D'après mon expérience, ces personnes sont **au courant** du statut de patrimoine mondial, mais **ne le soutiennent généralement pas**.

OUI NON/ Ne sait pas.

4.30 **J'interagis** avec ces personnes dans mon rôle.

OUI NON/ Ne sait pas. – *veuillez passer à la question 4.33*

4.31 **J'interagis** avec ces personnes dans mon rôle et décrirait notre relation comme étant (généralement)

Collaborative Tendue Neutre

4.32 Veuillez utiliser cette case pour expliquer brièvement vos réponses (si nécessaire).

4.33 Veuillez décrire brièvement comment vous communiquez et/ou interagissez avec les personnes avec lesquelles vous interagissez dans votre rôle (comme indiqué ci-dessus), et indiquez les différences éventuelles entre elles.

5. GOUVERNANCE / GESTION AU NIVEAU DU SITE

La gouvernance et la gestion sont étroitement liées. La gestion porte sur ce qui est fait dans la poursuite d'objectifs spécifiques, ainsi que sur les moyens et les actions permettant d'atteindre ces objectifs, tandis que la gouvernance consiste à déterminer qui définit les objectifs, comment ils seront poursuivis et avec quels moyens.

5.1 Décrivez brièvement le système de gestion du site sur lequel vous travaillez.

5.2 Quel ministère, service ou agence est responsable en dernier ressort devant l'UNESCO pour sa gestion ?

5.3 Le site est-il géré par une seule personne ou existe-t-il une équipe de gestion ?

PERSONNE UNIQUE ÉQUIPE

5.4 Si vous avez répondu ÉQUIPE, combien de personnes sont responsables de la gestion du site ? _____

5.5 Si vous avez répondu ÉQUIPE, quels domaines d'expertise pertinents pour la gestion du patrimoine du site sont représentés dans l'équipe ?

5.6 Si vous avez répondu PERSONNE UNIQUE, quelle expertise pertinente avez-vous de la gestion du patrimoine du site ?

5.7 Pensez-vous qu'il existe des lacunes dans l'expertise nécessaire pour gérer le patrimoine du site ?

OUI NON – *veuillez passer à la question 5.9*

5.8 Si vous avez répondu OUI, quand cela est nécessaire, comment les responsables de la gestion du site parviennent-ils à obtenir une expertise naturelle et/ou culturelle qui ne relève pas de la compétence de l'équipe actuelle ?

5.9 S'il existe plusieurs désignations internationales en lien avec le patrimoine, cela a-t-il un impact concret sur les ressources, les exigences ou l'expertise nécessaire pour la gestion du bien ?

OUI NON PAS APPLICABLE

5.10 Si vous avez répondu OUI, expliquez brièvement votre réponse.

5.11 Y a-t-il des aspects du système de gestion qui intègrent ou s'appuient sur les connaissances ou pratiques de gestion traditionnelles ?

NON, cela ne concerne pas le bien.

OUI, le système de gestion repose entièrement/principalement sur les connaissances, la gestion et les pratiques traditionnelles.

OUI, cela concerne le bien et est efficacement intégré dans le système de gestion.

OUI, cela concerne le bien, mais n'est pas efficacement intégré dans le système de gestion.

Je ne sais pas.

5.12 Veuillez expliquer brièvement votre réponse.

5.13 Existe-t-il d'autres organisations qui participent à la gestion du bien (telles que des ONG, des organisations communautaires, des entreprises, des groupes religieux, etc.) ?

OUI NON

5.14 Si vous avez répondu OUI, énumérez-les et expliquez brièvement leur implication (contributions et zones de tension potentielles, alignement/non-alignement avec le système de gestion de site, etc.).

5.15 Existe-t-il un plan de gestion actuel et effectif pour le bien ?

OUI NON/ Ne sait pas.

5.16 Existe-t-il d'autres plans/documents de gestion qui guident la gestion du bien ?

OUI NON – veuillez passer à la question 5.19

5.17 Si vous avez répondu OUI, énumérez-les.

5.18 Si vous avez répondu OUI, les objectifs/priorités énoncés dans ces documents d'orientation sont-ils généralement similaires ou différents du système/plan de gestion du site du patrimoine mondial ?

OUI NON

5.19 Sur la base du plan de gestion/système de gestion du patrimoine mondial en place sur le bien, quelles sont les priorités de gestion les plus importantes actuellement ?

5.20 Existe-t-il d'autres priorités de gestion sur le site qui ne figurent pas dans le plan/système de gestion du patrimoine mondial ?

6. QUESTIONS RELATIVES À LA GESTION DES SITES MIXTES DU PATRIMOINE MONDIAL ET DES PAYSAGES CULTURELS

Dans cette section, et dans la suivante, nous demandons aux gestionnaires de sites de s'exprimer sur les domaines susceptibles d'être améliorés.

6.1 Quels sont les **problèmes** liés à la gestion simultanée des valeurs/attributs naturels et culturels ?

6.2 Quels sont les **avantages** d'une gestion simultanée des valeurs naturelles et culturelles ?

6.3 Avez-vous l'impression que la gestion privilégie les unes ou les autres (valeurs naturelles ou culturelles) ?

OUI NON

6.4 Si vous avez répondu OUI, expliquez votre réponse.

6.5 Quels problèmes de gestion liés à la protection et à la gestion du patrimoine naturel ou culturel du bien avez-vous rencontrés au cours des 6 dernières années ? Donnez les trois exemples les plus importants.

1.
2.
3.

6.6 Comment ces problèmes ont-ils été résolus ?

6.7 Avez-vous eu besoin d'une aide extérieure pour résoudre ces problèmes ? Si oui, par l'intermédiaire de qui ?

6.8 Le statut de patrimoine mondial aide-t-il à résoudre ces problèmes ?

6.9 En tant que gestionnaire de site, avez-vous des observations sur les opportunités ou les contraintes liées à la gestion du patrimoine naturel et culturel sur le bien pour lequel vous travaillez ?

7. INFORMATIONS SUR LE PARTICIPANT

7.1 Titre du poste : _____

7.2 Âge :

Moins de 30 ans et plus 30-39 40-49 50-59 60

7.3 Genre :

Masculin Féminin Autre

7.4 Le bien est-il situé dans votre pays d'origine ?

OUI NON

7.5 Dans quelle(s) discipline(s) avez-vous été formé ? _____

7.6 Dans quel pays avez-vous effectué la majeure partie de votre éducation/formation (en fonction de votre rôle) ? _____

7.7 Avez-vous travaillé sur d'autres sites du patrimoine mondial ?

OUI NON

7.8 Si vous avez répondu OUI, merci d'indiquer brièvement où.

7.8 Depuis combien de temps travaillez-vous sur ce site ? _____

7.9 Dans quel domaine avez-vous effectué la majeure partie de votre carrière ?

Patrimoine culturel Patrimoine naturel

Autre (veuillez préciser brièvement): _____

7.10 Informations/ Observations complémentaires :

7.11 Pouvons-nous vous contacter pour discuter plus en détail de vos réponses ?

OUI NON

7.12 Si vous avez répondu OUI, veuillez écrire votre nom et votre adresse électronique dans la case ci-dessous.

Merci !

联合实践计划 第三阶段 问卷

联合实践计划是由ICOMOS和IUCN发起，目的是开拓、研究并产生新的方法，来承认和支持遗产地选定和管理框架中的自然和文化价值中互相联系的特征。这个项目使ICOMOS和IUCN检验了一些想法，这些想法能够影响在《世界遗产公约》范围内和范围外影响到理论和实践的转化，并且帮助定义出一个直观的能够将理论转化为实践的策略。

遗产地管理者的问卷：

联合实践计划需要您的帮助来在世界遗产地自然与文化融合方面进行更深入的研究。

我们精心设计了针对遗产地管理者的问卷，来更好的从您的角度来理解有关于文化和自然遗产地的管理理念和产生的问题。

通过填写这个简短的问卷，对此感兴趣的文化景观和混合景观的遗产地管理者可以对我们有所帮助。我们将对您的作答进行保密。在收到您的回复之后，可能会有更深入的问题和采访，问卷的结果将会被用于分析。最终的分析结果将会成为联合实践计划第三阶段报告中的一部分。

如何参与：

如果您想要参与，请联系我们来在网络上获得问卷：

Maureen Thibault,
Communications and Projects Assistant at ICOMOS,
at maureen.thibault@icomos.org

请一定将您的姓名、电子邮箱和您工作的世界遗产地名字包含在内。

联合实践计划 第三阶段 问卷

感谢您同意参与 ICOMOS 和 IUCN 的这个项目。

这个调查问卷为文化景观和混合景观的遗产地管理者提供了一个机会，他们可以贡献出其针对遗产地可能出现的机遇和挑战的理解和方法。整体的目标是帮组 ICOMOS 和 IUCN 更好的了解遗产地管理者关于文化和自然遗产地的管理理念和可能产生的问题。

对于这些问题的任何回答都是保密的，他们将会被以特殊的方式进行分析，以保持你的匿名性。

如果你希望对你的任意一个回答提供额外的信息，请另附一页并清楚标明是针对哪一个问题。不过我们对答案的字数并不作要求。

请在 2019 年 9 月前将您的答案发送到 maureen.thibault@icomos.org

1. 背景信息

这个部分仅用于收集更多关于你工作的遗产地的信息。



2.5 如果有，请简短的列出其获得的自然和/或文化遗产地的国家级提名。

2.6 如果有，这个遗产地的价值与其被提名的原因这两者存在任何区别吗？

有 没有

2.7 如果有，请简单进行解释。

2.8 世界遗产名录是否改变了你的工作地点管理团队对这个地点的看法

有 没有

2.9 请解释一下你的回答

2.10 这个遗产地是否包含以下的自然价值/特性/特点？如果需要请填写您的评价。

	包含	缺少	不确定	评价
灭绝物种	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
濒危物种	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
地方性物种	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要引进物种	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要生物多样性区域	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要栖息地	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

重要生态系统	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
水体，水道	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
海岸和/或海洋区域	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要地质特征	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要地貌特征	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
重要化石	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
极致的自然风光	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
对人类生存有重要意义的自然资源	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
荒地（相对原始的自然）	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
与自然价值相关的社会生态好处	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
其他（请描述）	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.11 这个遗产地是否包含以下的文化价值/特性/特点？如果需要请填写您的评价。

	包含	缺少	不确定	评价
神圣地点	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
活的传统	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
田园主义	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
捕猎/聚集/渔业	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
农业	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
建筑和/或建筑性的历史遗迹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
考古遗迹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
历史悠久的地方	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
岩石艺术和/或艺术表达的元素	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
工业遗迹/设施	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
当地建筑，定居点	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
人类进化和分	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

散的证据				
其他（请描述）	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. 理解价值/特性/资源是如何被管理的

这两个术语“价值”和“特性”也许在你的国家不被经常用到。在世界遗产实践中，价值与为何这个地点被归入世界遗产地清单中有关，特性是其可以将价值进行阐述和转换的特点、元素、个体、信仰和实践活动。换言之，保护并且管理遗产地一般来说主要长期关注其“特性”来保护其“价值”。这个部分希望你能思考你工作的世界遗产地的价值和特性。

3.1 列出在这个世界遗产地，你所管理的价值和特性

列出这个遗产地的价值	对每一个价值，他们的关键特性是什么	评价

3.2 基于你现有的知识，你认为你工作的世界遗产地的价值/特性是否被世界遗产清单完整列出？

有 没有

3.3 如果没有，缺少了什么部分？



3.4 简单描述这个遗产地的自然价值和特性是如何被管理的

3.5 简单描述这个遗产地的文化价值和特性是如何被管理的

3.6 你们是否将这个地点的自然和文化价值/特性一同管理？

有 没有

3.7 请简单解释你的答案

3.8 请指出下列的每一个遗产地管理的概念（可尽量多的在框中打钩）

与你工作的世界遗产地相关度	这个概念与我工作的世界遗产地相关并且	这个概念与我工作的世界遗产地相关但我	这个概念与我工作的世界遗产地不相关	被用做这个概念的其他专业术语，用英文
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	我们用了这个概念	他们没有使用这个概念		或当地语言表述（请在下列出）
恢复力	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
生物多样性	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
传统知识	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
文化景观	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
适应性管理	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. 了解相关社群和利益相关者

在这个部分，我们希望能够了解到在你工作的世界遗产地生活的或进行运营工作的不同的社会群体。

4.1 在这个世界遗产地内或附近有本地人生活吗？

有 没有/不确定——跳到问题 4.9

4.2 如果有，请简要描述

4.3 在我的经验里，这些人人都知道世界遗产地选定这件事。

是的 没有/不确定

4.4 在我的经验里，这些人人都知道世界遗产地选定这件事并且很支持。

是的 没有/不确定

4.5 在我的经验里，这些人人都知道世界遗产地选定这件事但不是非常支持。

是的 没有/不确定

4.6 我以我扮演的角色同这些人互动。

是 否——跳到问题 4.9

4.7 我以我扮演的角色同这些人互动，并且认为我们的关系基本上是

合作的 紧张的 中立的

4.8 请在方框中简要解释你的答案（如果需要的话）

4.9 与世界遗产有历史上文化上关联的人或者群体住在世界遗产里面吗？

是 否/不确定——跳到问题 4.17

4.10 如果是，简要描述一下。

4.11 据我所知，这些当地人了解申遗。

是 否/不确定

4.12 据我所知，这些当地人了解申遗，他们基本持赞同态度。

是 否/不确定

4.13 据我所知，这些当地人了解申遗，但是他们并没有都持赞同态度。

是 否/不确定

4.14 我以我扮演的角色同这些人互动。

是 否/不确定——跳到问题 4.17

4.15 我以我扮演的角色同这些人互动，并且认为我们的关系基本上是

合作的 紧张的 中立的

4.16 请在方框中简要解释你的答案（如果需要的话）

4.17 有参与旅游业或商业的人住在世界遗产里面或周围地区。

是 否/不确定

4.18 如果是，请简要描述。

4.19 据我所知，这些当地人了解申遗。

是 否/不确定

4.20 据我所知，这些当地人了解申遗，他们基本持赞同态度。

是 否/不确定

4.21 据我所知，这些当地人了解申遗，但是他们并没有都持赞同态度。

是 否/不确定

4.22 我以我扮演的角色同这些人互动。

是 否/不确定——跳到问题 4.25

4.23 我以我扮演的角色同这些人互动，并且认为我们的关系基本上是

合作的 紧张的 中立的

4.24 请在方框中简要解释你的答案（如果需要的话）

4.25 有其他人或群体居住在世界遗产里面或附近地区。

是 否/不确定——跳到问题 4.33

4.26 如果是，请简要描述。

4.27 据我所知，这些当地人了解申遗。

是 否/不确定

4.28 据我所知，这些当地人了解申遗，他们基本持赞同态度。

是 否/不确定

4.29 据我所知，这些当地人了解申遗，但是他们并没有都持赞同态度。

是 否/不确定

4.30 我以我扮演的角色同这些人互动。

是 否/不确定——跳到问题 4.25

4.31 我以我扮演的角色同这些人互动，并且认为我们的关系基本上是

合作的 紧张的 中立的

4.32 请在方框中简要解释你的答案（如果需要的话）

4.33 请简要描述你自己如何同这些人交流/互动，你用扮演的角色如何同这些人交流/互动，并阐明二者间的区别。

5. 遗产地层面的政府行为和管理行为

政府行为和管理行为往往是紧密相关的。管理行为是具体的目标的落实以及实现目标的方式手段。政府行为是关于制定目标的对象，目标的实现方式及方法。建立管理体系的目的是确保能够对候选遗产地进行有效保护，无论是现在还是将来。

5.1 简要描述你工作的地方的遗产管理体系。

5.2 哪一个政府部门或代理机构就遗产地的管理对联合国教科文组织负责。

5.3 对遗址的管理是由个体进行，还是由团队完成？

单人 团队

5.4 如果是团队，有多少人参与遗址的管理？ _____

5.5 如果是团队，里面从事遗产地管理的专家是哪些领域的？

5.6 如果是单人，他们是从事遗产地管理哪些领域的？

5.7 你认为你工作的地方缺乏从事遗产地管理的专家吗？

是 否——跳到问题 5.9

5.8 如果是，遗址管理者如何联系团队外的自然和文化方面的专家？

5.9 如果是多个国际遗产申报，对资源、要求、管理所需专家有什么实际的影响吗？

是 否 不合适

5.10 如果是，请简要解释。

5.11 在此管理体系中，有借助了传统管理知识和手段的方面吗？

否，这与我工作的遗址无关。

是，此管理体系几乎/完全基于传统管理模式。

是，这与我工作的遗产有关，并且有效地融入到了此管理体系中。

是，这与我工作的遗产有关，但并未有效地融入到了此管理体系中。

不确定。

5.12 请简要解释你的答案。

5.13 有任何组织参与到遗产管理中吗（比如非政府组织、社区组织、商业组织、宗教团体等）？

是 否

5.14 如果是，将他们列出来，并说明他们的参与情况（例如，贡献、可能的冲突点、同管理体系一致的地方或缺乏一致性的地方等等）。

5.15 你工作的地方有现行的管理计划落地吗？

是 否/不确定

5.16 在你工作的地方，有其他的管理计划或文件指导管理工作吗？

是 否——跳到问题 5.19

5.17 如果是，列出来。

5.18 如果是，这些指导性文件与世界遗产管理体系/计划中的目标和优先事项是相似的还是不同的？

相似 不同

5.19 在你工作的地方，基于已落地的世界遗产管理计划和管理体系，目前哪些东西是具有优先权的？

5.20 当地有一些其他的优先事项未被列入到世界遗产管理体系中吗？

6. 混合遗产和文化景观的管理问题

在这个部分和下一个部分中，我们主要问的是遗产地管理者，问题是关于未来改进工作的。

6.1 在哪些事件中，对文化价值和自然价值管理是同时进行的？

6.2 同时管理自然价值和文化价值的好处有哪些？

6.3 你感觉是偏向于其中一个价值的吗（自然或文化）？

是 否

6.4 如果是，请描述一下。

6.5 过去六年中，在你工作的地方，出现过哪些保护上的管理问题，还有自然或文化遗产管理的问题？举出最重要的三个例子。

6.6 这些问题是如何解决的？

6.7 为了解决问题，你不得不向外界寻求帮助吗？如果是，向谁寻求帮助？

6.8 世界遗产的申报有助于解决这些问题吗？

6.9 在你工作的地方，你作为管理者，有观察到管理自然和文化遗产的机会与限制吗？

7. 调查对象的背景

7.1 职业： _____

7.2 年龄：

小于 30 岁 30-39 40-49 50-59 60 岁以上

7.3 性别

男 女 其他

7.4 这个遗产是你们国家的吗？

是 否

7.5 你学过哪些学科？ _____

7.6 你在主要在哪个国家完成的学业（有关你现在的角色）？

7.7 你在其他世界遗产地工作过吗？

是 否

7.8 如果是，请简要说明工作过的地方。

7.9 你在这个遗产地工作多少年了？ _____

7.10 你主要从事的是？

文化遗产工作 自然遗产工作

其他（请简要说明其特征） _____

7.11 你还有其他想说的吗？



7.12 我们以后可以就你的回答联系你吗？

是 否

7.13 如果是，请在下面方框中写明你的名字以及邮件联系方式。

感谢你的参与！

Appendix 2: List of Questionnaire Respondents⁹

Name of WHS	Country	Region	WH Designation	Date of Inscription
Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe	Transboundary in Albania, Austria, Belgium, Bulgaria, Croatia, Germany, Italy, Romania, Slovakia, Slovenia, Spain, Ukraine	Europe and North America	Natural WHS	2007
Caves and Ice Age Art in the Swabian Jura	Germany	Europe and North America	Cultural WHS	2017
Changdeokgung Palace Complex	Republic of Korea	Asia and the Pacific	WH Cultural Landscape	1997
China Danxia	China	Asia and the Pacific	Natural WHS	2010
Hortobágy National Park – The Puszta	Hungary	Europe and North America	WH Cultural Landscape	1999
Landscape of the Pico Island Vineyard Culture	Portugal	Europe and North America	WH Cultural Landscape	2004
Laponian Area	Sweden	Europe and North America	Mixed Site	1996
Maloti-Drakensberg Park	Lesotho, South Africa	Africa	Mixed Site	2000
Messel Pit Fossil Site	Germany	Europe and North America	Natural Site	1995
Namib Sand Sea	Namibia	Africa	Natural Site	2013
Palmeral of Elche	Spain	Europe and North America	WH Cultural Landscape	2000
Ruins of Kilwa Kisiwani and Ruins of Songo Mnara	Tanzania	Africa	Cultural Site	1981
Sacred Sites and Pilgrimage Routes in the Kii Mountain Range	Japan	Asia and the Pacific	WH Cultural Landscape	2004
Schokland and Surroundings	Netherlands	Europe and North America	Cultural Site	1995

⁹ Because the questionnaire could be completed by individuals or by management teams, it is the property itself that has been counted and reported.

Serra de Tramuntana Cultural Landscape	Spain	Europe and North America	WH Cultural Landscape	2011
South China Karst	China	Asia and the Pacific	Natural Site	2007
Speyer Cathedral	Germany	Europe and North America	Cultural Site	1981
The English Lake District	United Kingdom	Europe and North America	WH Cultural Landscape	2017
The Four Lifts on the Canal du Centre and their Environs, La Louvière and Le Roeulx (Hainaut)	Belgium	Europe and North America	Cultural Site	1998
The Sassi and the Park of the Rupestrian Churches of Matera	Italy	Europe and North America	Cultural Site	1993
Tsodilo	Botswana	Africa	Cultural Site	2001
Upper Middle Rhine Valley	Germany	Europe and North America	WH Cultural Landscape	2002
Vegaøyan – The Vega Archipelago	Norway	Europe and North America	WH Cultural Landscape	2004
Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato	Italy	Europe and North America	WH Cultural Landscape	2014
Wadden Sea	Denmark, Germany, Netherlands	Europe and North America	Natural Site	2009
Zollverein Coal Mine Industrial Complex in Essen	Germany	Europe and North America	Cultural Site	2001

ANNEX 6

Commentary on Emerging Keywords

Connecting Practice **A Commentary on Emerging Keywords**

Executive Summary

The *Connecting Practice* project is jointly led by ICOMOS and IUCN. It provides a platform to explore approaches to heritage designation and management that reflect the inter-connectedness of nature and culture. *Connecting Practice* takes an experiential and practical approach, learning with and from communities and site managers at World Heritage properties throughout the world.

In pursuing this work, a number of concepts have proven to be useful in facilitating the needed dialogue. Phase III of *Connecting Practice* has included work to understand the derivations and applications of these concepts via the identification of a number of keyword groups. These represent important ideas or concepts that are already used in some disciplinary or organisational contexts, but need wider shared understanding in order to achieve the integrating aims of *Connecting Practice*.

This *Commentary* summarises this work on three groups of keywords: biocultural approaches, traditional knowledge, and resilience. Each of these has a range of related terms and uses, drawn from a range of disciplines, applications and knowledge systems. Understanding this diversity has been a first step in the progress toward more joined-up concepts and approaches.

The *Commentary* is not a Glossary, and does not offer fixed and decided definitions. It is a shared exploration that exposes the fluidity of the work of *Connecting Practice*, and is presented as a living document or work in progress, to be used as a resource and a stimulus to further dialogue and development.

1. Introducing *Connecting Practice* Keywords

Connecting Practice is a joint exploration by IUCN (International Union for the Conservation of Nature) and ICOMOS (International Council on Monuments and Sites) that aims to learn about and develop new approaches to heritage designation and management that recognise the interconnectedness of natural and cultural values. Highly significant landscapes and seascapes – including those inscribed in the World Heritage List – are the specific focus of *Connecting Practice*.

The project is also part of ongoing efforts by IUCN and ICOMOS to improve outcomes for the conservation and recognition of cultural diversity through the implementation of new working methods. *Connecting Practice* was launched in October 2013, and this *Commentary* forms part of the final report on its third phase (2019-2020).¹ The three phases of *Connecting Practice* have contributed to an emerging conceptual framework that can be practically applied across diverse places and landscapes. The concepts that are being applied are not new, but the effort to work jointly to operationalise them has facilitated new understandings.

In the work undertaken to date, *Connecting Practice* has uncovered situations where natural and cultural heritage practitioners use the same words and terms but understand them in quite different ways; or conversely, instances where we have realised that different words were being used by practitioners from different disciplines or organisational affiliations to describe similar phenomena or issues. This suggests that clarification of definitions can be beneficial, and part of the process of converging practices.

When planning Phase III of the project, the idea of preparing a brief glossary of shared terms seemed worthwhile. In Phases I and II, project participants had begun to use certain terms to guide and shape the dialogue, and it seemed to be a straightforward task. However, when we began to explore these deeper backgrounds and nuances of meaning, we realised that a 'glossary' – in the sense of providing definitive meanings that all participants should share – was a premature objective, possibly even an impossible one. Based on intensive workshop discussions to find a direction for this work, we identified three 'keyword clusters' for further work. This has been the basis for this document, and the envisioned future work.

This *Commentary* explores three keyword 'clusters' (or keyword 'families') that have informed the work of *Connecting Practice*, particularly its third Phase (2019-2020). It has been developed to a point where we pause to encourage more widespread dissemination, with the expectation that it will inevitably be further transformed and elaborated in future work. It is therefore a document that maps the progress at a certain point in and should be considered as a 'work in progress' which will continue to be changed and transformed.

In reaching this point of development, IUCN and ICOMOS acknowledge several major and obvious limitations, particularly in relation to language. The work has utilised academic and practice materials written predominantly in English.ⁱⁱ Working in English (or English and French)ⁱⁱⁱ fixes the dialogue within the available western vocabulary about **naturecultures**^{iv} which unhelpfully divides nature and culture, and limits the ability to adequately recognise that linguistic diversity is often associated with the world's biological and cultural diversities.

Many languages have words to describe the entanglement of values and practices – and it is possible and potentially desirable that these could offer a different lexicon.^v In addition to the importance of local languages, western cultures are not homogeneous and there are differences in the use and translations of English words. Some of the current English words used in heritage discourses (including nature and culture) simply do not exist in other languages or dialogues. Further work is therefore necessary to map how the keyword 'clusters' have navigated across scholarly realms that use other languages for dissemination.

A second obvious and important limitation is that only three keyword 'families' have been included in this version of the *Commentary*. Although our workshop participants provided more keyword options, the three 'families' that were selected can be recognised as the most dynamic within our current work (see below), providing a way forward as we conclude Phase III of *Connecting Practice*. Many others could certainly follow.

With these two important caveats in mind, *Connecting Practice* has started the practice of examining application of the keywords, aiming to better understand their origins and potential future uses. New keyword clusters can be explored, and the literature and meanings beyond the sources used so far will undoubtedly improve and enrich this work. At this stage, the overall purpose is not to strictly determine the definitions (since these are in a state of continuing development), but to better understand their uses within the current work in *Connecting Practice*.

How the Commentary was developed

The foundations of this *Commentary* are provided by relevant international organisations and/or academic texts. However, part of the learning achieved in the programme has been to consider their

modification, and to make them more explicitly applicable to a holistic vision of the heritage values of places, areas and landscapes.

The development of this *Commentary* has been informed by a number of inputs during Phase III of *Connecting Practice*:

- A workshop was held in Paris in February 2019 and discussed the issues of words and their meanings. This helped to identify the priorities for this work. A large number of terms – many of which were related to each other – was generated by the workshop participants. This allowed the project team to understand that there are inter-related ‘families’ of terms that are potentially useful.
- From this work, three keyword ‘families’ were selected for further exploration. These were selected because of the emerging consensus at the workshop about the priorities; and also because of their immediate applicability and relevance for the work in Phase III. While these are introduced and discussed separately in the sections that follow, they are intersecting ideas.

Biocultural approaches	Resilience	Traditional Knowledge
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- A fourth priority for further work is foreseen in relation to the uses in cultural and natural heritage of a ‘landscape’ keyword cluster, given that terms such as ‘landscape scale’, ‘landscape approach’, ‘protected landscape/seascape’, ‘historic urban landscape’, ‘associative landscapes’, ‘spiritual landscape’, ‘sacred landscape’, ‘natural landscape’ and ‘cultural landscape’ are frequently used in our work. Each of these has been the subject of substantial debate and a range of applications.^{vi} ‘Cultural landscape’ has a history of more than 50 years of use in heritage management systems,^{vii} and ‘landscape’ is specifically conceptualised in other multilateral instruments, such as the European Landscape Convention (2000). From 1992, ‘cultural landscape’ has been included in the Operational Guidelines for the World Heritage Convention, with a specific defined meaning. For this reason, a decision was made to focus this exploration on the three newer keyword clusters. However, ‘landscape’ could be the focus of further work, noting that the literature across various disciplines and languages is substantial.
- To demonstrate the breadth of suggestions arising from the workshop, these are briefly listed in the table below. Some of these are already used in the World Heritage system, whereas others are drawn from the management of protected areas and cultural heritage. In fact, the word ‘nature’ is also the subject of diverse interpretations and world views and could be the focus of creative and multi-lingual work in the future.

Place	Management System	Identity	Boundary
Degradation Evolution Transformation	Community Stakeholders Local Community	Local and Adapted Knowledge Systems Socio-ecological landscapes/ seascapes satoyama and satoumi	Governance Stewardship
Connectivity	Protected and Conserved Areas	Hard/Soft Scapes	Sustainability

Maintenance	Vernacular Traditional Land Use	Cultural Diversity	Dynamic Conservation Adaptive management
Climate Change	Ecosystem Natural Processes	Carrying Capacity	Rights-based Approaches
Re-wilding	Hotspots	Multi-stakeholder platform	Crisis Trauma

- The summary papers that follow were informed by commissioned work by Dr Jan Hanspach of Leuphana Universität Lüneburg, and Louise Hård af Segerstad and Marika Haeggman of Albaeco (Stockholm Resilience Centre) as well as research by the *Connecting Practice* team and peer reviews by IUCN and ICOMOS representatives.^{viii} The Stockholm Resilience Centre has assisted this work throughout Phase III; and the approach to ‘biocultural diversity’ by The Christensen Fund has been informative.
- ICOMOS and IUCN have conducted research on the keyword ‘families’ to formulate this document. This has included selected academic research publications and existing international texts relevant to natural and cultural heritage. These efforts were aimed at a better understanding of the disciplinary ‘lineages’ of the keyword clusters. A list of references used is provided in Part 5 of this document.
- To clarify the different applications of these keywords in natural and cultural heritage conservation, relevant doctrinal and guidance texts have been reviewed. The outcomes are presented in Annex 1.
- The selected keywords provided starting points and sources of methodological innovation by the field visit teams in Phase III of *Connecting Practice*. In turn, their preliminary reports have informed the development of these texts.

Throughout the period of this work, ICOMOS has also participated in the work to develop a World Heritage Management Knowledge Platform and the updating of the Enhancing Our Heritage (EOH) toolkit, both led by ICCROM and IUCN in the World Heritage Leadership programme. Our shared engagement in these processes has also informed the work on this *Commentary*.

The World Heritage Context

Although the objectives of *Connecting Practice* are not limited to the shared work of ICOMOS and IUCN in the implementation of the World Heritage Convention, this has provided the programme focus and context. The further work on concepts and approaches therefore builds from this existing shared platform.

The implementation of the World Heritage Convention for almost fifty years has generated its own set of concepts and terms that have been progressively refined through their use. The conceptual framework is oriented toward the identification and maintenance of Outstanding Universal Value (or ‘OUV’). Although not explicitly defined in the Convention text, subsequent efforts to do so have provided the current definition that is used (see paragraph 49 of the Operational Guidelines). A raft

of supporting concepts has emerged to assist the World Heritage Committee and its Advisory Bodies, such as *authenticity* and *integrity*. The World Heritage system currently focuses on processes of *management*, *protection* and *monitoring* as the means of ensuring the retention of Outstanding Universal Value.^{ix} Each of these World Heritage terms has been subject to debate and refinement over time.

By definition, *values* are always intangible as they are determined by present-day societies and communities based on cultural and scientific knowledge. Values are conveyed by *attributes* that can be physical features, socio-cultural arrangements, meanings and practices, and/or natural processes. There are often linkages between the tangible and intangible attributes (and between 'nature' and 'culture') that are co-evolved and shape the distinctiveness of heritage areas and places. Identification of attributes that convey the Outstanding Universal Value of a property is an essential part of its inscription on the World Heritage List, because these are subject to management, protection, monitoring and interpretation actions to ensure that the Outstanding Universal Value is maintained over time. Clarity about the attributes is integral to understanding the significances of places, including their tangible and intangible dimensions. The discussion of values and attributes has therefore been a focus of the fieldwork components of *Connecting Practice*.

Since 1992, the World Heritage system has provided for the inscription of *cultural landscapes* - properties for which the Outstanding Universal Value is primarily oriented toward the interaction of natural and cultural processes. Many inscribed cultural landscapes demonstrate a long history of human-nature interactions, although the degree to which a fully integrated recognition and understanding of natural and cultural values varies. At the same time, in nature conservation, the challenges to ideas of 'wilderness' and 'pristine nature' have fuelled the need for approaches that can recognise both human and natural systems over time.

Introducing the Keywords

The work of heritage management and the corresponding inter-disciplinary field of Heritage Studies has commonly drawn from the conceptual work of diverse disciplines. This is demonstrated by the cross-sectoral nature of *Connecting Practice*, drawing from biology, geography, fine arts, history, environmental humanities and the social sciences, as well as heritage conservation and management practices.

Established and emerging keywords in heritage management have also been adopted by a number of international organisations for their work. Because this process of borrowing and adapting has been purposeful and context-specific, the wider application and etymology of terms has not always been utilised.

Connecting Practice has a focus on landscapes and seascapes, and the interconnectedness of natural processes and elements with people and culture.^x The common threads include the links between landscape and identity, the cultural/ecological connectivity between places and landscapes, the associative and spiritual connections with nature and place, and ideas of stewardship and caring for the land. Importantly, the work of *Connecting Practice* aims to unsettle assumptions that culture and nature are static and unchanging through time.

As noted above, to aid the advancement of the objectives of *Connecting Practice*, three 'families' of keywords were given priority. They all address the co-evolved and changing systems that underpin

considerations of natural and cultural heritage. Together these keywords comprise an emerging conceptual approach, rather than a fixed method.

1. Biocultural approaches/Biocultural diversity

From its beginnings, *Connecting Practice* has focused on bringing an operational understanding of biocultural diversity to heritage management.^{xi} This requires exploration about the co-evolution of what we call nature and culture, and recognition of the inter-related natural, cultural, linguistic and spiritual diversities.^{xii} Biocultural diversity complements other policy frameworks and conventions for cultural and biological diversity that underpin the conservation and management of natural and cultural heritage.

Moving from a focus on biocultural diversity toward *biocultural approaches* in our work aims to reconcile the tangible and intangible dimensions of cultural and natural heritage, highlighting the centrality of traditional knowledge systems. This means that we move from a static or descriptive status to an awareness of the dynamic processes for the management of these aspects.

In *Connecting Practice*, we understand that biocultural diversity and biocultural processes also includes geodiversity, recognising the critical links with geological/geomorphological characteristics and processes, connecting the earth and its non-living nature with culture, biology and ecology.^{xiii} Adopting biocultural approaches in this way provides a means of facilitating the work of recognising and thinking about naturecultures – leading toward better practices. This keyword family is discussed in section 2 of this document.

2. Resilience/Resilience Thinking

Use of the term ‘resilience’ has grown dramatically in the 21st century across a wide range of issues and disciplines, including psychology, counselling and personal development.^{xiv} In the contexts of nature conservation and cultural landscapes, the concept of resilience has been derived mostly from ecology, conservation, and disaster risk reduction discourses, but its application within cultural heritage remains vague.

For the purposes of *Connecting Practice* our focus is to better understand resilience as an approach to heritage management. Consideration of resilience also involves analysis of vulnerability, which is important for identifying priorities for allocation of resources and developing more precise notions of sustainability. The understanding and practical application of ‘resilience thinking’ to natural and cultural heritage has been further informed by the work of the Stockholm Resilience Centre.^{xv}

The literature reviewed for Phase III has a focus on the resilience of ecosystems, the resilience of human communities, the resilience of foodways, and the resilience of the urban and peri-urban systems, where so much of the world’s population will live in the 21st century. As previously noted, resilience is also commonly used within disaster risk reduction strategies and post-disaster responses. Extending these understandings to more explicitly encompass cultural heritage within these frameworks is therefore a priority.

Resilience thinking represents a needed shift that can incorporate change, recognising the dynamic processes that both support conservation and drive transformation. Finding the means to understand resilience as an objective or outcome of conservation, protection and management of heritage is an active focus of the dialogue of *Connecting Practice*. This keyword family is discussed in section 3 of this document

3. Traditional Knowledge

In Phase III of *Connecting Practice*, the opportunity to work in collaboration with the United Nations Food and Agriculture Organisation's (FAO) Programme for Globally Important Agricultural Heritage Systems (GIAHS) and other partners has allowed a specific focus on the heritage of landscapes of food production including agriculture, pastoralism, fishing and hunting. Including both natural and cultural dimensions of these landscapes encompasses ideas such as agrobiodiversity, and food security, but also focuses in on traditional cultural practices, knowledge and belief systems.

The work of many organisations has contributed to the development of concepts of traditional knowledge, traditional ecological knowledge, Indigenous cultural knowledge, and traditional cultural expressions. The Convention for Biological Diversity recognises the role of traditional knowledge and practices of Indigenous peoples^{xvi} and local communities in sustaining biological diversity, and highlights the importance of equitable benefit sharing arising from the uses of traditional knowledge.^{xvii} The UNESCO Convention for the Safeguarding of Intangible Cultural Heritage identifies five 'domains', including social practices, knowledge concerning nature and the universe, and traditional craftsmanship.^{xviii} Finally, the World Intellectual Property Organisation (WIPO) has worked to define traditional knowledge and traditional cultural expressions as part of its work to develop international legal instruments for their protection.^{xix}

The work of these international organisations has informed the recognition of the importance of traditional knowledge for many World Heritage properties. Traditional knowledge has the potential to be used in every step of heritage conservation processes. Traditional knowledge and cultural expressions can be the focus of the Outstanding Universal Value of World Heritage properties, but it can also be recognised as an attribute. Often, traditional knowledge is the basis of traditional management of inscribed properties. Traditional knowledge provides avenues for recognising and supporting cultural diversity and contributes to sustainable development. As a concept, traditional knowledge provides a point of departure for enabling the recognition of the many links between nature and culture. This keyword family is discussed in section 4 of this document

Using this Document

Connecting Practice has its origins in the World Heritage system (where ICOMOS, IUCN and ICCROM act as Advisory Bodies to the World Heritage Committee), and World Heritage properties have been utilised as a source of learning. However, the application and further development of these Keywords is not limited to landscapes that have been designated as World Heritage.

This document offers commentary on the functional lexicon developing within the *Connecting Practice* dialogue. The *Commentary* has also been developed to contribute to other related processes and programmes such as *World Heritage Leadership*, the Post-2020 Global Biodiversity Framework (Convention on Biological Diversity), and the day-to-day work of many ICOMOS and IUCN members and groups addressing naturecultures.

The structure of this document is as follows:

- This section introduces the *Keywords Commentary* and outlines its methods and logic.
- The next sections are devoted to a discussion of three selected groups of keywords: biocultural approaches, resilience and traditional knowledge.

- An Annex is provided that traces the use of these words through key international texts for natural and cultural heritage conservation.
- A list of academic literature that has informed work on the *Keywords Commentary* is the final section.

It is intended that the *Commentary* will remain open – a ‘living’ document that can continue to be improved. In the first instances, further work on ‘resilience’ will be undertaken in Phase IV of *Connecting Practice*. Further dissemination and feedback will enable a broader range of uses – such as in capacity building programmes. Some other ‘next steps’ for continuing work include:

- Production of the *Commentary* as a stand-alone document, made widely available through the websites of ICOMOS, IUCN and ICCROM.
- Production of other versions of the *Commentary* – for example, in a less academic form (with visual aids or diagrams) suitable for a broader range of audiences; and in a fully referenced version for specialists.
- Preparation of texts on additional keyword ‘families’, possibly drawing from the workshopped ‘brainstorm’ summarised in this document. ICOMOS ISCs and IUCN Specialist Groups are invited to consider collaboration on this additional work.
- Translation and further development of the *Commentary* to incorporate greater cultural and language diversity, and according to non-western ontologies (or world views).

2. Biocultural Keywords

Connecting Practice has utilised ideas of biocultural diversity and worked to develop **biocultural approaches** to its work. This section provides an overview of the ‘family’ of terms around these central ideas.

Related terms include: **biological diversity, cultural diversity, agrobiodiversity, biocultural diversity, biocultural landscapes, biocultural heritage and biocultural approaches**. These are briefly outlined as a means of clarifying how biocultural approaches can be understood and formulated. Annex 1 provides an overview of the use of these terms and concepts in the principal international texts used for the conservation and protection of natural and cultural heritage.

Biological Diversity/Biodiversity

The development of conceptual understandings of biological diversity (or biodiversity) has had many foundations, but the best known is the 1992 Convention on Biological Diversity (CBD). The Convention defines biodiversity as:

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. [Article 2]

Because this definition is widely used, there are opportunities to utilise it for the purposes of *Connecting Practice*, with the obvious addition of a cultural dimension. It is therefore important to note that both IUCN and the CBD Secretariat have developed further definitions and approaches that include culture (particularly in relation to the rights and traditional knowledge of Indigenous peoples). The United Nations Environment Programme (UNEP) ‘Bloom or Bust’ report adds another element of this definition with the inclusion of ecosystem services and the cultural values of nature.

Ecosystem services are the goods and services that are provided by biodiversity including: ... *soil formation, the provision of food and fibre, air quality and climate regulation, the regulation of water supply and quality and the cultural and aesthetic value of certain plants and species*. Other definitions of ecosystem services consider them to be co-produced by humans and ecosystems, rather than passively provided by biophysical systems.

Operationalising these ideas for use in natural heritage identification and management, IUCN’s online glossary refers to biological diversity values as *the intrinsic, ecological, genetic, social, economic, scientific, education, cultural, recreational and aesthetic values of biological diversity and its components*.

Cultural Diversity

Cultural Diversity is often mentioned as a critically important source and outcome of the conservation and management of cultural and natural heritage, but is not always explicitly defined. For example, the World Heritage Operational Guidelines emphasise the importance of cultural diversity, and its interconnectedness with biological diversity, but do not provide a definition (see Annex 1).

According to the UNESCO Convention for the Protection and Promotion of the Diversity of Cultural Expressions (2005: Article 4),

cultural diversity refers to the manifold ways in which the cultures of groups and societies find expression. These expressions are passed on within and among groups and societies. Cultural

diversity is made manifest not only through the varied ways in which the cultural heritage of humanity is expressed, augmented and transmitted through the variety of cultural expressions, but also through diverse modes of artistic creation, production, dissemination, distribution and enjoyment, whatever the means and technologies used.

UNESCO asserts that sustainable development is strongly influenced by cultural diversity. Cultural diversity is a mainspring for sustainable development for individuals, communities and countries. Thus, building an effective global approach to sustainable development and Education for Sustainable Development (ESD) needs to address respecting, protecting and maintaining the cultural diversity of the world now and in the future. See: <https://en.unesco.org/themes/education-sustainable-development/cultural-diversity>

Many authors refer to the overlapping and/or integrated character of cultural and biological diversity, including the idea of co-evolution between cultures and their 'natural environments'. For example, in an overview article Pretty et al (2009) define cultural diversity as the diversity of human cultures, and argue that both biological and cultural diversity have the capacity to increase the resilience of social systems.

Agrobiodiversity/Agricultural Biodiversity

In Phase III of *Connecting Practice*, there has been a specific focus on landscapes of food production and gathering, including the heritage of traditional agricultural systems. In relation to agricultural landscapes, IUCN and the United Nations Food and Agriculture Organisation (FAO) have developed the concept of 'agrobiodiversity', which can be an objective for the management of some protected areas. Some of the commonly used definitions demonstrate that agrobiodiversity is understood to include wild plants, crops, cultivated plants and livestock, and as well as cultural knowledge and traditional practices.

***Agricultural biodiversity** is a broad term that includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agricultural ecosystem. [COP decision V/5, appendix, Convention on Biodiversity, cited by FAO]*

***Agricultural ecosystem...** is the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agroecosystem, its structure and processes [COP decision V/5, appendix, Convention on Biodiversity, cited by FAO]*

Finally, moving from a descriptive to an operational definition of agrobiodiversity situates it as a potential objective for Protected Area management, and explicitly links cultural practices with plant and animal species (both 'wild and others) and ecological processes.

***Agrobiodiversity** can be an objective of protected areas for crop wild relatives, traditional and threatened landraces, particularly those reliant on traditional cultural practices; and/or traditional and threatened livestock races, especially if they are reliant on traditional cultural management systems that are compatible with wild biodiversity. [IUCN website]*

Biocultural Diversity

Building on an initial focus on biocultural diversity, *Connecting Practice* has broadened its work to specifically develop and apply biocultural approaches to the conservation and management of natural and cultural heritage.

Biocultural diversity has been variously defined, for example:

Bio-Cultural diversity refers to the continuing co-evolution and adaptation between biological and cultural diversities. It also involves the diversities of place and reflects people's ways of living with nature. This co-evolution has generated local ecological knowledge and practices across generations that allow societies across the world to manage their resources sustainably while also maintaining cultural identity and social structures. [Ramsar Convention Bio-Cultural Diversity Thematic Group]

Biocultural diversity is the interweave of humankind and nature, cultural pluralism and ecological integrity. It arises from the continuing co-evolution and adaptation between natural landscapes and ways of life, and between biological processes and cultural endeavors. Biocultural diversity tends to be richest in locations where cultures have had long intimate connections with their landscapes, is reflected within languages and traditional ecological knowledge systems, and manifests beautiful ways through cultural and artistic expression. [The Christensen Fund]

Biocultural diversity is a dynamic place-based aspect arising from the links between cultural and biological diversity. It results from the combination of historical and on-going environmental and land use processes and cultural heritage. [FAO GIAHS Framework].

Biocultural diversity – the diversity of life in all its interdependent manifestations: biological, cultural, linguistic, and spiritual – is a fundamental component of environmental conservation, sustainable development, and decision-making at local, regional, and global scales. [The North American Regional Declaration on Biocultural Diversity]

Biocultural diversity - the diversity of life in all its manifestations—biological, cultural, and linguistic— which are interrelated within a complex socio-ecological adaptive system. [Maffi 2005]

Biocultural diversity is the relation between the diversity of nature and culture in a complex socio-ecological adaptive system. [Ishikawa Declaration on Biocultural Diversity]

The concept of biocultural diversity was primarily developed within anthropology, with additional definitions found in fields like medicine, biology and ecology. Anthropologists have worked on understanding the inter-relationships between archaeological, biological, cultural and linguistic concepts within their theoretical frameworks for a century or more, and this work has informed the basis of cultural diversity concepts and policies. In more recent studies there has been a tendency to add further descriptors to the 'cultural' side of the merged duality, especially in relation to language (linguistic diversity). These have recognised the frequent co-existence of 'hot-spots' of both biological and language diversities, with the latter presumably used as a proxy for culture (see for example, Maffi 2005; Loh and Harmon 2005). The definitions presented above also emphasise the centrality of traditional knowledge, and the dimension of spirituality (see Verschuuren 2012).

Working from these definitions, and acknowledging their breadth, biocultural approaches recognise the inextricable links between human societies, particularly their cultural sphere, and the natural and biophysical environments in which they exist. Seeing humans and their environments as tightly coupled – a dynamic unity rather than a series of separate realms - deviates from the predominant Western world view of a nature-culture divide (see Harrison 2015). Overcoming this dichotomy invites better recognition of alternative world views, such as the knowledges and value systems of Indigenous peoples.

There are important relevant examples of the incorporation of ideas of diversity – biological, cultural and biocultural – into key international texts used in heritage regimes (including World Heritage). These are summarised in Annex 1 of this document.

In the *policy realm*, the concept of biocultural diversity started to become internationally recognised from 1998 when the *Declaration of Belém* was released at the First International Congress of Ethnobiology. It expressed the urgent need to stop the rapid loss of cultural and biological diversity and outlined strategies for its implementation, including the strengthening of Indigenous communities. Increasing numbers of international organisations, programmes and policies followed these lines and recognised the connections between humans and nature, particularly in the natural heritage sector.

- The Convention on Biological Diversity (CBD) requires that the knowledge and practices of Indigenous and local communities that are relevant for the sustainable use of biological resources should be respected and maintained.
- In 2010, UNESCO and the CBD launched a joint programme on biological and cultural diversity, which was followed by the recognition of the importance of biocultural diversity in the *Florence Declaration* (2014) and the *Sharm El-Sheikh Declaration on Nature and Culture* (2018) that proposed the establishment of an International Alliance on Nature and Culture.
- The United Nations Environment Programme (UNEP) has recognised the cultural and spiritual importance of biodiversity, including human cultural diversity in the definition of biodiversity.
- UNESCO's *Man and the Biosphere Programme* has acknowledged the importance of traditional forms of land use for the maintenance of biodiversity within cultural landscapes.

In various discourse analyses, 'biocultural diversity has become dominating in the discourse linking different aspects of cultural diversity with use of natural resources and for identifying how these links promote and maintain both cultural and biological diversity' (Lennartsson et al. 2018, cited by Eriksson 2018).

Related efforts to make these links include discussions of 'ecodiversity' and 'ethnobiology', although these have more limited and specific disciplinary connotations. For example, 'ecodiversity' emerged from landscape ecology and restoration ecology scholarship. Although it explicitly includes a cultural dimension, it is not as frequently used as 'biological diversity', especially outside academic discourses (see Naveh 1994). Ethnobotany was first discussed within the discipline of botany at the end of the 19th century, but has emerged as a thriving interdisciplinary field in its own right, drawing on scholarship from anthropology, botany, archaeology and other social sciences (Encyclopedia.com). For the purposes of *Connecting Practice*, these could be considered as part of the broader 'family' of biocultural keywords but have not yet been explored. Certainly, ethnobotany contributes importantly to an understanding of the impacts and uses of traditional knowledge, as well as the functioning of agricultural systems and their related agrobiodiversity.

The scientific literature relevant to emerging biocultural approaches can be roughly classified into different strands of research, depending on their primary focus, including studies relating to empirical, temporal, spatial and political dimensions of biocultural diversity. For the most part, these focus on empirical descriptions of specific components of biocultural diversity, such as linguistic diversity or specific forms of knowledge or practices and their connection to environments. For example, different

uses and values that are connected to specific species or places are described, reflecting the orientations of different disciplines.

- Research engaging with the temporal dimensions often employs archaeological methods and historical analyses, such as economic history or linguistic-historical methods to gain a better understanding of biocultural history and heritage. Such studies look at past conditions or engage with the ideas of co-evolution through time to deepen the appreciation of present contexts (see Petrucci et al 2018; Tello et al 2018; Nebel and Heinrich 2009).
- Research on the spatial dimensions of biocultural diversity is often linked to the natural sciences, using quantitative analyses. Such studies map components of biocultural diversity at different scales (Loh and Harmon 2005; Winter and Lucas 2017). Research of this kind often uses the landscape as an empirical lens, which links to research on cultural landscapes and natural resource management, emphasising the long histories of interaction and the importance of maintaining traditional forms of management such as farming practices.

Closely related to studies on biocultural landscapes is research on **biocultural conservation**. Many of these argue for the consideration of human and cultural dimensions in order to improve biodiversity conservation outcomes; although some are oriented toward the need to maintain biocultural diversity in its full sense (see Hill et al, 2019). For example, one of the most cited papers on biocultural approaches (Gavin et al. 2015) defines principles for the adoption of biocultural perspectives in conservation, such as the incorporation of distinct rights and responsibilities of all stakeholders and respect toward different worldviews and knowledge systems. This strand of biocultural conservation is complemented by some of the scholarship on biocultural restoration that advocates for the restoration of ecosystems along with the revitalisation of culture.

Political dimensions are poorly addressed in the literature and only a small number of papers engage biocultural ethics, rights and sovereignty (eg. Rozzi 2012; Srinivas 2012; Baldy 2013). While in general, the consideration of justice and empowerment are integral parts of biocultural approaches, these have received comparatively little attention in scientific research.

Most recently, the application of biocultural approaches has been broadened to reflect more dynamic systems, urban conditions and non-Indigenous cultures. This includes discussions about harnessing biocultural approaches for transformation and development or enforcing urban green infrastructure in times of transformation. Using existing biocultural diversity to foster creativity, empower people and overcome dominating and unsustainable paradigms to face the current challenges of global environmental change makes biocultural approaches powerful tools for transforming societies into just and environmentally friendly futures.

Biocultural Heritage

Less commonly used is the term ‘biocultural heritage’. Based on the definitions of biological diversity and ecosystem services, biocultural heritage is defined as:

Biocultural Heritage: ...knowledge, innovations, and practices of Indigenous and local communities that are collectively held and inextricably linked to, and shaped by, the socioecological context of communities. [Gavin et al., 2015]

Biocultural Heritage reflects the holistic approach of many indigenous peoples and local communities. This holistic and collective conceptual approach also recognizes knowledge as

'heritage', thereby reflecting its custodial and intergenerational character. The cultural landscapes inscribed under the World Heritage Convention are examples of biocultural heritage. [Secretariat of the Convention on Biological Diversity 2019]

Biocultural Heritage is a complex system of interdependent parts centred on the relationship between Indigenous Peoples and their natural environment. Its components include biological resources, from the genetic to the landscape level; and long standing traditions, practices and knowledge for adaptation to environmental change and sustainable use of biodiversity. Biocultural heritage is held collectively, sustains local economies and is transmitted from one generation to the next. It includes thousands of traditional crop and livestock varieties, medicinal plants, wild foods and wild crop relatives. These precious resources have been conserved, domesticated and improved by communities over generations — and sometimes millennia. [IIED website]

Biocultural heritage is broadly applied, based on the 'values, cultural memory and ways of life that are tied to and reflected in the places in which communities live' (Poole 2018). It draws on 'local knowledge, land-use practices and heritage values to define sustainability and resilience from the perspective of local inhabitants' (Ekblom et al. 2019).

UNESCO defines biocultural heritage as 'living organisms or habitats whose present features are due to cultural action in time and place'. UNESCO recognises areas of interdependencies between biological and cultural diversity, 'thus forming the basis of biocultural heritage: language and linguistic diversity, material culture, knowledge and technology, modes of subsistence (which includes land use), economic relations, social relations and belief systems.' (Eriksson, 2018)

Biocultural heritage applies to both genetic diversity and biodiversity within landscapes, and also intersects with the diversities of culture, language and traditional ecological knowledge. Due to these inter-relationships, biocultural heritage reflects cultural worldviews and practices, and the perspective of 'heritage' emerges because of the continuity and transmission of these through generations via localised cultural and spiritual belief systems and values. Biocultural heritage can therefore include cultural adaptations to environmental change, and the importance of biodiversity for food security, encompassing traditional crops and livestock, medicinal plants and wild foods (see the definition above from IIED). Also included are the biological manifestations of heritage, such as the distribution of species and vegetation patterns arising from past management regimes (both continuing and relict).

As advocated by Luisa Maffi and others in the emerging biocultural conservation movement, biocultural heritage reflects the diverse ways of being between human communities and their local environments. Whereas biocultural diversity refers to the deep and co-constitutive relationships between biological and cultural diversity, biocultural heritage specifically represents the rich history of language, tangible components of the environment and its biological and geological resources, cultural memory, and traditional ecological knowledge.

Biocultural Approaches

To an extent, the earlier sections of exploration of the 'biocultural family' of keywords demonstrates the evolving dialogue of *Connecting Practice*. Although these terms and their supporting literature seem inter-related and relevant, they reflect different starting points, different disciplines and communities of practice, and different purposes. This exploration is hardly begun, and yet it has

brought a sharper focus on the need for biocultural approaches in the work of international practices for natural and cultural heritage conservation, management and protection.

Developing biocultural approaches has informed much of the central work of *Connecting Practice* throughout all three Phases; and *Connecting Practice* has in turn promoted an awareness of biocultural approaches. This focus has enabled experimentation with field work methods of documenting values and attributes, based on the formation of multi-disciplinary fieldwork teams. Although the links and signs of long-standing co-evolution are often manifested in specific values, knowledge and practices in Indigenous communities, biocultural approaches are considered to be applicable across every kind of landscape, including agricultural areas, areas that exhibit naturalness, and large settlements and cities.

Academically, biocultural approaches emerged in the social sciences (particularly anthropology), ethnobiology and conservation biology, and have been picked up in other disciplines and fields of inter-disciplinary research during the last decades. For example, in the field of medical anthropology, the term 'biocultural approaches' is used to describe assessments of the effects of social environments on human health.

Increasingly, biocultural approaches are transdisciplinary. They unite research beyond disciplinary boundaries and also explicitly incorporate non-scientific forms of knowledge from non-academic actors and stakeholders, which enables co-creation of knowledge. Biocultural approaches now integrate research from the social sciences, the natural sciences and humanities, including anthropology, ethics, philosophy, political sciences, geosciences, biology, environmental sciences, agriculture and forestry and employ qualitative and quantitative methods of inquiry. The foundations of research applying biocultural approaches have been laid by ethnobiological studies on traditional ecological knowledge systems describing uses of species and ecosystems and their transmission through languages. In the 1990s, the research focus shifted from describing the connection between Indigenous and local cultures and their environments, with an increasing recognition of patterns of geographic overlap and common threats from global change.

Within discourses of nature conservation and sustainable development, biocultural approaches have emerged from attempts to operationalise and apply understanding of 'socio-ecological' systems. In these contexts, biocultural approaches are culturally grounded and specific to place (Sterling et al, 2017). The biocultural approach provides a novel viewpoint from which to discuss the deterioration of local and traditional ecological knowledge and the consequences that development policy and practices have on ecological knowledge and values for communities living in urban, rural and non-urbanised environments. It is of interest that further elaborations of biocultural approaches have been used to develop indicators of well-being and sustainable development (see McCarter et al, 2018; Dacks et al, 2019; Sterling et al, 2020). These support participatory or rights-based dimensions within biocultural approaches, especially in relation to bridging large-scale and local (or 'place-based') ways of knowing.

Connecting Practice has made reference to integrated concepts related to biocultural approaches throughout much of its work, including its fieldwork practices, experimentation with new/adapted methods, identification of values and attributes, and in the objectives of management (including measurement of effectiveness). Each phase of the project has enabled a deeper adaptation and awareness, although a true inter-disciplinarity must be acknowledged as a continuing 'work in

progress'. Phase III, with its focus on cultural landscapes, biocultural practices, and management systems, has emphasised the importance of biocultural approaches and the use of this for future work.

ICOMOS acknowledges the research support provided by Dr Jan Hanspach of Leuphana Universität Lüneburg for this section on 'biocultural' keywords. Much of this text was authored by him. Sources used in the development of this text are listed in the References at the end of this document.

3. Resilience Keywords

Connecting Practice has used concepts of ‘resilience’ in relation to the development of management systems that reflect biocultural approaches. In these contexts, resilience is an objective of management, but relies on a clear articulation of the values and attributes that comprise the natural and cultural heritage of identified landscapes and seascapes.^{xx}

The term originated in the 1600s, meaning to rebound, to recoil or to spring back, and in relation to other general terms including elasticity, flexibility and resistance. In more recent times, there has been a shift in the use of ‘resilience’ to include fields of psychology, social sciences, and social anthropology. Resilience is used across a wide range of issues and disciplines; and the term has grown dramatically in its usage in the 21st century (Google ngram 2018). In psychology, it is the capacity of a human to withstand abuse or stress; in engineering it is the capacity of a material to return to its original shape after a disturbance; and in disaster management, it is the capacity of a system to recover after a catastrophic event. The term has been increasingly used in public policy discourses across a range of issues, reflecting the perceived importance of resilience at the levels of the personal/self, group, society and physical locality in the face of various present and future challenges.

Resilience has become a focus of land management, including management of Protected Areas, in what is termed the ‘social-ecological’ systems that support sustainability and conservation. The consideration of social-ecological systems acknowledges the complex interplay between human actions and decisions (including their cultural bases), and the ability of ecosystem services to function. In this context, the definition of resilience has been broadened to include the ability to embrace or absorb change and to manage it while maintaining fundamental features (implying the recognition of values). Resilience in this field emphasises the ability to adapt in the face of change and disturbance, or to transform at a turning point from something undesirable into something new and different.

A commonly used source states that resilience reflects the ability of people, communities, societies, and cultures to live and develop with change and with ever-changing environments. It is about cultivating the capacity to sustain development in the face of change, incremental and abrupt, expected and surprising. (Folke 2006).

The progress made in applying notions of resilience to the management of natural heritage and protected areas is documented in Annex 1. Biggs, Schluter and Schoon (2015) have identified seven generic principles for enhancing the capacity of social-ecological systems to support ecosystem services that can be readily considered in relation to the arrangements in place for management and governance: maintain diversity and redundancy; manage connectivity; manage slow variables and feedbacks; foster understanding of the systems; encourage learning and experimentation; broaden participation; and promotion of polycentric governance systems.

Demonstrating the fluidity of the discourse about resilience, a chronology of the application of resilience in ecology and disaster response has been outlined by Manyena, Machingura and O’Keefe (2019). Their analysis of scientific publications has discerned the following phases:

- (1) from the 1970s, resilience was conceptualised as persistence and absorption;
- (2) from the 1980s the focus was on ‘bouncing back’ and returning to equilibrium;
- (3) from the 1990s, resilience was understood in terms of prevention, anticipation and adaptation;

(4) from the 2000s, there was a shift to focus on transition, flexibility, ‘bounce-forward’, and transformability; and,

(5) in the past decade, there has been critique of resilience as a neoliberal construct.

Resilience thinking embraces learning and the notion that humans and nature are interconnected within social-ecological systems. There is a high degree of consensus in the literature that operationalisation of ‘resilience’ within cultural heritage is vague and under-developed. Writing from the perspective of environmental humanities, Vardy and Smith (2017: p. 175) remark that resilience has

... rapidly become the most used and abused term in contemporary policy and decision making.... it incorporates multiplicities of difference into a single and apparently incontrovertible consensus. Who could possibly disagree with making social, economic, and ecological ‘systems’ more resilient in the face of our current environmental problems, especially global climate change? Surely resilience and the ability to ‘adapt’ to adversity by ‘bouncing back’ is in everyone’s interest.

Resilience in *Connecting Practice*

For the purposes of the work of *Connecting Practice*, the concept of resilience has been derived largely from ecology, nature conservation, anthropology and disaster risk reduction, and its increased use has been supported in part by sustainability discourses. Within heritage frameworks, resilience is most often used in the context of ecosystems and natural heritage. In the World Heritage Operational Guidelines, resilience is mentioned in relation to socio-ecological systems of properties, and in relation to climate change, risk and disaster management (see Annex 1).

For purposes of this Commentary, the use of this term builds on this work, with the aim of ensuring that our approach fully considers aspects of cultural, anthropological and historic resilience.

In its common English usage, resilience is understood to mean *the capacity to recover quickly from difficulties; toughness; and/or the ability of a substance or object to spring back into shape; elasticity*. The breadth of the application of this word can be seen in Google’s list of synonyms: *flexibility, pliability, suppleness, plasticity, elasticity, springiness, spring, give; durability, ability to last, strength, sturdiness, toughness; strength of character, strength, toughness, hardiness, adaptability; buoyancy; flexibility, ability to bounce back*. Interestingly, the list of antonyms is shorter, and possibly more immediately useful: *rigidity, fragility, vulnerability, weakness*. (Google Dictionary 2018).

While it is unsurprising that the idea of ‘resilience’ offers some appeal, in the context of the work of *Connecting Practice*, it could benefit from more specific articulation and application. As noted above, the framework of ecology and ecosystems provides some definitions that are our starting point. Most general definitions of resilience include the concept of the capacity of a system to undergo changes and adaptations, the main theory being that all systems have limits of change (tipping points). Within these limits, the systems can tolerate and adapt to perturbations while still sustaining normal functions. Going beyond these thresholds, however, can result in the destabilisation of the system (Pilgrim and Pretty 2010). What happens to identified natural and cultural heritage values beyond these ‘tipping points’ offers various transformative possibilities that require further reflection and research in order to be usefully incorporated into the relevant systems of management and

governance. However, it is important to recognise that the conceptualisation of nature in relation to ‘tipping points’ is based on a specific world view, and that others could conceptualise this differently.^{xxi}

Currently, definitions of resilience emphasise slightly different aspects and processes, as the following examples demonstrate:

- **Resilience** is *the capacity of a system to absorb or even benefit from changes to the system and so persist without a qualitative change in structure.* (Pilgrim and Pretty, 2010).
- **Resilience** is *the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.* (Walker et al., 2004)
- In relation to ecology and ecosystems, **resilience** is *defined as the capacity of systems to reorganize themselves (and evolve) as a consequence of stress phenomena.* (Besana et al., 2018).
- Similarly, in the field of heritage studies, **resilience** has been defined as *the capacity to deal with change and continue to develop.* (Holtorf 2018).
- Finally, **resilience** is about *cultivating the capacity to sustain development in the face of expected and surprising change and diverse pathways of development and potential thresholds between them. The evolution of resilience thinking is coupled to social-ecological systems and a truly entwined human-environment planet.* (Folke 2016).

Many uses of ideas of ‘resilience’ have implied the return of a system to a previous state after disturbance, although in recent resilience discourses, the focus is less on ‘bouncing back’ and more on an ability to transform or ‘bounce forward’, involving more focus on *absorption, learning, adaptation and transformation than on specific outcomes in relation to a previous status quo* (Holtorf 2018). However, for these ideas to be usefully applied, more sense of the directionality of these transformations is needed, including the limits of change within a system and the implications for the identified values.

Resilience Thinking

The engagement in *Connecting Practice* with the conceptual framework suggested by ‘resilience’ has been substantially influenced and guided by the work of the Stockholm Resilience Centre. The understanding of ‘resilience’ has evolved into the development of an understanding of **resilience thinking** based on the view that social-ecological systems, humans and their environments are interlinked and connected. Resilience thinking goes beyond using ‘resilience’ as an objective or set of guiding principles for management and governance. It implies more than simply sustaining areas as they are, enabling a focus on understanding processes of change.

In 1973, C.S. Holling introduced resilience as a concept to understand how ecosystems can absorb change. Holling’s idea built on empirical observations that ecosystems are constantly changing and that they can have different possible stable states or configurations. They are also unpredictable in that one same disturbance or occurrence in a system can lead to different outcomes. Social-ecological systems are part of and depend on the biosphere. Social-ecological resilience thinking stems from this biosphere-based worldview and focuses on social-ecological systems and seeing humans and the biosphere as intrinsically connected, and it broadens the definition of resilience beyond recovering or bouncing back.

Resilience thinking begins with the assumption that social-ecological systems are complex adaptive systems that are ever changing, based on their ability to self-organise. Rather than viewing a system as rigid or static, resilience thinking acknowledges that it is always developing. Resilience then is the capacity of a system to keep developing in the face of disturbances, while retaining essentially the same functions, structure and feedbacks – that is, without losing its identity. Resilience requires being able to learn, self-organise and develop while faced with uncertainty and surprise.

Two elements that are inter-related to resilience at multiple scales demonstrate processes of changes within social-ecological systems: **adaptability** and **transformability**.

- **Resilience...** *is the capacity of a social-ecological system to continually change and adapt yet remain within critical thresholds. **Adaptability** is part of resilience. It represents the capacity to adjust responses to changing external drivers and internal processes and thereby allow for development along the current trajectory (stability domain). **Transformability** is the capacity to cross thresholds into new development trajectories. Transformational change at smaller scales enables resilience at larger scales.* (Folke et al., 2010)
- **Adaptability** *is the capacity of actors in the system to influence resilience, and relates to the capacity of biological and human actions.^{xvii} Adaptability also relates directly to learning, innovation and responses to system changes (for example, through adaptive governance and adaptive resource management). **Transformability** is the capacity to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable. Transformability speaks to necessary or desirable changes within a system to assist with continued support of the system itself, particularly when previous frameworks or structures are no longer viable. Transformability may not be seen as an optimal form of resilience, but it may be necessary in some instances.* (Walker et al., 2004)

As part of resilience thinking, it should be noted that *some loss of resilience, at some scales, is an inevitable feature of the cross-scale dynamics in complex adaptive systems* (Walker et al., 2004), and that sometimes change can be desired on a larger scale to ensure the management of an entire resilient system. This illustrates a main aspect of this ‘resilience’ definition: resilience, adaptability and transformability are dynamic and constantly evolving. The adaptability (and therefore resilience) is not fixed, and can be enhanced or diminished by human decisions.

It is clear that the articulation of resilience entering the dialogue about heritage is heavily influenced by concerns about global environmental challenges. However, it is also important to recognise that **persistence** is also a core component of resilience, and is pertinent in the context of *Connecting Practice*.

Resilience in Heritage

As noted above, ‘resilience’ is applicable to and used in the natural and cultural heritage sectors, although these are generally treated separately. A brief description of how resilience relates within these heritage structures and is used in IUCN and ICOMOS documentation is provided below (see also Annex 1).

Resilience in Natural Heritage

- The Intergovernmental Panel on Climate Change (2008) defines **resilience** as *the ability of a social or ecological system to absorb disturbances while retaining the same basic structure*

and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.^{xxiii}

- IUCN defines **ecosystem resilience**, where ecosystems are able to adapt and recover from natural disturbances (such as fires or flooding) and also includes an ecosystem's *capacity to approximately return to the state prevailing prior to the disturbance* as well as the ability of ecosystems to continue to provide ecosystem services while systems or conditions are changing. (IUCN Glossary).^{xxiv}
- Another definition from IUCN: **Resilient ecosystems** *sustain biological diversity and human livelihoods in times of severe and wide-ranging change, and the concept of resilience-based ecosystem stewardship helps people to enhance the resilience of the ecosystems within which they live, and upon which their livelihoods and wellbeing depend.*^{xxv}

Although definitions and terms related to resilience in natural heritage often focus on ecosystems and ecological systems, links also exist to the broader concepts of biocultural diversity.

- The Ishikawa Declaration on Biocultural Diversity committed to integrating conservation, sustainable use and sharing of benefits from nature by *strengthening the resilience of local biocultural diversity, including by enhancing and supporting local and traditional knowledge systems, technologies and cultural practices.*
- The Florence Declaration also mentions resilience within biocultural landscapes, stating that the involvement of local communities and their traditional knowledge and practices at sites *can assist in more effective management and governance of multifunctional biocultural landscapes, and contributes to their resilience and adaptability.*
- In the IDS Working Paper entitled 'Biocultural Approaches: Opportunities for Building More Inclusive Environmental Governance', resilience within *local biocultural systems is linked to their capacity to govern through use of their traditional and now hybrid institutions, leadership and connection to their land.*

Resilience in Cultural Heritage

Resilience in the context of cultural heritage is a complex subject, since it focuses on the systems, relationships and dynamic qualities of heritage that are living and/or developing. It therefore applies differently across the range of cultural heritage places – from tightly delineated individual monuments to entire urban areas; from places of primarily intangible cultural meaning to landscapes of diverse human uses, and so on. The uses of resilience in cultural heritage have therefore been partial to this point, focused on disaster risk management, and on heritage landscapes and places that are explicitly oriented toward ecosystem services. However, understanding the physical, cultural, social and political contexts in which conservation occurs can enable a more widespread implementation of resilience thinking, including both tangible and intangible elements.

In many cases, the opportunity to understand resilience as both 'bouncing back' and 'bouncing forward' is evident when thinking about its application to cultural heritage. Some useful definitions that can inform the needed further reflection on how resilience thinking can be widely applied within cultural heritage include:

- The Stockholm Resilience Centre states that for cultural heritage, **resilience...** *emphasises the ability to adapt in the face of change and disturbance, or to shift into something new and different to transform out of something undesirable.*
- While not the same thing as cultural heritage, **cultural resilience** is described as *the capability of a cultural system (consisting of cultural processes in relevant communities) to absorb adversity, deal with change and continue to develop. Cultural resilience thus implies both continuity and change: disturbances that can be absorbed are not an enemy to be avoided but a partner in the dance of cultural sustainability.* (Holtorf 2018).
- According to UN Habitat, **urban heritage resilience** *refers to the ability of any urban system to maintain continuity through all shocks and stresses while positively adapting and transforming towards sustainability.*^{xxvi}
- And finally, within social, ecological and sustainable development, **resilience** can be understood as *the attitude of a territory, a city, or a complex organized system to adapt and to respond positively to the changes and demands of the context, or ‘the capacity to lead to a continued existence by incorporating change’, is recognized as one of the primary values in a sustainable evolutionary perspective.* (Besane et al., 2018).

Management and Resilience

Resilience within protected areas and with respect to landscape management has increasingly become a focus of the consideration of resilience within heritage (see also Annex 1). These refer to different points of resilience – from the landscape itself, to the communities that live in and utilise them.

- The ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage states: *Heritage can contribute to sustaining and increasing the adaptation and resilience of rural landscapes by supporting rural and urban inhabitants, local communities, governments, industries, and corporations as integral aspect to managing the dynamic nature, threats, risks, strengths, and potentialities of such areas.* In this text, resilience is connected with ideas of ‘dynamic conservation’ and ‘sustainable transformation’, and includes the consideration of ‘limits’ or tolerance to change.
- The Globally Important Agricultural Heritage System (GIAHS) programme of the FAO outlines that agricultural and farming practices assist in the production of biodiversity-rich and resilient landscapes.
- The Man and Biosphere Programme (MAB) proposes that *biosphere reserves act as models to explore, establish and demonstrate innovative approaches that foster the resilience of communities.*

Management of the qualities and values of landscapes is a key theme for the *Connecting Practice* project as a whole. Social-ecological systems that have interconnections and interwoven processes among nature, culture and social elements often incorporate and reflect concepts of resilience thinking. The resilience of people and communities can be supported and enhanced through sustaining their cultural heritage and the associated social-ecological systems. However, the reverse is also true - that social-ecological systems and resilience of heritage and landscapes are improved through recognition of, and interaction with, people.

Management of cultural heritage can promote resilience of people and local communities in distinct ways: for example, through involvement in risk/disaster preparedness and responses, or through the continuation of a collective identity and cultural rights within the contexts of change and recovery. These influences can operate in more than one direction (van Oudenhoven et al, 2011):

... traditional communities in which the integrity and diversity of language, social institutions, cultural traditions and land use practices are maintained very likely also contribute to the diversity and resilience of their surrounding ecosystems.

*In this way, both cultural and natural practices ...emerge as a result of social-ecological interactions, in which human communities adapt to their environment and change that environment in the process. Practices can be seen as instances of self-organization that contribute to the structure and function of the landscape as a system. The **resilience** of this system, therefore, depends as much on these practices (the links between human and ecological components), as it does on ecological characteristics (biodiversity, habitat, ecosystem services) and social ones (institutions, networks, education).*

In their efforts to create a framework for Disaster Resilience, Manyena et al., (2019) have identified five 'resilience capacities': preventive, anticipative, absorptive, adaptive and transformative. These give some sense of the scale of change and the role of human and non-human agency.^{xxvii}

Resilience as a Future-Focused Concept

At this stage, the work on the *Keywords Commentary* reveals that further work is needed to link resilience and management needs. However, it is clear that applying resilience requires approaches that are dynamic, reflecting situations and contexts that are constantly changing, adapting and transforming. It is also clear that applying resilience to heritage requires a deeper consideration of 'transformation', highlighting the limits to transformation (in relation to the heritage values to be safeguarded). In the current context, in which all systems for heritage protection and management are seeking to better reflect and respond to issues of global environmental change and the goals of sustainability, such a shift is widely applicable.

- ***Resilient systems and processes*** can be said to be sustainable in the sense that they have the capacity to persist over long time periods, i.e. without undermining their own preconditions. Arguably, all sustainable systems or processes are characterized by their capability to absorb adversity and continue to develop. (Holtorf 2018)
- Future efforts must focus on *resilience analysis, adaptive resource management, and adaptive governance*. (Walker et al., 2004)
- *... the future success of conservation will depend on our ability to understand, harness and support those practices that are beneficial to the maintenance of the diversity and resilience of natural ecosystems, while changing those that are not.* (van Oudenhoven et al., 2011)

Resilience thinking is therefore relevant to questions about how cultural, natural, social, financial and human capital can assist with building system resilience across the diversity of cultural and natural heritage.

To conclude, Holtorf provides a fitting summary of the importance of continuing to work with the concept of resilience in heritage discussions:

Much as cultural heritage witnesses how people in the past have proven to be resilient and been capable of absorbing adversity in various ways, it can inspire people today and in the future to embrace change and transformation through successful adaptation. (Holtorf 2018)

ICOMOS acknowledges the research support provided by Louise Hård af Segerstad and Marika Haeggman of Albaeco (Stockholm Resilience Centre) for this section on 'Resilience' keywords. Sources used in the development of this text are listing in the References at the end of this document.

4. Traditional Knowledge Keywords

Connecting Practice has a focus on traditional knowledge – as an important facet of the values of natural and cultural heritage places and landscapes, as an attribute that should be sustained and safeguarded, and as a key component of conservation and management effectiveness. This section provides an overview of the ‘family’ of terms around the core concept of traditional knowledge.

Related terms include: **Traditional Ecological/Environmental Knowledge (TEK)**, **Indigenous Knowledge**, **Indigenous Biocultural Knowledge**, and **Local Knowledge**. The term **Traditional Cultural Expressions (TCE)** is also widely used. Turner et al. (2000) also include the concept of **Traditional Ecological Knowledge and Wisdom** to emphasise a holistic view of the term. Our review of academic and policy texts suggests that these are often used interchangeably, but with different emphases and purposes. Traditional knowledge seems to be the most commonly and broadly used. Some sources prefer the more broadly inclusive term **Cultural Knowledge**, since it avoids what can be stereotypic assumptions about what is ‘traditional’. Similarly, use of ‘traditional knowledges’ (in plural) in a number of disciplines is also valid for our purposes because it recognises the cultural diversity that underpins concepts of knowledge throughout the world.

Traditional Knowledge is widely used within anthropology and sociology, and relates to agricultural, technical, medicinal, scientific and biodiversity-related knowledge structures which have been passed on through generations by individuals or groups of people. Additional texts on traditional knowledge are based in education, medicine, engineering, business and economics.

There are significant examples of the incorporation of ideas of traditional knowledge into key international texts used in heritage regimes for both natural and cultural heritage protection and management (including World Heritage). These are summarised in Annex 1. This demonstrates a wide range of applications to ideas of traditional knowledge, and the need to recall that traditional knowledge is dynamic, always adapting and changing through interactions with natural processes. This interplay between cultural and natural systems explains the diversity of expressions in the regions of the world.

In the *policy realm*, the concept of traditional knowledge has been applied internationally through a wide range of mechanisms and programmes, and is linked to environmental policies, heritage management, and rights discourses in an effort to incorporate cultural rights and non-western perspectives and knowledge systems. This is particularly evident in relation to the rights, knowledge and interests of Indigenous peoples. Most of these uses separately define traditional knowledge and traditional cultural expressions, yet find them inextricably linked.

The 2007 United Nations Declaration on the Rights of Indigenous Peoples (Article 31.1) clearly links cultural rights, cultural heritage and traditional knowledge: *Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, **traditional knowledge and traditional cultural expressions**, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.*

The World Intellectual Property Organisation (WIPO) defines **traditional knowledge** as *a living body of knowledge passed on from generation to generation within a community. It often forms part of a people's cultural and spiritual identity.* WIPO links Traditional Knowledge with traditional cultural expressions and genetic resources, and acknowledges that traditional knowledge is often oral, and unprotected by convention intellectual property systems.^{xxviii}

The text of the 1992 Convention on Biological Diversity (article 8(j) – **Traditional Knowledge, Innovations and Practices**) asks contracting parties to: *respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.* (see also: Secretariat of the Convention for Biological Diversity 2019).

The working definition of **Traditional Ecological Knowledge (TEK)** developed by the Secretariat for the Convention on Biological Diversity refers to the *knowledge, innovations and practices of indigenous and local communities around the world.* There is a specific emphasis on the fact that this knowledge is collected, developed and changed based on *experiences gained over the centuries and adapted to the local culture and environment.*

The Operational Guidelines for the implementation of the World Heritage Convention support the recognition of **traditional protection and management** (par. 97), and recommend research into **traditional and Indigenous knowledge** (par. 215).

In its GIAHS Programme,^{xxix} the FAO focuses on the importance of **traditional knowledge and practices** *and the biocultural dynamics that maintain unique agro-ecological systems...; making use of the cultural dynamics and traditional institutions and practices that enhance agrobiodiversity, food security, livelihood sustainability and water and soil management in the face of climate, environmental and social change.*

In the academic literature, the terms Traditional Knowledge (TK) and Traditional Ecological Knowledge (TEK) have been widely used and developed. One of the most widely accepted definitions of **Traditional Ecological Knowledge (TEK)** is provided by Berkes et al. (2000): *a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.* Here, 'TEK' is described as a 'knowledge-practice-belief complex' that depends on the important interconnection between people and their environment, as well as the memory, knowledge, and practices that help people to relate to, and work within, their natural world.

In the specific context of agricultural landscapes, **Traditional Ecological Knowledge** is defined by van Oudenhoven et al. (2011) as a *detailed knowledge of local agro-ecological conditions, characteristics of plants and animals, and resources and ecological processes on which they depend for sustenance and lifeways,* with knowledge that comes from interactions between humans, their landscapes, natural areas, plants, animals and spirits.

Many studies focus specifically on the traditional knowledge of Indigenous peoples, giving rise to some further variations in the terminology. For example, Grenier (1998) defines **Indigenous Knowledge** as

unique, traditional, local knowledge existing within and developed around the specific conditions of men and women Indigenous to a particular geographic area. Importantly, this definition begins to recognise that there are knowledge-holders, and that this can be determined by gender and other cultural distinctions.

Traditional knowledge is dynamic and is an important aspect of cultural diversity, as it has *shaped ways of life, worldviews, and sense of place, serving material as well as psychological and spiritual needs* (Harmon, 2014). Definitions of traditional knowledge have been expanded by scholars working in different contexts. For example, based on work with tribal communities in India, Singh et al. (2009) emphasise the importance of a connection with nature to enable knowledge-holders to adapt to local environmental changes and characteristics. Others, such as Turner et al. (2000) attempt to identify the large range of features that comprise traditional knowledge:

Knowledge of ecological principles, such as succession and interrelatedness of all components of the environment; use of ecological indicators; adaptive strategies for monitoring, enhancing, and sustainably harvesting resources; effective systems of knowledge acquisition and transfer; respectful and interactive attitudes and philosophies; close identification with ancestral lands; and beliefs that recognize the power and spirituality of nature.

Methods in researching traditional knowledge are frequently multi-disciplinary. Berkes et al. (2000) state that there are three main aspects to the analysis and understanding of traditional knowledge systems that include *a component of local observational knowledge of species and other environmental phenomena, a component of practice in the way people carry out their resource use activities, and further, a component of belief regarding how people fit into or relate to eco-systems.*

An important element of traditional knowledge is the means by which knowledge is culturally and socially constructed, adapted and transmitted by those knowledge holders who actively contribute to and disseminate knowledge received from their ancestors. This is always a dynamic process, and knowledge that is transmitted through cultural processes is never static. The Convention on Biological Diversity acknowledges that traditional knowledge is transmitted from generation to generation, often through the use of oral elements (including songs, stories, folktales, proverbs, and myths); and often has a place in a community's cultural values, rituals, spiritual beliefs, local laws, and language. This recognises the vitally important connection between traditional knowledge and language.

Broadening the scope of how traditional knowledge can be considered within different land use contexts, the CBD Secretariat points out that the transmission of knowledge also relates directly to *agricultural practices, including the development of plant species and animal breeds* and is often used in a *practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry.* It can also include practices and knowledge relating to handicrafts, food/cuisine, medicines, home gardening practices, species management, rotation of crops and other resources, and land-use, as well as other elements within a community's cultural identity.

Demonstrating the inter-disciplinary nature of work on traditional knowledge, the processes of transmission are a central focus for the safeguarding of intangible cultural heritage in the UNESCO Convention on Safeguarding Intangible Cultural Heritage: *The viability of intangible heritage practices relies on the ongoing transmission of the special knowledge and skills that are essential for their enactment or embodiment.* Traditional knowledge is specifically embedded in experience, and cultural learning and teaching practices. The traditional knowledge of individual cultures and communities has

been created through constant, innovative changes and cumulative knowledge, as well as *generations of experiences, careful observations, and trial-and-error experiments* (Grenier, 1998).

There is therefore an assumption that traditional knowledge is found in contexts where communities have long continuities within particular localities/landscapes, and in relation to resource use. Thus there are questions about the role of traditional knowledge in contexts of rupture and rapid social, economic and environmental transformations.

Where changes are unlike those captured in the collective memory of a community, traditional knowledge by itself may be inadequate and direct a community toward inappropriate adaptive responses that endanger ecosystems and/or livelihood security (van Oudenhoven et al., 2011).

This view is controversial, since it suggests an unintended caveat on the relevance of traditional knowledge. However, this is a potential limitation of *all* systems of knowledge including the western sciences. Rather than pitting knowledge systems ‘against each other’, this point is better understood as pointing to the challenges posed to all knowledge systems by sudden change and transformation

The application of traditional knowledge to the systems of protection and management of natural and cultural heritage are well-established within the World Heritage system, although these have not been specifically articulated beyond their application to individual cases. It is clear that traditional knowledge systems share some similarities to adaptive management structures *with its emphasis on feedback learning, and its treatment of uncertainty and unpredictability intrinsic to all ecosystems* (Berkes et al., 2000). Traditional knowledge is increasingly recognised within conservation practices and can be used in conjunction with international scientific knowledge to assist the conservation of biological diversity, protection of rare species and ecosystems, management of protected areas and sustainable use of natural resources (Sterling et al, 2017). It is acknowledged as having importance in the *management of local resources, in the husbanding of the world’s biodiversity, and in providing locally valid models for sustainable living* (Turner et al., 2000).

Traditional knowledge is also strongly linked to the conceptual apparatus of sustainability/sustainable development, in part due to assumptions that cultural communities have developed and used their traditional knowledge to sustainably use their lands and resources over long periods. However, these assumptions can be subjected to critical analysis, given that *not all traditional practice and belief systems were ecologically adaptive in the first place; some became maladaptive over time due to changing conditions* (Berkes et al., 2000). Traditional knowledge can also be more usefully applied in specific contexts of sustainable development. For example, in its efforts to expose the importance of traditional knowledge throughout the spectrum of the 2015 Sustainable Development Goals, UNESCO considers that traditional knowledge underpins and contributes to community resilience, particularly in response to disasters (in SDG 13).

Conceptually, Traditional Knowledge is critical to the work of *Connecting Practice*. A focus on traditional knowledge within fieldwork practices provides a culturally grounded and localised approach to understanding the values and uses of landscapes and seascapes, as well as a source for sustainable management. The work of Phase III has been specifically oriented toward valuing and utilising traditional knowledge.

Sources used in the development of this text are listing in the References at the end of this document.

5. Connecting Practice Keywords References

This list of references has three parts. The first lists key relevant international documents and charters; the second lists published academic and institutional sources used to develop the commentary; and the third lists sources about *Connecting Practice*.

Key International Documents

The material presented in Annex 1 was drawn from the following international sources that are in common use for World Heritage and for the conservation and management of cultural and natural heritage.

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ⁱ Published materials about *Connecting Practice* are listed in the References at the end of this document.

ⁱⁱ ICOMOS Reviewers suggested that future work involve academic texts from non-western regions.

ⁱⁱⁱ In the World Heritage system, English and French are the working languages.

^{iv} This neologism is sometimes used in the academic literature and is a shorthand that allows us to avoid phrases such as 'nature and culture', underscoring the divide. However, the limitations of this term, and the difficulties it presents for translations into languages beyond English are also acknowledged. Sources that refer to naturecultures are listed in the References List to this document.

^v In the context of the ICCROM-IUCN World Heritage Leadership program, there are efforts to collect and share words and their meanings from a growing number of languages that express the holistic concept more effectively than the English/French-dominated discourse, such as the Korean word *ipji*, the Japanese word *fuudo*, and the Hawaiian term *konohiki*.

^{vi} For example, the 'historic urban landscape' is not considered to be a landscape 'type', but is an approach to the conservation of the heritage values of urban areas (see UNESCO 2011; WHITR-AP 2016).

^{vii} For example, in the United States.

^{viii} This document has been developed by ICOMOS, based on inputs from many contributors. The ICOMOS team that drafted this document included Gwenaëlle Bourdin (Project Leader), Kristal Buckley, Leanna Wigboldus, Luisa De Marco and Maureen Thibault. Texts for Parts 2 and 3 were contributed by Dr Jan Hanspach of Leuphana Universität Lüneburg and Louise Hård af Segerstad and Marika Haeggman of Albaeco (Stockholm Resilience Centre). The assistance of the Stockholm Resilience Centre is acknowledged. Thank you to the 2019 workshop participants: Mubarak Al Amimi (UAE), Omar Al Kaabi (UAE), Gwenaëlle Bourdin (ICOMOS), Kristal Buckley (ICOMOS), Luisa De Marco (ICOMOS), Mahécor Diouf (Senegal), Yoshihide Endo (FAO GIAHS), Aurélie Fernandez (FAO GIAH), Fujio Ichihara (ICCROM), Rita Johansen (Norway), Bill Kenmir (UK), Nupur Prothi Khanna (India/Sweden), Marie-Laure Lavenir (ICOMOS), Leticia Leitão (IUCN), Yuxin Li (China), Pernilla Malmer (Sweden), Kerstin Manz (Germany), Francesco Marchese (Italy), Alibek Otambekov (The Christensen Fund), Peter Shadie (IUCN), Peter Sheehan (UAE), Susanne Simon (Andorra), Maureen Thibault (ICOMOS), Gretchen Walters (Switzerland), Leanna Wigboldus (ICOMOS). A number of colleagues provided peer review of a final draft, making important improvements: Members of the ISCC Working Group on naturecultures Integration (Nupur Prothi Khanna, Diane Menzies, Greg de Vries, Robert Melnick, Patricia O'Donnell, Lionella Scazzosi, Darwina Neal and Steve Brown). ICOMOS members: Victor Fernández Salinas; IUCN Thematic Group on Resilience: Mike Jones; IUCN WCPA/World Heritage Programme: Thora Amend, Bastian Bertzky, Peter Shadie, Tim Badman; CBD Secretariat: John Scott. Participants in the final workshop was held via Zoom in September 2020, made further improvements: Anara Alymkulova (The Christensen Fund), Gwenaëlle Bourdin (ICOMOS), Steve Brown (Australia), Kristal Buckley (ICOMOS), Luisa De Marco (ICOMOS), Aurélie Fernandez (FAO GIAH), Albion Jopela (African World Heritage Fund), Bill Kenmir (UK), Marie-Laure Lavenir (ICOMOS), Leticia Leitão (IUCN), Pernilla Malmer (Sweden), Abduvohid Safarov (The Christensen Fund), John Scott (CBD Secretariat), Peter Shadie (IUCN), Maureen Thibault (ICOMOS), Leanna Wigboldus (ICOMOS).

^{ix} In addition to management and protection, IUCN adds the concept of 'governance' in its frameworks for Protected Areas, but this has not yet been incorporated into the terminologies of World Heritage.

^x Through the dissemination of the Japanese concepts of *satoyama* and *satoumi*, the interlinkages of nature and culture in the context of food production has sometimes been termed 'socio-ecological' in sources developed by IUCN.

^{xi} From the beginning of the programme, the support of The Christensen Fund has been a key influence in adopting a focus on the 'biocultural'. This is a longstanding cornerstone of its work, emphasising the interdependent and co-evolving character of landscapes, culture and ways of life.

^{xii} Loh and Harmon 2005; Maffi 2014

^{xiii} To an extent, this mirrors a confusion in current discourse between biodiversity, and the wider concept of nature which is more useful for *Connecting Practice*.

^{xiv} Google ngram 2018

^{xv} <https://www.stockholmresilience.org/>

^{xvi} Note that it is our practice to capitalise the word 'Indigenous' as an indication of respect when referring to First Peoples.

^{xvii} <https://www.cbd.int/traditional/>

^{xviii} <https://ich.unesco.org/en/intangible-heritage-domains-00052>

^{xix} <https://www.wipo.int/tk/en/tk/>

^{xx} ICOMOS acknowledges the assistance of the Stockholm Resilience Centre in the preparation of this text.

^{xxi} We acknowledge the suggestion of Diane Menzies on this point. She refers to the five different world views described by M. Thompson, R. Ellis & A. Wildavsky (1990) *Political Culture, Cultural Theory* (Waterview Press, Boulder). The world view underpinning ecology is only one, and others could conceptualise resilience very differently.

^{xxii} <https://www.iucn.org/commissions/commission-ecosystem-management/our-work/cems-thematic-groups/resilience>

^{xxiii} https://www.iucn.org/downloads/search_resilience_briefing_june_2011_v2.pdf

^{xxiv} https://www.iucn.org/downloads/en_iucn_glossary_definitions.pdf

^{xxv} <https://www.iucn.org/commissions/commission-ecosystem-management/our-work/cems-thematic-groups/resilience>

^{xxvi} <https://unhabitat.org/resilience/>

^{xxvii} These are potentially useful ideas for further consideration within Phase IV of *Connecting Practice*.

^{xxviii} The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore has been working toward a text to ensure the effective protection of [traditional knowledge](#) (TK), [traditional cultural expressions](#) (TCEs) and [genetic resources](#) (GRs).

^{xxix} Globally Important Agricultural Heritage Systems: are remarkable land-use systems and landscapes rich in globally significant biological diversity that have evolved from the coadaptation of a community with its environment and its needs and aspirations for sustainable development. (www.fao.org/nr/giahs/en/).

Connecting Practice: A Commentary on Emerging Keywords – Review of Key Materials – Annexe 1

Key:
Yellow: occurrence of the key word
Blue: direct definition
Green: indirect definition and/or related key words
 Additional notes,

Name of Document	Key Word	Copy-Paste text	NOTES	URL (paste)
World Heritage Convention	Landscape	<ul style="list-style-type: none"> groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science (p.2) 		https://whc.unesco.org/archive/convention-en.pdf
WH Operational Guidelines, 2019	Biological diversity	<ul style="list-style-type: none"> (x) contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation (p.26) §90 [...]. Biological diversity and cultural diversity can be closely linked and interdependent and human activities, including those of traditional societies, local communities and indigenous peoples, often occur in natural areas (p.28) §94. Properties proposed under criterion (ix) should have sufficient size and contain the necessary elements to demonstrate the key aspects of processes that are essential for the long-term conservation of the ecosystems and the biological diversity they contain (p.28) §95. Properties proposed under criterion (x) should be the most important properties for the conservation of biological diversity (p.29) Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable land-use and can maintain or enhance natural values in the landscape. The continued existence of traditional forms of land-use supports biological diversity in many regions of the world. The protection of traditional cultural landscapes is therefore helpful in maintaining biological diversity (p.83) + other incidental occurrences 		https://whc.unesco.org/en/guidelines/
	Cultural diversity	<ul style="list-style-type: none"> §73. The harmonization has considerable potential to generate fruitful dialogue between States Parties and different cultural communities, promoting respect for common heritage and cultural diversity and can result in improved Tentative Lists, new nominations from States Parties and cooperation amongst groups of States Parties in the preparation of nominations (p.25) §90 [...]. Biological diversity and cultural diversity can be closely linked and interdependent and human activities, including those of traditional societies, local communities and indigenous peoples, often occur in natural areas (p.28) §119. World Heritage properties may sustain biological and cultural diversity and provide ecosystem services and other benefits, which may contribute to environmental and cultural sustainability (p.33) The diversity of cultures and heritage in our world is an irreplaceable source of spiritual and intellectual richness for all humankind. The protection and enhancement of cultural and heritage diversity in our world should be actively promoted as an essential aspect of human development (p.90) 		
	Traditional / Indigenous knowledge	<ul style="list-style-type: none"> Cultural heritage diversity exists in time and space, and demands respect for other cultures and all aspects of their belief systems. In cases where cultural values appear to be in conflict, respect for cultural diversity demands acknowledgment of the legitimacy of the cultural values of all parties (p.90) §215. States Parties are encouraged to support scientific studies and research methodologies, including traditional and indigenous knowledge held by local communities and indigenous peoples, with all necessary consent (p.59) 		
	Landscape	<ul style="list-style-type: none"> groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape [...] (p.19) (ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design (p.25) (iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history (p.25) §137 [...]. Component parts should reflect cultural, social or functional links over time that provide, where relevant, landscape, ecological, evolutionary or habitat connectivity (p.39) The authenticity and historical interpretation of a canal encompass the connection between the real property (subject of the Convention), possible movable property (boats, temporary navigation items) and the associated structures (bridges, etc) and landscape (p.86) (iv) Landscape Such large-scale engineering works had and continue to have an impact on the natural landscape. Related industrial activity and changing settlement patterns cause visible changes to landscape forms and patterns (p.87) [...]. For a rock art site, for example, the description should refer to the rock art as well as the surrounding landscapes (p.99) 		
	Cultural landscape(s)	<ul style="list-style-type: none"> §47. Cultural landscapes are cultural properties and represent the "combined works of nature and of man" designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (p.20) §89. [...] Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained (p.28) §146. In the case of nominations of cultural properties in the category of "cultural landscapes", the evaluation will be carried out by ICOMOS in consultation with IUCN, as appropriate. For mixed properties, the evaluation will be carried out jointly by ICOMOS and IUCN (p.40) CULTURAL LANDSCAPES: Definition 6. (see §47) 7. They should be selected on the basis both of their Outstanding Universal Value and of their representativity in terms of a clearly defined geo-cultural region and also for their capacity to illustrate the essential and distinct cultural elements of such regions. 8. The term "cultural landscape" embraces a diversity of manifestations of the interaction between humankind and its natural environment. 9. Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable land-use and can maintain or enhance natural values in the landscape. The continued existence of traditional forms of land-use supports biological diversity in many regions of the world. The protection of traditional cultural landscapes is therefore helpful in maintaining biological diversity. (p.83) 		

		<ul style="list-style-type: none"> • Definition and Categories 10. Cultural landscapes fall into three main categories, namely: <ul style="list-style-type: none"> (i) The most easily identifiable is the clearly defined landscape designed and created intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles. (ii) The second category is the organically evolved landscape. This results from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub-categories: <ul style="list-style-type: none"> - a relict (or fossil) landscape is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form. - a continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time. (iii) The final category is the associative cultural landscape. The inscription of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent. (p.83) • A canal is a human-engineered waterway. It may be of Outstanding Universal Value from the point of view of history or technology, either intrinsically or as an exceptional example representative of this category of cultural property. The canal may be a monumental work, the defining feature of a linear cultural landscape, or an integral component of a complex cultural landscape (p.86) • A heritage route may be considered as a specific, dynamic type of cultural landscape, just as recent debates have led to their acceptance within the Operational Guidelines (p.88) • In accordance with the natural qualities of certain cultural landscapes identified in Annex 3, Paragraph 11, IUCN's evaluation is concerned with the following factors: <ul style="list-style-type: none"> (i) Conservation of natural and semi-natural systems, and of wild species of fauna and flora (ii) Conservation of biodiversity within sustainable use systems (farming, traditional fisheries, forestry); (iii) Sustainable land and water use; (iv) Enhancement of scenic beauty; (v) Ex-situ collections, such as botanic gardens or arboreta; (vi) Outstanding examples of humanity's inter-relationship with nature; (vii) Historically significant discoveries (p.114) • + some other incidental occurrences 		
	Resilience	<ul style="list-style-type: none"> • §15. [...]c) integrate heritage protection into comprehensive planning programmes and coordination mechanisms, giving consideration in particular to the resilience of socio-ecological systems of properties; (p.11) • §118bis. [...] This will ensure the long-term safeguarding of the Outstanding Universal Value, and the strengthening of heritage resilience to disasters and climate change (p.33) 		
Convention on Biological Diversity	Biological diversity	<ul style="list-style-type: none"> • importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere (p.1) • biological diversity is a common concern of humankind (p.1) • the fundamental requirement for the conservation of biological diversity is the in-situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings (p.1) • Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components (p.1-2) 		https://www.cbd.int/convention/text/
	Traditional knowledge (TK)	<ul style="list-style-type: none"> • Article.2: "Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. this includes diversity within species, between species and of ecosystems (p.3) • (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures (p.9) • + other incidental occurrences • Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components (p.1-2) • 2. Such exchange of information shall include exchange of results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such and in combination with the technologies referred to in Article 16, paragraph 1. It shall also, where feasible, include repatriation of information (p.11) <p>Other relevant article related to this key word: Art.8(j): (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices (p.6)</p>		
	Indigenous knowledge (IK)	<ul style="list-style-type: none"> • 2. Such exchange of information shall include exchange of results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such and in combination with the technologies referred to in Article 16, paragraph 1. It shall also, where feasible, include repatriation of information (p.11) <p>See also Art.8(j)</p>		
The North American Regional Declaration on Biocultural Diversity	Biocultural diversity	<ul style="list-style-type: none"> • Biocultural Diversity – the diversity of life in all its interdependent manifestations: biological, cultural, linguistic, and spiritual – is a fundamental component of environmental conservation, sustainable development, and decision-making at local, regional, and global scales (p.1) • Recognizing that indigenous peoples embody biocultural diversity, with different genders fulfilling crucial roles in conserving nature and culture; (p.1) • critical role of indigenous youth in safeguarding the future of biocultural diversity (p.2) • leading role of indigenous peoples in maintaining and enhancing biocultural diversity through the following themes: indigenous languages and traditional forms of knowledge; livelihoods, food sovereignty, health, and the nexus of nature, culture, and well-being; culturally-specific applications of communications technologies; inter-legality and indigenous rights; and indigenous peoples' stewardship of their territories of life (p.3) • Accelerate the recognition of indigenous peoples' ancestral lands and waters as a means to transformational change in the protection of biocultural diversity, for all life on Earth (p.4) • + other incidental occurrences 		https://www.cbd.int/portals/culturaldiversity/docs/north-american-regional-declaration-on-biocultural-diversity-en.pdf
	Biological diversity	<ul style="list-style-type: none"> • Acknowledging that biological and cultural diversity are interconnected, mutually reinforcing, interdependent, and often co-evolved (p.1) • Acknowledging that indigenous languages epitomize the inextricable links between cultural and biological diversity, and the importance of supporting this connection during the United Nations International Year of Indigenous Languages3 in 2019 and beyond (p.2) 		

		<ul style="list-style-type: none"> [...] b) Protecting biological diversity (plants, animals, their habitats, ecosystems and genetic diversity) (p.2) Emphasizing that separating biological and cultural diversity in conservation, sustainable development, and decision-making leads to diverging and conflicting agendas, leading to varying and sometimes competing interests (p.3) Develop holistic approaches to remove any conceptual and practical separation of biological and cultural diversities from siloed colonial approaches to conservation, sustainable development, and decision-making (p.4) + other incidental occurrences 		
	Cultural diversity	<ul style="list-style-type: none"> Acknowledging that biological and cultural diversity are interconnected, mutually reinforcing, interdependent, and often co-evolved (p.1) Emphasizing that separating biological and cultural diversity in conservation, sustainable development, and decision-making leads to diverging and conflicting agendas, leading to varying and sometimes competing interests (p.3) + other incidental occurrences 		
	Traditional knowledge (TK)	<ul style="list-style-type: none"> Fully implement existing and develop new commitments regarding traditional knowledge and customary sustainable use (p.4) Support the repatriation and restoration of languages, traditional knowledge and related information, and artefacts (intangible and tangible cultural heritage) to assist indigenous peoples in protecting, revitalizing, and strengthening their knowledge systems (p.4) Respect customary procedures, community protocols, or other guidance for respectful relationships, as developed by the relevant indigenous peoples, especially as it may pertain to traditional knowledge, as well as related resources (p.5) 		
	Indigenous knowledge	<ul style="list-style-type: none"> Support youth engagement in building a future based on their communities' cultural values, including indigenous knowledge systems, values, and identities as well as through formal educational opportunities such as universities and graduate programs (p.3) Respect distinct indigenous knowledge systems, spirituality, beliefs, practices and cultures; long-standing rules, principles and laws of governance and management systems of their territories, traditional lands and waters and sacred sites and areas and related knowledge (p.4) Advance co-governance between indigenous peoples and external governments, agencies, NGOs and other key stakeholders, based on equity and positive reciprocity, drawing on indigenous knowledge systems, as fundamental to taking care of ancestral lands and waters (p.5) Create and sustain conditions for mobilizing indigenous knowledge systems by the knowledge holders to guide conservation, sustainable development, and decision-making: (p.5) 		
Nagoya Protocol 2011	Biological diversity	<ul style="list-style-type: none"> [...] the Protocol will create incentives to conserve biological diversity, sustainably use its components, and further enhance the contribution of biological diversity to sustainable development and human well-being (p.1) Noting the interrelationship between genetic resources and traditional knowledge, their inseparable nature for indigenous and local communities, the importance of the traditional knowledge for the conservation of biological diversity and the sustainable use of its components, and for the sustainable livelihoods of these communities (p.3) Further recognizing the unique circumstances where traditional knowledge associated with genetic resources is held in countries, which may be oral, documented or in other forms, reflecting a rich cultural heritage relevant for conservation and sustainable use of biological diversity (p.4) The objective of this Protocol is the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components (p.4) The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally (p.8) + other incidental occurrences 	Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity	https://www.cbd.int/abs/
	Traditional knowledge (TK)	<ul style="list-style-type: none"> The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally (p.1) By promoting the use of genetic resources and associated traditional knowledge, and by strengthening the opportunities for fair and equitable sharing of benefits from their use, the Protocol will create incentives to conserve biological diversity, sustainably use its components, and further enhance the contribution of biological diversity to sustainable development and human well-being (p.1) Recognizing that an innovative solution is required to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent (p.3) Noting the interrelationship between genetic resources and traditional knowledge, their inseparable nature for indigenous and local communities, the importance of the traditional knowledge for the conservation of biological diversity and the sustainable use of its components, and for the sustainable livelihoods of these communities (p.3) Recognizing the diversity of circumstances in which traditional knowledge associated with genetic resources is held or owned by indigenous and local communities (p.3) Mindful that it is the right of indigenous and local communities to identify the rightful holders of their traditional knowledge associated with genetic resources, within their communities (p.4) Further recognizing the unique circumstances where traditional knowledge associated with genetic resources is held in countries, which may be oral, documented or in other forms, reflecting a rich cultural heritage relevant for conservation and sustainable use of biological diversity (p.4) This Protocol shall apply to genetic resources within the scope of Article 15 of the Convention and to the benefits arising from the utilization of such resources. This Protocol shall also apply to traditional knowledge associated with genetic resources within the scope of the Convention and to the benefits arising from the utilization of such knowledge (p.5) + other incidental occurrences 		
Sharm El-Sheikh Declaration on Nature and Culture	Biocultural community	<ul style="list-style-type: none"> Acknowledging the customary management of biodiversity, customary law, traditional knowledge and ways of life represented by customary procedures and biocultural community protocols (p.4) 	Conference of The Parties to the Convention on Biological Diversity Fourteenth meeting Sharm El-Sheikh, Egypt, 17-29 November 2018	https://www.cbd.int/doc/c/8b76/d85e/c62f920c5fd8c4743e5193e1/cop-14-inf-46-en.pdf
	Biocultural landscape	<ul style="list-style-type: none"> 20. Calls for multi-partner strategies that aspire to a whole Earth approach equitably governed and sustainably managed with increased protection of both Nature and Culture within mosaic biocultural landscapes (p.6) 		
	Biocultural diversity	<ul style="list-style-type: none"> The Summit considered visions of futures - Living in Harmony with Nature; the contributions of community conservation and approaches that enhance biocultural diversity and relevant indicators, as well as human rights for thriving and resilient indigenous peoples, local communities and healthy ecosystems (p.4) 9. Continue to explore the intersectionality of biological and cultural diversity and a growing awareness of the concept of "biocultural diversity" + another incidental occurrence 		

<p>Biological diversity</p>	<ul style="list-style-type: none"> Acknowledging that biological and cultural diversity are not only closely linked but also mutually reinforcing, and that cultural elements are a fundamental part of the life and cosmological vision of indigenous peoples and local communities, who actively pursue an intrinsic and balanced relationship between Mother Nature, human beings and the Universe (p.3) Considering that approaching biological and cultural diversity separately results in diverging and even conflicting agendas, and that such dual approaches have led to varying and sometimes competing interests within the same geographic location (p.3) Emphasising that reversing the current trends in dramatic loss of biodiversity and the weakening of cultural diversity requires innovative approaches to bridge the artificial divide between biological and cultural diversity which persists in siloed sectoral practices, institutions, policy making, management and interpretation (p.3) Acknowledging that increasing awareness and knowledge on the links between biological and cultural diversity require collaboration through the sharing and adaptation of good practices on the inter-relationships between nature and culture (p.3) Recognizing indigenous peoples and local communities as proponents of biological and cultural diversity, and the crucial role of indigenous and local community women in conserving nature and culture (p.3) Reaffirming that the United Nations Declaration on the Rights of Indigenous Peoples and the 2030 Agenda for Sustainable Development offer a framework to respect and recognize the rights of indigenous peoples to ensure and promote both cultural and biological diversity in the attainment of its Sustainable Development Goals (p.4) Acknowledging that indigenous, traditional and local languages epitomize the links between cultural and biological diversity, as recognized by the United Nations International Year of Indigenous Languages (Resolution 71/178) in 2019 (p.4) 6. Support and promote the intergenerational transmission of indigenous and local languages and knowledge, to regenerate, restore and revitalize knowledge systems and institutions to promote the recovery of cultural and biological diversity (p.5) 9. Continue to explore the intersectionality of biological and cultural diversity and a growing awareness of the concept of "biocultural diversity" (p.5) 16. Explore further the contributions of culture, traditional knowledge, innovations and practices and collective indigenous initiatives and self-determined community initiatives in nature conservation and biological and cultural diversity (p.6) 21. Calls upon Parties to accelerate the recognition of indigenous peoples' lands, waters and territories of life as a means to trigger a transformational change in the protection of biological diversity and cultural heritage, for all life on Earth (p.6) + other incidental occurrences 		
<p>Cultural diversity</p>	<ul style="list-style-type: none"> Acknowledging that biological and cultural diversity are not only closely linked but also mutually reinforcing, and that cultural elements are a fundamental part of the life and cosmological vision of indigenous peoples and local communities, who actively pursue an intrinsic and balanced relationship between Mother Nature, human beings and the Universe (p.3) Considering that approaching biological and cultural diversity separately results in diverging and even conflicting agendas, and that such dual approaches have led to varying and sometimes competing interests within the same geographic location (p.3) Emphasising that reversing the current trends in dramatic loss of biodiversity and the weakening of cultural diversity requires innovative approaches to bridge the artificial divide between biological and cultural diversity which persists in siloed sectoral practices, institutions, policy making, management and interpretation (p.3) Acknowledging that increasing awareness and knowledge on the links between biological and cultural diversity require collaboration through the sharing and adaptation of good practices on the inter-relationships between nature and culture (p.3) Recognizing indigenous peoples and local communities as proponents of biological and cultural diversity, and the crucial role of indigenous and local community women in conserving nature and culture (p.3) Reaffirming that the United Nations Declaration on the Rights of Indigenous Peoples and the 2030 Agenda for Sustainable Development offer a framework to respect and recognize the rights of indigenous peoples to ensure and promote both cultural and biological diversity in the attainment of its Sustainable Development Goals (p.4) Acknowledging that indigenous, traditional and local languages epitomize the links between cultural and biological diversity, as recognized by the United Nations International Year of Indigenous Languages (Resolution 71/178) in 2019 (p.4) 6. Support and promote the intergenerational transmission of indigenous and local languages and knowledge, to regenerate, restore and revitalize knowledge systems and institutions to promote the recovery of cultural and biological diversity (p.5) 9. Continue to explore the intersectionality of biological and cultural diversity and a growing awareness of the concept of "biocultural diversity" (p.5) 16. Explore further the contributions of culture, traditional knowledge, innovations and practices and collective indigenous initiatives and self-determined community initiatives in nature conservation and biological and cultural diversity (p.6) + other incidental occurrences 		
<p>Traditional knowledge (TK)</p>	<ul style="list-style-type: none"> Emphasising that success in the vision of the Convention on Biological Diversity and the Sustainable Development Goals necessitates the full and effective participation of indigenous peoples and local communities and recognition of their rights to territories, natural resources, customary sustainable use and their related traditional knowledge (p.3) Acknowledging the customary management of biodiversity, customary law, traditional knowledge and ways of life represented by customary procedures and biocultural community protocols (p.4) 16. Explore further the contributions of culture, traditional knowledge, innovations and practices and collective indigenous initiatives and self-determined community initiatives in nature conservation and biological and cultural diversity (p.6) + other incidental occurrences 		
<p>Landscape</p>	<ul style="list-style-type: none"> Recalling the Muchtanbal Summit Declaration of December 2016; Malama Honua-Nature-Culture Journey of September 2016; Ishikawa Declaration on Biocultural Diversity of October 2016; Florence Declaration on the Links between Biological and Cultural Diversity of April 2014, that have explored and promoted the links between biological and cultural diversity for the resilience of ecosystems and landscapes, and the place of humanity within them (p.3) 		
<p>Resilience</p>	<ul style="list-style-type: none"> Recalling the Muchtanbal Summit Declaration of December 2016; Malama Honua-Nature-Culture Journey of September 2016; Ishikawa Declaration on Biocultural Diversity of October 2016; Florence Declaration on the Links between Biological and Cultural Diversity of April 2014, that have explored and promoted the links between biological and cultural diversity for the resilience of ecosystems and landscapes, and the place of humanity within them (p.3) Acknowledging the importance of a rights-based approach for the resilience of systems of life, good health, education and the use, management and conservation of natural resources (p.4) 7. Promote a sustained dialogue between science and indigenous and local knowledge systems to provide a foundation for a new paradigm, generating the best possible knowledge and solutions for biological and cultural resilience (p.5) + other incidental occurrences 		

<p>The Tkarihwaié:ri Code of Ethical Conduct to Ensure Respect for the Cultural and Intellectual Heritage of Indigenous and Local Communities</p>	<p>Biological diversity</p>	<ul style="list-style-type: none"> Incidental occurrences only Example: 2. These elements of a code of ethical conduct aim to promote respect for the cultural and intellectual heritage of indigenous and local communities relevant for the conservation and sustainable use of biological diversity (p.4) 	<p>Conference of the Parties to the Convention on Biological Diversity Tenth meeting Nagoya, Japan, 18-29 October 2010</p>	<p>https://www.cbd.int/doc/decisions/cop-10/cop-10-dec-42-en.pdf</p>
	<p>Cultural diversity</p>	<ul style="list-style-type: none"> 3. Invites Parties and Governments to make use of the elements of the code of ethical conduct as a model to "guide the development of models of codes of ethical conduct for research, access to, use, exchange and management of information concerning traditional knowledge, innovations and practices for the conservation and sustainable use of biological diversity" that are developed according to each Party's unique national circumstances and needs and recognizing the rich cultural diversity of indigenous and local communities (p.3) 20. Traditional guardianship/custodianship recognizes the holistic interconnectedness of humanity with ecosystems and obligations and responsibilities of indigenous and local communities, to preserve and maintain their traditional role as traditional guardians and custodians of these ecosystems through the maintenance of their cultures, spiritual beliefs and customary practices. Because of this, cultural diversity, including linguistic diversity, ought to be recognized as keys to the conservation and sustainable use of biological diversity. Therefore, indigenous and local communities should, where relevant, be actively involved in the management of lands and waters traditionally occupied or used by them, including sacred sites and protected areas. Indigenous and local communities may also view certain species of plants and animals as sacred and, as custodians of biological diversity, have responsibilities for their well-being and sustainability, and this should be respected and taken into account in all activities/interactions (p.6) + another additional occurrence 		
	<p>Traditional knowledge (TK)</p>	<ul style="list-style-type: none"> Recalling that Parties to the Convention on Biological Diversity have, subject to their respective national legislation, undertaken, pursuant to Article 8(j) of the Convention, to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity (hereafter referred to as "traditional knowledge"), and to promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices (p.1) Recalling that access by indigenous and local communities to lands and waters traditionally occupied or used by indigenous and local communities, together with the opportunity to practice traditional knowledge on those lands and waters, is paramount for the retention of traditional knowledge, and the development of innovations and practices relevant for the conservation and sustainable use of biological diversity (p.2) Bearing in mind the importance of preserving and developing traditional languages used by indigenous and local communities as rich sources of traditional knowledge regarding medicines, traditional farm practices, including agricultural biodiversity and animal husbandry, lands, air, water and whole ecosystems that have been shared from one generation to the next (p.2) Taking into account the holistic concept of traditional knowledge and its multi-dimensional characteristics which include but are not limited to spatial, cultural spiritual, and temporal qualities (p.2) 1. The following elements of a code of ethical conduct are voluntary and are intended to provide guidance in activities/interactions with indigenous and local communities and for the development of local, national, or regional codes of ethical conduct, with the aim of promoting respect, preservation and maintenance of traditional knowledge, innovations and practices relevant for the conservation and sustainable use of biodiversity [...] (p.3) 4. Where consent or authority of indigenous and local communities is required with respect to traditional knowledge associated with the conservation and sustainable use of biodiversity, it is the right of indigenous and local communities, according to their customary law and procedures, to identify the relevant holders of their knowledge (p.4) acknowledged and addressed in the negotiation with indigenous and local communities, prior to starting activities/interactions (p.4) 10. Indigenous and local communities should be adequately informed in advance, about the nature, scope and purpose of any proposed activities/interactions carried out by others that may involve the use of their traditional knowledge, innovations and practices related to the conservation and sustainable use of biodiversity, occurring on or likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities. This information should be provided in a manner that takes into consideration and actively engages with the body of knowledge and cultural practices of indigenous and local communities (p.4-5) 11. Any activities/interactions related to traditional knowledge associated with the conservation and sustainable use of biological diversity, occurring on or likely to impact on sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities and impacting upon specific groups, should be carried out with the prior informed consent and/or approval and involvement of indigenous and local communities. Such consent or approval should not be coerced, forced or manipulated (p.5) 12. Traditional knowledge should be respected as a legitimate expression of the culture, traditions, and experience of indigenous and local communities and as part of the plurality of existing knowledge systems. (p.5) 17. This principle recognizes the integral connection of indigenous and local communities to their sacred sites, culturally significant sites and lands and waters traditionally occupied or used by them and associated traditional knowledge, and that their cultures, lands and waters are interrelated. In accordance with national domestic law and international obligations, in this context, traditional land tenure of indigenous and local communities should be recognized, as access to traditional lands and waters and sacred sites is fundamental to the retention of traditional knowledge and associated biological diversity. Sparsely populated lands and waters ought not to be presumed to be empty or unoccupied but may be occupied or used by indigenous or local communities (p.6) [...] Ethical conduct should acknowledge that there are some legitimate circumstances for indigenous and local communities to restrict access to their traditional knowledge (p.8) + other incidental occurrences 		
<p>Florence Declaration on the Links Between Biological and Cultural Diversity</p>	<p>Biocultural landscape</p>	<ul style="list-style-type: none"> c. As it assimilates economic, social, cultural and environmental processes in time and space, the European landscape is predominantly a biocultural multifunctional landscape. As such, it provides a crucial and effective space for integration of biological and cultural diversity for human wellbeing, including in the context of rural territories (p.1) f. The involvement of local communities, and recognition of and respect for their cultural heritage, traditional knowledge, innovations and practices can assist in more effective management and governance of multifunctional biocultural landscapes, and contribute to their resilience and adaptability (p.2) 	<p>First European Conference for the Implementation of the UNESCO--- SCBD Joint Programme on Biological and Cultural Diversity, held from 8 to 11 April 2014 in Florence, Italy</p>	<p>https://www.cbd.int/portals/culturaldiversity/docs/21040410-declaration-florence-en.pdf</p>
<p>Biocultural diversity</p>	<ul style="list-style-type: none"> Recognizing further the importance of the links between cultural and biological diversity, and in this context noting the concept of Biocultural Diversity and the relevance of cultural services provided by ecosystems (p.1) Highlighting the need to further strengthen the cooperation between the relevant international agreements and bodies in the field of bio-cultural diversity (p.1) e. Landscapes rich in biocultural diversity are often those managed by small-scale or peasant farmers, traditional livestock keepers/pastoralists, and small-scale/artisanal fishermen (p.2) + other incidental occurrences 			
<p>Biological diversity</p>	<ul style="list-style-type: none"> Recognizing the vital importance of cultural and biological diversity for present and future generations and the well-being of contemporary societies in urban and rural areas (p.1) Recognizing further the importance of the links between cultural and biological diversity, and in this context noting the concept of Biocultural Diversity and the relevance of cultural services provided by ecosystems (p.1) 			

		<ul style="list-style-type: none"> b. The current state of biological and cultural diversity in Europe results from the combination of historical and on-going environmental and land use processes and cultural heritage (p.1) g. To better understand the dynamic interplay between biological and cultural diversity at the landscape level and its implications for livelihoods and wellbeing, there is need for enhanced interdisciplinary and transdisciplinary research of the links between biological and cultural diversity at the national and sub-national levels, including their historical background (p.2) + other incidental occurrences 		
	Cultural diversity	<ul style="list-style-type: none"> Many incidental occurrences, similar to what has been found for "biological diversity" Example: h. Public awareness of the links between biological and cultural diversity and political action that considers these links in policy and decision-making processes are needed to effectively implement international and national commitments dealing with environmental, social and economic sustainability and human wellbeing at different scales (p.2) 		
	Traditional knowledge (TK)	<ul style="list-style-type: none"> f. The involvement of local communities, and recognition of and respect for their cultural heritage, traditional knowledge, innovations and practices can assist in more effective management and governance of multifunctional biocultural landscapes, and contribute to their resilience and adaptability (p.2) 		
	Landscape	<ul style="list-style-type: none"> c. As it assimilates economic, social, cultural and environmental processes in time and space, the European landscape is predominantly a biocultural multifunctional landscape. As such, it provides a crucial and effective space for integration of biological and cultural diversity for human wellbeing, including in the context of rural territories (p.1) e. Landscapes rich in biocultural diversity are often those managed by small-scale or peasant farmers, traditional livestock keepers/pastoralists, and small-scale/artisanal fishermen (p.2) Promoting the inclusion of biocultural diversity into national and local planning for nature conservation and landscape management, including protected areas, agricultural and forest landscapes (p.2) + other incidental occurrences 		
	Resilience	<ul style="list-style-type: none"> f. The involvement of local communities, and recognition of and respect for their cultural heritage, traditional knowledge, innovations and practices can assist in more effective management and governance of multifunctional biocultural landscapes, and contribute to their resilience and adaptability (p.2) 		
Ishikawa Declaration on Biocultural Diversity	Biocultural diversity	<ul style="list-style-type: none"> [...] understanding of Biocultural Diversity as the complex interplay between biodiversity and cultural diversity, and its vital impacts on economic, political, environmental, social and cultural sustainability (p.1) Commit to further exploring and implementing integrated approaches to conservation, sustainable use and the equitable sharing of benefits arising from Nature, through strengthening the resilience of local biocultural diversity, including by enhancing and supporting local and traditional knowledge systems, technologies and cultural practices (p.1) Address root causes of loss of biocultural diversity, including declining rural populations and unsustainable use of biodiversity (p.4) Recognize and support the stewards and custodians of biocultural diversity, including indigenous peoples, local and traditional communities (p.5) + other incidental occurrences <p>Definition provided in the Final Report of the Conference, which I assume is the one used within the text of the Declaration: "Biocultural diversity is the relation between the diversity of nature and culture in a complex socio-ecological adaptive system. The nature component refers to the flora and fauna in their natural habitat (biodiversity), and the culture component refers to the human lifestyle developments influenced by the surrounding ecosystems, including food, clothing, housing, language, religion and arts (cultural diversity)" (p.5) http://bcd2016.jp/com/img/2016-memory-en.pdf</p>	Document resulting from the first Asian conference on Biocultural diversity held in Nanao City, Japan, 2016	https://www.cbd.int/portals/culturaldiversity/docs/20161028-declaration-ishikawa-en.pdf
	Biocultural approche(s)	<ul style="list-style-type: none"> Recognize the importance of enhancing mechanisms for learning opportunities, that build the capacity of human resources, to incorporate biocultural approaches in sustainable development strategies and policies in the Asian region (p.2) 		
	Biocultural heritage	<ul style="list-style-type: none"> Promote multi stake- and rights holder partnerships and community-based approaches that empower indigenous peoples, local and traditional communities to protect and promote their biocultural heritage (p.4) 		
	Biological diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: Encourage cross-sector collaborations for mainstreaming biological and cultural diversity, including by engaging the private sector (p.4) 		
	Cultural diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: 2. Recognize the contribution of biological and cultural diversity to our health and well-being as well as to building resilient and sustainable societies (p.1) 		
	Traditional knowledge (TK)	<ul style="list-style-type: none"> 6. Commit to further exploring and implementing integrated approaches to conservation, sustainable use and the equitable sharing of benefits arising from Nature, through strengthening the resilience of local biocultural diversity, including by enhancing and supporting local and traditional knowledge systems, technologies and cultural practices (p.1) Take action to respect, protect and promote traditional knowledge, including knowledge for traditional medicine, food security, nutrition, health and well-being related to plants, animals, soil fertility and pest control, as well as for spiritual and cultural fulfillment (p.3) + other incidental occurrences 		
	Landscape(s)	<ul style="list-style-type: none"> Incidental occurrences only Example: Restore degraded land- and seascapes including abandoned farm lands, and provide practical incentives for people to return to and revitalize rural landscapes, inland waters and seascapes (p.5) 		
	Resilience	<ul style="list-style-type: none"> 6. Commit to further exploring and implementing integrated approaches to conservation, sustainable use and the equitable sharing of benefits arising from Nature, through strengthening the resilience of local biocultural diversity, including by enhancing and supporting local and traditional knowledge systems, technologies and cultural practices (p.1) 		
Múch'tambal Summit on Indigenous Experiences	Biocultural diversity	<ul style="list-style-type: none"> 11. Acknowledge the importance of the UNESCO-SCBD Joint Programme on the Links between Biological and Cultural Diversity in advancing our understanding of and attention to the biocultural diversity as the complex interplay between biodiversity and cultural diversity, and its vital impacts on economic, political, environmental, social and cultural sustainability (p.2) further exploration of how to strengthen the synergies between the protection of traditional knowledge and biocultural diversity (p.2) + other incidental occurrences 	"Múch'tambal" Summit on Indigenous Experience: Traditional Knowledge, biological and cultural diversity, held in Cancun, 2016	https://www.cbd.int/cop/cop-13/other/declaration-muuchtambal-en.pdf
	Biological diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: 2. Recognize that many countries with the highest levels of biological diversity also rank amongst the most culturally diverse. Cultural diversity and its corresponding traditional knowledge are eroding fast in many parts of the world, and these losses are closely linked to the loss of biological diversity. There is an urgent need to reverse this trend to ensure critical pathways towards future sustainability on Earth (p.1) 	Objective: Mainstreaming the contribution of Traditional Knowledge, Innovations and Practices across Agriculture, Fisheries, Forestry and Tourism Sectors for the conservation and sustainable use of	
	Cultural diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: 5. Recognize the contribution and values of traditional knowledge and biological and cultural diversity to healthy ecosystems, human well-being and resilient and sustainable societies, particularly in the agriculture, fisheries, forestry, and tourism sectors (p.1) 		

	<p>Traditional knowledge (TK)</p>	<ul style="list-style-type: none"> [...]. Cultural diversity and its corresponding traditional knowledge are eroding fast in many parts of the world, and these losses are closely linked to the loss of biological diversity [...] (p.1) 5. Recognize the contribution and values of traditional knowledge and biological and cultural diversity to healthy ecosystems, human well-being and resilient and sustainable societies, particularly in the agriculture, fisheries, forestry, and tourism sectors (p.1) 6. Acknowledge the important role indigenous peoples and local communities play in the governance, management and conservation of biodiversity, and the importance of protecting traditional knowledge and its continued transmission to future generations through their own institutions (p.1) 8. Encourage the balanced, fair, and effective intellectual property protections of genetic resources, traditional knowledge, and traditional cultural expressions (p.2) a. Ensure full and effective participation of indigenous peoples and local communities in all international processes that are of importance for the protection of traditional knowledge, innovations and practices, and the protection and promotion of biodiversity and cultural diversity (p.3) d. Strengthen the important role of indigenous women and youth in the upholding of the linkages between biological and cultural diversity, and the related traditional knowledge (p.3) + other incidental occurrences 	<p>Biodiversity for Well-being</p>	
<p>Glossary of relevant key terms and concepts within the context of Article 8(j) and related provisions</p>	<p>Traditional knowledge (TK)</p>	<ul style="list-style-type: none"> The knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity (p.2) 	<p>Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity</p> <p>Fourteenth meeting Sharm El-Sheikh, Egypt, 17-29 November 2018 Agenda item 19</p>	<p>https://www.cbd.int/doc/c/1d3f/4110/c922549b825d2fd4e589cf79/wq8i-10-03-en.pdf</p>
<p>Biocultural Approaches: Opportunities for Building More Inclusive Environmental Governance</p>	<p>Biocultural approach(es)</p> <p>Indigenous biocultural heritage (IBCH) (specific notion from the publication)</p> <p>Biocultural diversity</p> <p>Biological diversity</p> <p>Traditional knowledge (TK)</p> <p>Indigenous knowledge (IK)</p>	<ul style="list-style-type: none"> These bottom-up interactional approaches are built through the recognition that there is an inextricable link between traditional knowledge, the cultural and linguistic systems they are embedded in, and conservation of biodiversity in situ, which requires governance models to conserve all the interconnected parts of people in ecosystems (p.6) Successful biocultural approaches stem from long-term partnerships that build trust over time. Systemic approaches to planning, monitoring and evaluating interventions can help such interactional governance innovations to be adaptive and learn through time and can even become a powerful tool to build more inclusive interventions (p.6) Biocultural approaches to conservation, governance and development all stem from the concept of biocultural diversity. (p.11) We know that biocultural approaches to territorial and environmental conservation are conceptually aligned with interactional approaches, suggesting there is potential to build more equitable and inclusive governance models through them. They suggest that hybrid forms may emerge from the lived experience of knowledge and practice holders within social-ecological systems. They acknowledge a need to bring multiple stakeholders together (p.13) [...] biocultural approaches suggest more attention should be placed on the interactions between the formal and the informal [...] (p.20) biocultural approaches start from what exist in situ. They provide concrete and compelling evidence that environmental and social outcomes may be nurtured when existing ways of knowing, engaging with and nurturing biocultural diversity are respected. These are not static but are evolving, and take hybrid forms, and can only be understood in context (p.21) + other incidental occurrences The concept of indigenous biocultural heritage (IBCH), according to Argumedo and Pimbert (2008), builds on concepts from multiple disciplines and policy spaces that describe the social-ecological reality of indigenous peoples. It was developed endogenously through linking the lived realities of communities to existing scholarly and policy frameworks. It was first defined in May 2005 during a planning workshop for the Protecting Community Rights over Traditional Knowledge: Implications of Customary Laws and Practices project, which aimed to assist indigenous and local communities to protect their rights over traditional knowledge of biodiversity based on their customary laws (p.14) IBCH is a 'complex system of interdependent parts centred on the reciprocal relationship between indigenous peoples and their natural environment' (ibid.: 6) (p.14) + other incidental occurrences Biocultural approaches to conservation, governance and development all stem from the concept of biocultural diversity. The concept was built through the recognition of an inextricable link between traditional knowledge, the cultural and linguistic systems that knowledge is embedded in, and conservation of biodiversity (e.g. Posey 2002) (p.11) Biocultural diversity was first used as a metric to document, compare and analyse the links between linguistic, cultural and biological diversity (Maffi 2001, 2005; Maffi and Woodley 2012) (p.11) +other incidental occurrences Incidental occurrences only Example: Biocultural diversity was first used as a metric to document, compare and analyse the links between linguistic, cultural and biological diversity (Maffi 2001, 2005; Maffi and Woodley 2012) (p.11) Incidental occurrences only Example: The concept was also useful in the development of tools to protect local traditional knowledge – for example, in Panama, the Kuna used it to frame a community protocol to manage engagement with external agents through their own appreciation of their interconnected knowledge system (p.14) They have also shown that local and indigenous knowledge of biodiversity is embedded within institutions and social practices, is fluid, and constantly engaging with processes of representation and power (Raffles 2003; Agrawal 1995, 2002) (p.7) Scholars working with indigenous knowledge have argued for a long time that it is the intimate knowledge of ecosystems resulting from co-evolution of people and place that gives them the capacity to learn, adapt and thus nurture diversity in their ecosystems (Posey 2002; Berkes 2012) (p.10) + other incidental occurrences 	<p>IDS WORKING PAPER Volume 2017 No 502 By J. Marina Appgar</p>	<p>https://www.ids.ac.uk/publications/biocultural-approaches-opportunities-for-building-more-inclusive-environmental-governance/</p>

	Landscape	<ul style="list-style-type: none"> Incidental occurrences only Example: It was deemed appropriate to guide work in each site 'because it recognizes the inter-linkages between traditional knowledge, biodiversity, landscapes, cultural values, and customary law, and the need to protect traditional knowledge systems as a whole' (IIED 2007) (p.14) 		
	Resilience	<ul style="list-style-type: none"> The resilience of local biocultural systems is linked to their capacity to govern through use of their traditional and now hybrid institutions, leadership and connection to their land (p.18) +other incidental occurrences 		
Brochure on Traditional Knowledge and the Convention on Biological Diversity	Biological diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: Traditional knowledge is considered a "cross-cutting" issue that affects many aspects of biological diversity, so it will continue to be addressed by the Conference of Parties and by other working groups as well (p.2) 	Brochure drafted in the framework of Article 8(j) of the Convention on Biological Diversity.	https://www.cbd.int/doc/publications/8j-brochure-en.pdf
	Traditional knowledge (TK)	<ul style="list-style-type: none"> Traditional knowledge refers to the knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry (p.1) This knowledge is valuable not only to those who depend on it in their daily lives, but to modern industry and agriculture as well. Many widely used products, such as plant-based medicines and cosmetics, are derived from traditional knowledge. Other valuable products based on traditional knowledge include agricultural and non-wood forest products as well as handicraft (p.1) Chapter 26 of Agenda 21 – the main document that came out of the 1992 Earth Summit in Rio de Janeiro – recognizes that indigenous peoples have a vital role to play in environmental management and development because of their traditional knowledge and practices (p.1) Traditional knowledge is considered a cross-cutting issue that affects many aspects of biological diversity (p.2) + other incidental occurrences 		
ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites	Landscape	<ul style="list-style-type: none"> Cultural Heritage Site refers to a place, locality, natural landscape, settlement area, architectural complex, archaeological site, or standing structure that is recognized and often legally protected as a place of historical and cultural significance (p.2) 4. The surrounding landscape, natural environment, and geographical setting are integral parts of a site's historical and cultural significance, and, as such, should be considered in its interpretation (p.5) 	Ratified by the 16th General Assembly of ICOMOS, Québec (Canada), on 4 October 2008	https://www.icomos.org/charters/interpretation_e.pdf
The ICOMOS Charter on Cultural Routes	Cultural diversity	<ul style="list-style-type: none"> Though Cultural Routes have resulted historically from both peaceful and hostile encounters, they present a number of shared dimensions which transcend their original functions, offering an exceptional setting for a culture of peace based on the ties of shared history as well as the tolerance, respect, and appreciation for cultural diversity that characterize the communities involved (p.1) 4. This breadth of scale is important from the point of view of both the territory included and of the comprehensive management of the various heritage elements included in it. At the same time the cultural diversity it implies provides an alternative to a process of cultural homogenization (p.4) 	Ratified by the 16th General Assembly of ICOMOS, Québec (Canada), on 4 October 2008	https://www.icomos.org/charters/cultural_routes_e.pdf
	Cultural landscape(s)	<ul style="list-style-type: none"> The consideration of Cultural Routes as a new concept or category does not conflict nor overlap with other categories or types of cultural properties—monuments, cities, cultural landscapes, industrial heritage, etc.—that may exist within the orbit of a given Cultural Route (p.1) Given the cultural richness and variety of both the interrelationships and the characteristic assets directly associated with the reason for the existence of Cultural Routes (such as monuments, archaeological remains, historic towns, vernacular architecture, intangible, industrial and technological heritage, public works, cultural and natural landscapes, transportation means and other examples of the application of specific knowledge and technical skills) [...] (p.2) 2. Other basic substantive elements are the tangible heritage assets related to its functionality as a historic route (staging posts, customs offices, places for storage, rest, and lodging, hospitals, markets, ports, defensive fortifications, bridges, means of communication and transport; industrial, mining or other establishments, as well as those linked to manufacturing and trade, that reflect the technical, scientific and social applications and advances in its various eras; urban centers, cultural landscapes, sacred sites, places of worship and devotion, etc.) as well as intangible heritage elements that bear witness to the process of exchange and dialogue between the peoples involved along its path (p.3-4) + other incidental occurrences 		
	Landscape(s)	<ul style="list-style-type: none"> Incidental occurrences only Example: Any interventions that may be necessary must fit in with this context and respect its defining features by facilitating their understanding and not distorting the traditional landscape, whether it is natural, cultural or combined (p.5) 		
ICOMOS Charter on the Built Vernacular Heritage	Cultural diversity	<ul style="list-style-type: none"> The built vernacular heritage is important; it is the fundamental expression of the culture of a community, of its relationship with its territory and, at the same time, the expression of the world's cultural diversity (p.1) 	Ratified by the ICOMOS 12th General Assembly, in Mexico, October 1999	https://www.icomos.org/charters/vernacular_e.pdf
	Cultural landscape(s)	<ul style="list-style-type: none"> 4. The built vernacular heritage is an integral part of the cultural landscape and this relationship must be taken into consideration in the development of conservation approaches (p.2) Interventions to vernacular structures should be carried out in a manner which will respect and maintain the integrity of the siting, the relationship to the physical and cultural landscape, and of one structure to another (p.2) 		
The Declaration of Amsterdam	Cultural diversity	<ul style="list-style-type: none"> A new type of town-planning is seeking to recover the enclosed spaces, the human dimensions, the interpenetration of functions and the social and cultural diversity that characterized the urban fabric of old towns. But it is also being realized that the conservation of ancient buildings helps to economise resources and combat waste, one of the major preoccupations of present-day society (p.1-2) 	Congress on the European Architectural Heritage 21 - 25 October 1975 Crowning event of European architectural heritage Year 1975	https://www.icomos.org/en/resources/charters-and-texts/179-articles-en-francais/resources/charters-and-standards/169-the-declaration-of-amsterdam?tmpl=component&print=1
Florence Charter on Historic Gardens	Landscape(s)	<ul style="list-style-type: none"> Article 6. The term "historic garden" is equally applicable to small gardens and to large parks, whether formal or "landscape" (p.2) Article 8. A historic site is a specific landscape associated with a memorable act, as, for example, a major historic event; a well-known myth; an epic combat; or the subject of a famous picture (p.2) Article 20. While historic gardens may be suitable for quiet games as a daily occurrence, separate areas appropriate for active and lively games and sports should also be laid out adjacent to the historic garden, so that the needs of the public may be satisfied in this respect without prejudice to the conservation of the gardens and landscapes (p.4) 	ICOMOS-IFLA International Committee for Historic Gardens, Florence, 1981 Adopted by ICOMOS in December 1982.	https://www.icomos.org/charters/gardens_e.pdf
ICOMOS Principles for the Preservation and Conservation-Restoration of Wall Paintings	Cultural diversity	<ul style="list-style-type: none"> The Venice Charter (1964) has provided general principles for the conservation-restoration of cultural heritage. The Amsterdam Declaration (1975) introducing the concept of integrated conservation, and the Nara Document on Authenticity (1994) dealing with cultural diversity, have expanded these principles (p.1) 	Ratified by the ICOMOS 14th General Assembly in Victoria Falls, Zimbabwe, in 2003	https://www.icomos.org/charters/wallpaintings_e.pdf

<p>ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage</p>	<p>Biocultural diversity</p>	<ul style="list-style-type: none"> Rural landscape as heritage encompasses cultural, spiritual, and natural attributes that contribute to the continuation of biocultural diversity (p.3) Heritage should play a significant role in the recognition, protection and promotion of rural landscapes and biocultural diversity due to the significant values it represents (p.3) Many rural systems have proven to be sustainable and resilient over time. Various aspects of these systems can inform future management of rural activities and support conservation and improvement of biocultural diversity and peoples' rights to adequate quantities and good quality of food and raw materials (p.4) <p>2 specific notions:</p> <ul style="list-style-type: none"> 1 Review and implement legal and policy frameworks to ensure biocultural sustainability and resilience in use and transformation of rural landscapes with respect to global, national, local threats, risks and opportunities 	<p>Adopted by the 19th ICOMOS General Assembly, New Delhi, India, 15 December 2017</p>	<p>https://www.icomos.org/images/DOCUMENTS/Charters/GA2017_6-3-1_RuralLandscapesPrinciples_EN_adopted-15122017.pdf</p>
	<p>Cultural knowledge</p>	<ul style="list-style-type: none"> Rural landscape as heritage also includes associated cultural knowledge, traditions, practices, expressions of local human communities' identity and belonging, and the cultural values and meanings attributed to those landscapes by past and contemporary people and communities (p.2) 		
	<p>Landscape(s)</p>	<p>The term is mainly used within the framework of the specific notion of "rural landscape", which definition reads as follows:</p> <ul style="list-style-type: none"> Rural Landscape: For the purpose of this document, rural landscapes are terrestrial and aquatic areas co-produced by human-nature interaction used for the production of food and other renewable natural resources, via agriculture, animal husbandry and pastoralism, fishing and aquaculture, forestry, wild food gathering, hunting, and extraction of other resources, such as salt. Rural landscapes are multifunctional resources. At the same time, all rural areas have cultural meanings attributed to them by people and communities: all rural areas are landscapes. Rural landscapes are dynamic, living systems encompassing places produced and managed through traditional methods, techniques, accumulated knowledge, and cultural practices, as well as those places where traditional approaches to production have been changed. Rural landscape systems encompass rural elements and functional, productive, spatial, visual, symbolic, environmental relationships among them and with a wider context. Rural landscapes encompass both well-managed and degraded or abandoned areas that can be reused or reclaimed. They can be huge rural spaces, peri-urban areas as well as small spaces within built-up areas. Rural landscapes encompass land surfaces, subsurface soils and resources, the airspace above, and water bodies (p.2) Rural landscape as heritage: Refers to the tangible and intangible heritage of rural areas. Rural landscape as heritage encompasses physical attributes – the productive land itself, morphology, water, infrastructure, vegetation, settlements, rural buildings and centers, vernacular architecture, transport, and trade networks, etc. – as well as wider physical, cultural, and environmental linkages and settings. Rural landscape as heritage also includes associated cultural knowledge, traditions, practices, expressions of local human communities' identity and belonging, and the cultural values and meanings attributed to those landscapes by past and contemporary people and communities. Rural landscapes as heritage encompass technical, scientific, and practical knowledge, related to human-nature relationships. Rural landscapes as heritage are expressions of social structures and functional organizations, realizing, using and transforming them, in the past and in the present. Rural landscape as heritage encompasses cultural, spiritual, and natural attributes that contribute to the continuation of biocultural diversity (p.2-3) + other incidental occurrences of the general notion of "landscape" 		
	<p>Cultural landscape(s)</p>	<ul style="list-style-type: none"> Rural landscapes are a vital component of the heritage of humanity. They are also one of the most common types of continuing cultural landscapes (p.1) + other incidental occurrences 		
	<p>Resilience</p>	<ul style="list-style-type: none"> The diversity of agricultural, forest, animal husbandry, fishery and aquaculture, wild-resource, and other resource practices is essential for the future adaptation and resilience of global human life (p.3) Heritage can contribute to sustaining and increasing the adaptation and resilience of rural landscapes by supporting rural and urban inhabitants, local communities, governments, industries, and corporations as integral aspect to managing the dynamic nature, threats, risks, strengths, and potentialities of such areas (p.3) 		
<p>Joint ICOMOS – TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes</p>	<p>Landscape(s)</p>	<ul style="list-style-type: none"> Incidental occurrences only Example: Definition: The industrial heritage consists of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing industrial processes of production, the extraction of raw materials, their transformation into goods, and the related energy and transport infrastructures (p.2) 	<p>«The Dublin Principles» Adopted by the 17th ICOMOS General Assembly on 28 November 2011</p>	<p>https://www.icomos.org/Paris2011/GA2011_ICOMOS_TICCIH_joint_principles_EN_FR_final_20120110.pdf</p>
<p>International Cultural Tourism Charter Managing Tourism at Places of Heritage Significance</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> At a time of increasing globalisation, the protection, conservation, interpretation and presentation of the heritage and cultural diversity of any particular place or region is an important challenge for people everywhere (p.1) Places of heritage significance have an intrinsic value for all people as an important basis for cultural diversity and social development (p.3) 	<p>Adopted by ICOMOS at the 12th General Assembly in Mexico, October 1999.</p>	<p>https://www.icomos.org/images/DOCUMENTS/Charters/INTERNATIONAL_CULTURAL_TOURISM_CHARTER.pdf</p>
	<p>Landscape(s)</p>	<ul style="list-style-type: none"> Heritage is a broad concept and includes the natural as well as the cultural environment. It encompasses landscapes, historic places, sites and built environments, as well as bio-diversity, collections, past and continuing cultural practices, knowledge and living experiences (p.1) It brings with it a duty of respect for the heritage values, interests and equity of the present-day host community, indigenous custodians or owners of historic property and for the landscapes and cultures from which that heritage evolved (p.1) 		
	<p>Cultural landscape(s)</p>	<ul style="list-style-type: none"> Tourism development and infrastructure projects should take account of the aesthetic, social and cultural dimensions, natural and cultural landscapes, bio-diversity characteristics and the broader visual context of heritage places. Preference should be given to using local materials and take account of local architectural styles or vernacular traditions (p.3) 		
<p>Principles for the Conservation of Wooden Built Heritage</p>	<p>Traditional knowledge</p>	<ul style="list-style-type: none"> recognize that wooden heritage provides evidence of the skills of craftworkers and builders and their traditional, cultural and ancestral knowledge (p.1) It is essential to record, preserve and recover the traditional knowledge and skills used in constructing historic wooden architecture (p.5) Temporary structures: those which are built, used and disassembled periodically as part of a culture's or nation's ceremonies or other activities and embody traditions, craftsmanship and traditional knowledge (p.6) 	<p>Adopted by the 19th ICOMOS General Assembly, New Delhi, India, 15 December 2017</p>	<p>https://www.icomos.org/images/DOCUMENTS/Charters/GA2017_6-3-4_WoodPrinciples_EN_adopted-15122017.pdf</p>
<p>Salalah Guidelines for the Management of Public Archaeological Sites</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> The suggestions made in these guidelines are drawn from the collective experience of those who have been engaged with management of publicly accessible archaeological sites in many countries and in different regions around the world. They are offered with the understanding that each country and region is different, and that this cultural diversity enriches the lives of all humans (p.1) Objectives: Making use of archaeological sites open to the public to build public awareness of the value of cultural diversity and the strength of interconnections between cultures in ways that can benefit all (p.1) 	<p>Adopted by the 19th ICOMOS General Assembly, New Delhi, India, 15 December 2017</p>	<p>https://www.icomos.org/images/DOCUMENTS/General_Asssemblies/19th_Delhi_2017/Working_Documents-First_Batch-August_2017/GA2017_6-3-3_SalalahGuidelines_EN_final20170730.pdf</p>
	<p>Landscape(s)</p>	<ul style="list-style-type: none"> Relatively recent structures and landscapes that are regarded as works of architectural or engineering genius are of interest to the study of archaeology and related disciplines (p.2) Cultural resources. An inventory and evaluation of cultural resources is the first step in establishing the feasibility of developing a sustainable management system for archaeological sites, features, and landscapes. The evaluation should address vulnerability and threats as well as importance of cultural resources (p.4) Retain credentialed, accredited and internationally recognized archaeological experts to assist in the identification and evaluation of archaeological sites, features, landscapes, and all associated material (p.4) 		

<p>The Norms of Quito</p>	<p>Landscape(s)</p>	<ul style="list-style-type: none"> 4. The entire process of accelerated development entails the expansion of infrastructure and the occupation of extensive areas by industrial installations and construction that tend to alter and even totally disfigure the landscape, erasing the stylistic traits and expressions of the past, evidence of a historic tradition of inestimable value (p.1) c. zone of protection of the urban landscape, in an effort to integrate it with the surrounding natural areas (p.5) d. A regulation for the areas adjacent to the historic center must be established, as well as regulations for land use, density and volume relationship as determinant factors in the urban and natural landscape (p.6) 	<p>Final Report of the Meeting on the Preservation and Utilization of Monuments and Sites of Artistic and Historical Value held in Quito, Ecuador, from November 29 to December 2, 1967 Inter-Americas initiative</p>	<p>https://www.icomos.org/en/charters-and-texts/179-articles-en-francais/ressources/charters-and-standards/168-the-norms-of-quito</p>
<p>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> safeguarding of historic towns and urban areas must be an integral part of a general understanding of the urban structure and its surroundings. This requires coherent economic and social development policies that take historic towns into account at all planning levels, whilst always respecting their social fabric and cultural diversity (p.8) Within the context of urban conservation planning, the cultural diversity of the different communities that have inhabited historic towns over the course of time must be respected and valued (p.11) It is essential to establish a sensitive and shared balance in order to maintain their historical heritage in the fullness of its cultural diversity (p.11) Elements to be preserved: [...]3 - Social fabric, cultural diversity (p.11) The introduction of new activities must not compromise the survival of traditional activities or anything that supports the daily life of the local inhabitants. This could help to preserve the historical cultural diversity and plurality, some of the most valuable elements in this context (p.12) 	<p>Adopted by the 17th ICOMOS General Assembly on 28 November 2011</p>	<p>https://www.icomos.org/Paris2011/GA2011_CIV/VIH_text_EN_FR_final_2012011_0.pdf</p>
<p>ICH Convention</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> Recognizing that communities, in particular indigenous communities, groups and, in some cases, individuals, play an important role in the production, safeguarding, maintenance and recreation of the intangible cultural heritage, thus helping to enrich cultural diversity and human creativity (p.3) The 'Intangible Cultural Heritage' means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity (p.5) + other incidental occurrences 		<p>https://ich.unesco.org/en/convention</p>
<p>Operational Directives ICH Convention 2018</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> (c) promote the peace-building potential of safeguarding efforts that involve intercultural dialogue and respect for cultural diversity (p.75) + other incidental occurrences 		<p>https://ich.unesco.org/doc/src/2003_Convention_Basic_Text_s-2018_version-EN.pdf</p>
	<p>Traditional knowledge (TK)</p>	<ul style="list-style-type: none"> (b) be used as places for transmitting traditional knowledge and skills and thus contribute to intergenerational dialogue (p.51) (i) promote access to and transmission of traditional knowledge concerning nature and the universe while respecting customary practices governing access to specific aspects of it (p.72) (a) recognize communities, groups and individuals as the bearers of traditional knowledge about geoscience, particularly the climate (p.73) 		
	<p>Resilience</p>	<ul style="list-style-type: none"> 188. States Parties are encouraged to acknowledge the contribution of the safeguarding of intangible cultural heritage to environmental sustainability and to recognize that environmental sustainability requires sustainably managed natural resources and the conservation and sustainable use of biodiversity, which in turn could gain from improved scientific understanding and knowledge-sharing about climate change, natural hazards, the environmental and natural resource limits and that strengthening resilience among vulnerable populations in the face of climate change and natural disasters is essential (p.72) + other incidental occurrences 		
<p>Ethical principles for Safeguarding ICH</p>	<p>Cultural diversity</p>	<ul style="list-style-type: none"> (11) Cultural diversity and the identities of communities, groups and individuals should be fully respected. In the respect of values recognized by communities, groups and individuals and sensitivity to cultural norms, specific attention to gender equality, youth involvement and respect for ethnic identities should be included in the design and implementation of safeguarding measures (p.114) 	<p>Adopted by the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage at its tenth session (Windhoek, Namibia, 30 November to 4 December 2015)</p>	<p>https://ich.unesco.org/doc/src/2003_Convention_Basic_Text_s-2018_version-EN.pdf</p>
<p>The Designation & Management of Ramsar Sites</p>	<p>Biological diversity</p>	<ul style="list-style-type: none"> Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region (p.9) Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity (p.9) 	<p>Ramsar Regional Center – East Asia. (2017). The Designation and Management of Ramsar Sites – A practitioner's guide</p>	<p>https://www.ramsar.org/sites/default/files/documents/library/designation_management Ramsar sites_e.pdf</p>
<p>Ramsar and World Heritage Conventions: Converging towards success</p>	<p>Biological diversity</p>	<ul style="list-style-type: none"> Contracting Parties to the Ramsar Convention select sites for designation if they are representative, rare or unique examples of wetland types or if they are internationally important for conserving biological diversity (p.5) Management needs to ensure that the fringing barrier reef, and to a lesser extent the mangroves, are maintained not only for their biological diversity but also for the role they play in protecting natural and cultural heritage from tropical storms (p.26) -> About the Sian Ka'an site in Mexico. + other incidental occurrences 	<p>Publication by Robert McInnes, Mariam Kenza Ali and Dave Pritchard. 2017</p>	<p>https://www.ramsar.org/sites/default/files/documents/library/ramsar_whc_converging_towards_success_e.pdf</p>
	<p>Cultural diversity</p>	<ul style="list-style-type: none"> "Recognition of outstanding natural values by the Convention is enhanced by the national recognition of the cultural context, cultural values and human cultural diversity within the site – each of which contribute to the long-term sustainability of this exceptional site. For millennia, the Okavango Delta has played a major role in nurturing both human cultural diversity and knowledge systems, as well as the unique biological diversity and inland water ecosystems" (p.14) 		
	<p>Indigenous knowledge</p>	<ul style="list-style-type: none"> However, the development of the ODMP was a 'top-down' process and its scope and utility could benefit from further integration of cultural values and indigenous knowledge (p.12) It is considered essential to combine the local and indigenous knowledge of the Imraguen community with wider science to ensure that the traditional fishing techniques remain sustainable and guarantee the conservation of the area (p.23) -> case study: Banc d'Arguin National Park, Mauritania 		
	<p>Landscape(s)</p>	<ul style="list-style-type: none"> Incidental occurrences only Example: Similarly, the cultural values are intrinsically embedded in the forested mountain landscape and the coastal wetland habitats (p.28) 		

	Cultural landscape	<ul style="list-style-type: none"> The ecological character of the Site also acknowledges the wider importance of the historical and cultural landscape of the island and that protection of human heritage contributes to the wise use of the wetland habitats (p.28) -> case study <i>Itsukushima Shinto Shrine, Japan</i> 		
	Resilience	<ul style="list-style-type: none"> + other incidental occurrences Having multiple forms of international recognition has the potential to increase resilience and can facilitate greater engagement and participation of local communities (Schaaf and Clamote Rodrigues, 2016) (p.7) Whilst it is noted that the two designating instruments have different objectives, utilise different criteria for designation and employ distinct modi operandi, there is an inherent complementarity and potential for lessons to be learned and experiences to be shared among site managers and policy makers. The dual forms of international recognition can be both mutually supporting and increase the resilience of areas to a range of external pressures and threats (p.31) -> outcomes of the dual designation as a World Heritage property and a Ramsar Site The two designating processes operate in different ways. Undoubtedly, when considered in a synergistic and integrated manner the processes can be mutually supportive and reinforcing, and improved resilience can be achieved through complementarities in the designation and reporting criteria (p.32) 		
UNESCO Global Geoparks	Biological diversity	<ul style="list-style-type: none"> UNESCO Global Geoparks, together with the other two UNESCO site designations Biosphere Reserves and World Heritage Sites, give a complete picture of celebrating our heritage while at the same time conserving the world's cultural, biological and geological diversity, and promoting sustainable economic development. While Biosphere Reserves focus on the harmonised management of biological and cultural diversity and World Heritage Sites promote the conservation of natural and cultural sites of outstanding universal value, UNESCO Global Geoparks give international recognition for sites that promote the importance and significance of protecting the Earth's geodiversity through actively engaging with the local communities (p.5) 	Celebrating Earth Heritage, Sustaining local Communities UNESCO, 2015	https://unesdoc.unesco.org/ark:/48223/pf000243650
	Cultural diversity	<ul style="list-style-type: none"> While Biosphere Reserves focus on the harmonised management of biological and cultural diversity and World Heritage Sites promote the conservation of natural and cultural sites of outstanding universal value [...] (p.5) 		
	Indigenous knowledge (IK)	<ul style="list-style-type: none"> UNESCO Global Geoparks actively involve local and indigenous peoples, preserving and celebrating their culture. By involving local and indigenous communities, UNESCO Global Geoparks recognize the importance of these communities, their culture and the link between these communities and their land. It is one of the criteria of UNESCO Global Geoparks that local and indigenous knowledge, practice and management systems, alongside science, are included in the planning and management of the area (p.13) 		
	Landscape(s)	<ul style="list-style-type: none"> Global geoparks are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development (p.3) + other incidental occurrences 		
Guidelines for UNESCO Global Geopark Field Inspection Missions	Landscape(s)	<ul style="list-style-type: none"> UNESCO Global Geoparks are unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education, research and sustainable development (p.9) 	March 2020	http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/Field_Inspection_Conduct_Guidelines_Dec2018.pdf
Developing a post-2020 global biodiversity framework Information on ways and means to contribute	Traditional knowledge (TK)	<ul style="list-style-type: none"> WG&J-11 (20-22 November) will examine the potential role of traditional knowledge, customary sustainable use and the contribution of the collective actions of indigenous peoples and local communities to the post-2020 global biodiversity framework (p.2) The 9th Trondheim Conference on Biodiversity will be held from 2-5 July 2019, in Trondheim, Norway, and will also serve as a global consultation on evidence from the natural, economic and social sciences and traditional knowledge systems in support of the post-2020 global biodiversity framework. More information is available at: https://trondheimconference.org/ (p.2) 	2019 Information note developed as a result of the fourteenth meeting of the Conference of the Parties to the Convention on Biological Diversity in November 2018, in Sharm El-Sheikh, Egypt.	https://www.cbd.int/doc/notifications/2019/nf-2019-049-post2020-en.pdf
Globally Important Agricultural Heritage Systems	Biological diversity	<ul style="list-style-type: none"> Farmers are aware that biological diversity is a crucial factor in generating ecological services and in conserving the resource base and foods on which they depend (p.12) In many cases women are the main holders of traditional knowledge and thus play a critical role in the sustainable conservation and utilization of biodiversity (p.12) 	2018 Combining agricultural biodiversity, resilient ecosystems, traditional farming practices and cultural identity	http://www.fao.org/3/i9187en/i9187EN.pdf
	Traditional knowledge (TK)	<ul style="list-style-type: none"> GIAHS Criterion 3: LOCAL & TRADITIONAL KNOWLEDGE SYSTEMS: The sustainable use of natural resources through traditional knowledge and practices promotes the conservation of terrestrial and aquatic environments, combating climate change [SDG 13, SDG 14, SDG 15] (p.45) Agricultural biodiversity is the outcome of the interactions among ecosystems, varieties, breeds, genetic resources of crops, livestock, trees or fish and the traditional knowledge and practices accumulated through centuries (p.46) + other incidental occurrences 		
	Indigenous knowledge	<ul style="list-style-type: none"> The Engaresero Maasai Pastoralist site in the United Republic of Tanzania established a Community Based Organization to sustainably manage natural resources and livestock development in the village, promote tourism activities, and preserve and develop the indigenous knowledge and customary law of the Maasai community in the area (p.44) 		
	Landscape(s)	<ul style="list-style-type: none"> "Globally Important Agricultural Heritage Systems" (GIAHS) are outstanding landscapes of aesthetic beauty that combine agricultural biodiversity, resilient ecosystems and a valuable cultural heritage (p.4) + other incidental occurrences Incidental occurrences only 		
	Resilience	<ul style="list-style-type: none"> Example: These systems rely on centuries-old farming practices and accumulated knowledge to adapt to the unique features of local landscapes and create ecosystems that are rich in biodiversity, resilience and character (p.48) 		
GIAHS Selection Criteria and Action Plan	Biocultural diversity	<ul style="list-style-type: none"> The features of the system should be summarized in terms of their agricultural and cultural heritage value, their relevance to global concerns addressing sustainable development, biocultural diversity, including agro-biodiversity and ecosystems management (p.1) Biocultural diversity is a dynamic place-based aspect arising from the links between cultural and biological diversity. It results from the combination of historical and on-going environmental and land use processes and cultural heritage. The GIAHS sites are multifunctional landscapes and/or seascapes providing a crucial and effective space for integration of biological and cultural diversity for human wellbeing (p.1) 	2017	http://www.fao.org/fileadmin/templates/giahs_assets/GIAHS_test04_Become_a_GIAHS/02_Features_and_criteria/Criteria_and_Action_Plan_for_home_page_for_Home_Page_Jan_1_2017.pdf
	Biological diversity	<ul style="list-style-type: none"> Biocultural diversity is a dynamic place-based aspect arising from the links between cultural and biological diversity. It results from the combination of historical and on-going environmental and land use processes and cultural heritage. The GIAHS sites are multifunctional landscapes and/or seascapes providing a crucial and effective space for integration of biological and cultural diversity for human wellbeing (p.1) 		
	Cultural diversity	<ul style="list-style-type: none"> Biocultural diversity is a dynamic place-based aspect arising from the links between cultural and biological diversity. It results from the combination of historical and on-going environmental and land use processes and cultural heritage. The GIAHS sites are multifunctional landscapes and/or seascapes providing a crucial and effective space for integration of biological and cultural diversity for human wellbeing (p.1) 		
	Traditional knowledge	<ul style="list-style-type: none"> The system should maintain local and invaluable traditional knowledge and practices, ingenious adaptive technology and management systems of natural resources, including biota, land, water which have supported agricultural, forestry and/or fishery activities (p.2) 		

	Landscape(s)	<ul style="list-style-type: none"> GIAHS sites should represent landscapes or seascapes that have been developed over time through the interaction between humans and the environment, and appear to have stabilized or to evolve very slowly (p.2) + other incidental occurrences 		
GIAHS Informational package	Biocultural diversity	<ul style="list-style-type: none"> The same definition is provided as in the "Selection Criteria and Action Plan" document 		http://www.fao.org/3/a-bp772e.pdf
	Biological diversity	<ul style="list-style-type: none"> As defined by FAO in 2002, GIAHS are "remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development" (p.3) + other incidental occurrences 		
	Cultural diversity	<ul style="list-style-type: none"> Same occurrences as in the "Selection Criteria and Action Plan" document 		
	Traditional knowledge (TK)	<ul style="list-style-type: none"> a. identify ways to mitigate risks of erosion of biodiversity and traditional knowledge, land degradation and threats posed by globalization processes, and skewed policies and incentives (p.4) At the national level, GIAHS has contributed to the adoption of policies that integrate agricultural heritage into agricultural development programmes. It has also been influential in promoting the sustainable use of biodiversity and genetic resources for food and agriculture, the protection of traditional knowledge systems, culture and, more importantly, creating a bridge to a sustainable future (p.6) + other incidental occurrences 		
	Landscape(s)	<ul style="list-style-type: none"> GIAHS is different from UNESCO World Heritage in that GIAHS focuses on agricultural system and how agriculture has been developed and adapted from the perspectives of both tangible and intangible features as is well reflected in the GIAHS five criteria, while UNESCO World Heritage seems to have more focus on landscape and tangible aspects. Nonetheless, it is quite useful to establish communication with UNESCO to exchange information and learn each other (p.8) + other incidental occurrences 		
Resilience	<ul style="list-style-type: none"> The resilience of many GIAHS sites has been developed and adapted to cope with climatic variability and change, natural hazards, new technologies and changing social and political situations, so as to ensure food and livelihood security and alleviate risk (p.4) + other incidental occurrences 			
Documenting Traditional Knowledge – A Toolkit	Cultural diversity	<ul style="list-style-type: none"> Many initiatives are being pursued all over the world to record, register and digitize intangible cultural heritage: individuals (such as ethnologists, folklorists and anthropologists), institutions (such as museums and archives) and governments (especially ministries of culture) have for decades recorded and disseminated expressions of our planet's rich cultural diversity (p.27) -> Annex 2. Documenting traditional cultural expressions (TCEs) 	WIPO (World Intellectual Property Organization), 2017 The lead author was Begoña Venero Aguirre, with support and comments from Wend Wendland, Fei Jiao, Kiri Toki and Shakeel Bhatti. It was edited by Toby Boyd	https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1049.pdf
	Traditional knowledge (TK)	<ul style="list-style-type: none"> This Toolkit focuses on "TK" in its narrower sense, i.e., the content or substance of technical knowledge and know-how related to biodiversity, food and agriculture, health, the environment and the like. For their part, "traditional cultural expressions" (TCEs) or "expressions of folklore" raise a series of distinct intellectual property-related questions. However, in practice TK and TCEs are often closely related and documented together (p.7) + Many other occurrences, only the direct definition was picked. 		
A New Roadmap for the Man and the Biosphere (MAB) Programme and its World Network of Biosphere Reserves	Cultural diversity	<ul style="list-style-type: none"> To understand and address the key challenges facing our world – poverty, climate change, water and food security, loss of biological and cultural diversity, rapid urbanization and desertification – the MAB Programme, through its World Network of Biosphere Reserves (WNBR) and its regional and thematic networks, will strategically address the Sustainable Development Goals (SDGs) through sustainable development actions in biosphere reserves, carried out in partnership with all sectors of society, to ensure the wellbeing of people and their environment (p.11, MAB Strategy (2015-2025), Preamble) Thus, biosphere reserves integrate biological and cultural diversity, particularly recognizing the role of traditional and local knowledge in ecosystem management (p.12) The Conference of the Parties of the Convention on Biological Diversity (CBD) adopted in November 1995 the ecosystem approach as the primary framework for action under the CBD, as a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems (p.27, MAB Strategy (2015-2025), Glossary) + other incidental occurrences 	This publication (2017) gathers the following documents all together: MAB Strategy (2015-2025) Lima Action Plan (2016-2025) Lima Declaration	http://rerb.oapn.es/images/PDF_publicaciones/Estrategia_MAB-Pal_Decl_Lima_Ing.pdf
	Traditional knowledge (TK)	<ul style="list-style-type: none"> Traditional knowledge is used as a knowledge input for managing biosphere reserves while recognizing the importance of both empowering indigenous and local communities as guardians of unique knowledge, and of maintaining cultural identity (p.19, MAB Strategy (2015-2025), Strategic objective 3) + other incidental occurrences 		
	Indigenous knowledge (IK)	<ul style="list-style-type: none"> Sustainability science is an integrated, problem-solving approach that draws on the full range of scientific, traditional and indigenous knowledge in a transdisciplinary way to identify, understand and address present and future economic, environmental, ethical and societal challenges related to sustainable development (p.19, MAB Strategy (2015-2025), Strategic objective 3) At the international level, collaboration will focus especially on South-South and North-South-South triangular cooperation, as a catalyst for dialogue and co-production of scientific knowledge, in synergy with local and indigenous knowledge brokers, and for science diplomacy (p.22, MAB Strategy (2015-2025), Strategic Action Area B) 		
	Resilience	<ul style="list-style-type: none"> Incidental occurrence only Example: Biosphere reserves act as models to explore, establish and demonstrate innovative approaches that foster the resilience of communities and opportunities for youth, through livelihood diversification, green businesses and social enterprise, including responsible tourism and quality economies (p.18, MAB Strategy (2015-2015), Strategic objective 2) 		
Man and the Biosphere Programme (website)	Cultural and biological diversity	<ul style="list-style-type: none"> By focusing on sites internationally recognized within the World Network of Biosphere Reserves, the MAB Programme strives to: [...]study and compare the dynamic interrelationships between natural/near-natural ecosystems and socio-economic processes, in particular in the context of accelerated loss of biological and cultural diversity with unexpected consequences that impact the ability of ecosystems to continue to provide services critical for human well-being 	"About the Man and the Biosphere Programme (MAB)" section	http://www.unesco.org/natural-heritage/environment/ecological-sciences/man-and-biosphere-programme/about-mab/
GIAHS (website, Goals and Objectives)	Traditional knowledge	<ul style="list-style-type: none"> identify ways to mitigate risks of erosion of biodiversity and traditional knowledge, land degradation and threats posed by globalization processes, and skewed policies and incentives 		http://www.fao.org/giahs/background/goals-and-objectives/en/
	Landscape(s)	<ul style="list-style-type: none"> The overall goal of the GIAHS Programme is to identify and safeguard Globally Important Agricultural Heritage Systems and their associated landscapes, agricultural biodiversity and knowledge systems through catalyzing and establishing a long-term programme to support such systems and enhance global, national and local benefits derived through their dynamic conservation, sustainable management and enhanced viability The overall goal of the GIAHS Programme is: to identify and safeguard Globally Important Agricultural Heritage Systems and their associated landscapes, agricultural biodiversity, knowledge systems and culture 		

WIPO (website)	Traditional knowledge (TK)	<ul style="list-style-type: none"> Traditional knowledge (TK) is a living body of knowledge passed on from generation to generation within a community. It often forms part of a people's cultural and spiritual identity. WIPO's program on TK also addresses traditional cultural expressions (TCEs) and genetic resources (GRs) 	Main page	https://www.wipo.int/tk/en/
	Biological diversity	<ul style="list-style-type: none"> Article 2 of the Convention on Biological Diversity (1992) defines the term "biological diversity", often shortened to "biodiversity", as meaning the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems" 	Glossary of key terms	https://www.wipo.int/tk/en/resources/glossary.html
	Cultural diversity	<ul style="list-style-type: none"> According to Article 4(1) of the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions (2005), cultural diversity refers to the manifold ways in which the cultures of groups and societies find expression. These expressions are passed on within and among groups and societies 		
	Indigenous knowledge	<ul style="list-style-type: none"> Indigenous knowledge is knowledge held and used by communities, peoples and nations that are 'indigenous'. In this sense, "indigenous knowledge" would be the traditional knowledge of indigenous peoples. Indigenous knowledge is, therefore, a part of the traditional knowledge category, but traditional knowledge is not necessarily indigenous. Yet the term is also used to refer to knowledge that is itself 'indigenous'. In this sense, the terms "traditional knowledge" and "indigenous knowledge" may be interchangeable. (WIPO Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) "Intellectual Property Needs and Expectations of Traditional Knowledge", p.23. See also List and Brief Technical Explanation of Various Forms in which Traditional Knowledge may be Found (WIPO/GTRK/IC/17/INF/9), para. 41 of Annex.) 		
Traditional knowledge (TK)	<ul style="list-style-type: none"> There is as yet no accepted definition of traditional knowledge (TK) at the international level. "Traditional knowledge," as a broad description of subject matter, generally includes the intellectual and intangible cultural heritage, practices and knowledge systems of traditional communities, including indigenous and local communities (traditional knowledge in a general sense or lato sensu). In other words, traditional knowledge in a general sense embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive signs and symbols associated with traditional knowledge. In international debate, "traditional knowledge" in the narrow sense refers to knowledge as such, in particular the knowledge resulting from intellectual activity in a traditional context, and includes know-how, practices, skills, and innovations. Traditional knowledge can be found in a wide variety of contexts, including: agricultural knowledge; technical knowledge; ecological knowledge; medicinal knowledge, including related medicines and remedies; and biodiversity-related knowledge, etc. (See WIPO Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) "Intellectual Property Needs and Expectations of Traditional Knowledge", p. 25) -> https://www.wipo.int/edocs/pubdocs/en/tk/768/wipo_pub_768.pdf 			
The Christensen Fund (website)	Resilience	<ul style="list-style-type: none"> Resilience: We support the inherent capacity of indigenous lifeways and ecosystems to innovate and transform, thereby securing resilient biocultural land and seascapes in the face of rapid and unpredictable change 	"Our Grantmaking Principles" section	https://www.christensenfund.org/about/
	Biocultural landscape	<ul style="list-style-type: none"> A biocultural landscape is an intertwined holistic system that has been shaped by human management over long periods of time. By its very nature a biocultural landscape is shaped by – and shapes – human culture. Over the course of time, how people work out the distribution of water and nutrients through an agroecosystem, for example, from a mountain top down to the valley, is a biocultural phenomenon that can result in an artful mosaic on the land 	"Explore" section	https://www.christensenfund.org/experience/biocultural-landscape/
	Traditional knowledge (TK)	<ul style="list-style-type: none"> The knowledge and wisdom of Indigenous groups has evolved over centuries in interdependence with their natural surroundings. Sometimes referred to as 'Indigenous,' 'local,' or 'cultural' knowledge, traditional knowledge is a rich understanding of the natural world, such as the properties of plants, behavior of animals, balance of ecosystems, and sources of food and medicine Traditional knowledge is critical for the resilience of biocultural systems. Efforts to revitalize, share, value, and apply this wisdom are important to protecting biodiversity, conserving cultural heritage, maintaining global ecological health, and mitigating climate change 		
Managing Cultural World Heritage	Cultural diversity	<ul style="list-style-type: none"> The first approach rests on the assumption that cultural heritage and the ability to understand the past through its material remains, as attributes of cultural diversity, play a fundamental role in fostering strong communities, supporting the physical and spiritual well-being of individuals and promoting mutual understanding and peace (p.20) + other incidental occurrences 	World Heritage Resource Manual 2013	http://whc.unesco.org/en/activities/827/
	Traditional knowledge	<ul style="list-style-type: none"> Existing sources may be: archives, surveys, building records, museum collections, photograph archives, mapping / cartographic agencies (national survey offices), libraries, site files, other ministries / agencies / organizations and stakeholders (often a good source for old photographs, among other things). The traditional knowledge systems of stakeholders can also be drawn upon (p.133) + other incidental occurrences Incidental occurrences only 		
	Cultural landscape(s)	<ul style="list-style-type: none"> Example: As a result the nature of the properties inscribed on the World Heritage List has expanded to include evidence of science and technology, industry and agriculture, and to embrace the concept of cultural landscapes (p.29) Incidental occurrences only 		
	Landscape(s)	<ul style="list-style-type: none"> Example: Two common types of legislation are (a) specific designation of heritage places as being of special importance to the state and therefore subject to specific controls; and (b) an overall regulation of spatial development which can include specific policies for protection of heritage places or landscapes (p.66) 		
Managing Disaster Risks for World Heritage	Traditional knowledge (TK)	<ul style="list-style-type: none"> Cultural and natural heritage can itself contribute towards reducing the effects of disasters in various ways; for example, the traditional knowledge systems embodied in physical planning and construction, local management systems and ecology, can not only prevent or mitigate the impact of disasters but also provide sufficient coping mechanisms to deal with post-disaster situations (p.8) Traditional knowledge systems for disaster mitigation may take one of several forms: <ul style="list-style-type: none"> Indigenous management systems [...] Indigenous monitoring systems [...] Traditional skills and techniques in building construction and periodic maintenance [...] Local ecological relationships and indigenous planning systems [...] + other incidental occurrences 	World Heritage Resource Manual 2010	https://whc.unesco.org/en/managing-disaster-risks/
	Indigenous knowledge	<ul style="list-style-type: none"> Traditional knowledge systems for emergency warning or response may exist in the area where the property is located. For example, the Andaman Islands tribes had the indigenous knowledge that when the sea recedes, they should also recede, and this knowledge saved their lives during the Indian Ocean tsunami (p.48) Incidental occurrences only 		
	Landscape(s)	<ul style="list-style-type: none"> Example: The severity of the consequences of the disaster scenario on the property and its components, including people, property, livelihoods; also other physical attributes in which heritage values of the property are embedded, such as landscapes and infrastructure, the disruption of human activities, the loss of traditional knowledge, etc (p.29) 		
	Cultural landscape(s)	<ul style="list-style-type: none"> Incidental occurrences only 		

		<ul style="list-style-type: none"> Example: Various categories of cultural heritage property, such as historic buildings, historic towns and urban areas, vernacular settlements and housing, archaeological sites, historic gardens and cultural landscapes will have their own specific needs for disaster risk management (p.13) 		
	Resilience	<ul style="list-style-type: none"> Vulnerability: The susceptibility and resilience of the community and environment to hazards. 'Resilience' relates to 'existing controls' and the capacity to reduce or sustain harm. 'Susceptibility' relates to 'exposure' (Emergency Management Australia, 2000) (p.58) 		
Managing Natural World Heritage	Biological diversity	<ul style="list-style-type: none"> Incidental occurrences only Example: The CBD's three objectives relate to the conservation and sustainable use of biological diversity and fair and equitable sharing of its benefits (p.58) 	World Heritage Resource Manual 2012	https://whc.unesco.org/en/managing-natural-world-heritage/
	Traditional knowledge (TK)	<ul style="list-style-type: none"> The CBD therefore explicitly recognizes the validity of sustainable use, so long as it is in the context of fair and equitable distribution of any benefits, and decisions on sustainable use take into account the maintenance of traditional knowledge, sustainable practices and innovations, and protect and encourage customary and sustainable use of biological resources (p.58) In many cases, traditional knowledge has been passed down orally for generations and roles, knowledge and traditions often differ between men and women, and between different age groups. Local knowledge can be expressed through stories, legends, folklore, rituals, songs, the performing and visual arts and even laws and/or marketing campaigns (p.63) 		
	Cultural landscape(s)	<ul style="list-style-type: none"> Cultural landscapes represent the "combined works of nature and of man" designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (Operational Guidelines, Paragraph 47) (p.10) Cultural landscapes are cultural properties that represent the combined works of nature and of man (p.14) 		
	Landscape(s)	<ul style="list-style-type: none"> Incidental occurrences only Example: Consideration of sustainable development issues will usually need to consider World Heritage sites within their broader socio-economic landscape, rather than only activities within the site itself (p.58) 		
Preparing World Heritage Nominations	Traditional knowledge (TK)	<ul style="list-style-type: none"> Beyond the physical and visual aspects, the setting includes interaction with the natural environment; past or present social or spiritual practices, customs, traditional knowledge, use or activities and other forms of intangible cultural heritage aspects that created and form the space as well as the current and dynamic cultural, social and economic context (p.33) 	World Heritage Resource Manual 2 nd Edition 2011	http://whc.unesco.org/en/activities/643/
	Cultural landscape(s)	<ul style="list-style-type: none"> The Operational Guidelines define cultural landscapes as cultural properties which represent the "combined works of nature and of man" as designated in Article 1 of the Convention (Paragraph 47) (p.27) + other incidental occurrences Incidental occurrences only 		
	Landscape(s)	<ul style="list-style-type: none"> Example: For natural properties they can be specific landscape features, areas of habitat, aspects relating to environmental quality (such as intactness, high /pristine environmental quality), scale and naturalness of habitats, and size and viability of wildlife populations (p.59) 		
CBD Secretariat	Traditional Knowledge	<ul style="list-style-type: none"> Knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry 	Secretariat of the Convention on Biological Diversity (CBD Secretariat) 2013	http://www.biodiversity.org/themes/terms?s=home-icons
Biocultural Diversity: the true web of life.	Traditional Knowledge	<ul style="list-style-type: none"> Traditional knowledge is cultural knowledge, commonly described as "traditional environmental knowledge" (TEK), has been passed on from generation to generation, through language as well as practical teachings. TEK has shaped ways of life, worldviews, and sense of place, serving material as well as psychological and spiritual needs. Through constant innovation, TEK has remained alive and vibrant in those societies that have maintained a close link with and direct dependence on the local environment, particularly the Indigenous Peoples and local communities that represent the largest share of the world's cultural diversity. 	(Maffi, L. (2014). Biocultural Diversity: the true web of life. In L. Maffi and O. Dilts (eds.) Biocultural Diversity Toolkit: an introduction to biocultural diversity. Salt Spring Island, Canada: Terralingua. pp. 6-16.)	https://terralingua.org/wp-content/uploads/2018/09/Biocultural-Diversity-Toolkit_vol-1.pdf
Where is Goal 18?	Traditional Ecological Knowledge	<ul style="list-style-type: none"> "The working definition Berkes et al. provide for traditional ecological knowledge, which also highlights the interrelation or awareness of day-to-day life with the environment, is a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment' (ibid.: 1252)." Poole, 2018 "Indigenous people often have detailed knowledge of local agro-ecological conditions, characteristics of plants and animals, and resources and ecological processes on which they depend for sustenance and lifeways (Berkes et al., 2000; Nabhan, 2000; Stave et al., 2007). This knowledge springs from interactions between humans, animals, plants, natural forces, spirits and land forms (Kassam, 2009). It accumulates over many generations and is adjusted as conditions and experiences change (Berkes et al., 2000; Fernandez-Gimenez, 2000). Traditional ecological knowledge (TEK) can be seen as the memory of human-environment dynamics in landscapes. The deeper this memory, the more accurately TEK can be expected to reflect the complexities of those dynamics and facilitate communities' adaptation to change. The extent to which TEK is sufficient to deal with the pace of current social, economic and environmental changes is unclear. Where changes are unlike those captured in the collective memory of a community, traditional knowledge by itself may be inadequate and direct a community toward inappropriate adaptive responses that endanger ecosystems and/or livelihood security (Kassam, 2009). Nevertheless, scientists are beginning to acknowledge the important role this knowledge can play in the design and implementation of conservation projects." Oudenhoven et al. 2010 "One of the common erroneous assumptions about culture that often limits discussion of ecological knowledge and values is the belief that human culture is fixed and that urban communities lack any significant ecological heritage. Berkes et al. argued that [some] traditional systems had certain similarities to adaptive management with its emphasis on feedback learning, and its treatment of uncertainty and unpredictability intrinsic to all ecosystems' (Berkes et al. 2000: 1251). Describing traditional knowledge as a knowledge-practice-belief complex, Berkes et al. highlight an important interconnection between knowledge of the world and the management practices we have with it – and that is the role that long-term memory, culture, and practiced knowledge have in our engagement with the environment. This concept may point us in the direction of sustainable development, but more importantly, it may also highlight the relationship with the environment that is missing for those who experience an 'extinction of experience', either culturally, environmentally or even from the absence of an awareness of the interrelation." Poole, 2018 	Poole, Alexandria. (2018). Where is goal 18? The need for biocultural heritage in the sustainable development goals. Environmental Values. 27. 55-80. 10.3197/096327118X15144698637522	https://www.researchgate.net/publication/322491549_Where_is_goal_18_The_need_for_biocultural_heritage_in_the_sustainable_development_goals
Putting Indigenous Conservation Policy into Practice	Indigenous Biocultural Knowledge	<ul style="list-style-type: none"> "We adopt the term Indigenous biocultural knowledge (IBK) as a modified version of the widely known terms Indigenous Ecological Knowledge and Traditional Ecological Knowledge (see ICSU, 2002), with an emphasis on the importance of cultural connections between humans and what Western science identifies as the biophysical world. Gerry Turpin, Mbaram Traditional Owner and co-author of this paper, describes IBK as 'knowledge that encompasses people, language and culture and their relationship to the environment'. We found no other documented definition of the term "biocultural knowledge" in the literature, although we note and draw from the increasing use of the term "biocultural diversity" defined by Maffi (2001, 2007) as the diversity of life in all its manifestations: biological, cultural, and linguistic — which are interrelated (and possibly coevolved) within a 	Ens, Emilie & Scott, Mitchell & Rangers, Yogui & Moritz, Craig & Pirzi, Rebecca. (2016). Putting indigenous conservation policy into practice delivers biodiversity and cultural benefits. Biodiversity and	https://link.springer.com/article/10.1007/s10531-016-1207-6

		<p>complex socio-ecological adaptive system". Turpin's definition of IBK is also akin to the widely acknowledged working definition of Traditional Ecological Knowledge by Berkes (2000) as "a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment."</p>	<p>Conservation. 25. 10.1007/s10531-016-1207-6</p>	
<p>Traditional Knowledge and Biocultural Diversity</p>	<p>Traditional Knowledge</p>	<ul style="list-style-type: none"> "Traditional knowledge (TK) is a body of knowledge accrued within a group of people across generations of close contact with nature. It is a local and cumulative body of knowledge, practices and beliefs held by local people (Turner and Berkes 2006). It evolves through adaptation to local environmental circumstances, and is handed down through generations by different forms of cultural transmission (Berkes 2009, Berkes and Berkes 2009). It may contain knowledge and practices concerning food, medicines, hunting, fishing, agriculture, home gardening, handicrafts and other skills developed to sustain the local population (Turner 2005, Mishra et al. 2009, Singh et al. 2009a). TK and biocultural diversity are interwoven with each other and can be essential components to ensure the sustainable development of communities living in mountain ecosystems (Braton 1989, Agrawal and Gibson 1999). 	<p>Singh and al. (2010). Traditional knowledge and biocultural diversity: Learning from tribal communities for sustainable development in northeast India. Journal of Environmental Planning and Management.</p>	<p>https://www.researchgate.net/publication/227619931_Traditional_knowledge_and_biocultural_diversity_Learning_from_tribal_communities_for_sustainable_development_in_northeast_India/link/54fc87560cf20700c5e96c49/download</p>
	<p>Biocultural diversity</p>	<ul style="list-style-type: none"> Biocultural diversity comprises the variability of biological species and ecosystems, and the distinctiveness of cultural groups who interact with these resources (Posey 1999, Cocks 2006, Berkes 2009, Berkes and Berkes 2009, Singh and Srivastava 2009)." 		
<p>Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples</p>	<p>Traditional Ecological Knowledge and Wisdom</p>	<ul style="list-style-type: none"> "Traditional Ecological Knowledge and Wisdom (TEKW) – "There are a range of features comprising TEKW: knowledge of ecological principles, such as succession and interrelatedness of all components of the environment; use of ecological indicators; adaptive strategies for monitoring, enhancing, and sustainably harvesting re- sources; effective systems of knowledge acquisition and transfer; respectful and interactive attitudes and philosophies; close identification with ancestral lands; and beliefs that recognize the power and spirituality of nature. These characteristics, taken in totality, have enabled many groups of aboriginal peoples to live sustainably within their local environments for many thousands of years. In order for TEKW to be incorporated appropriately into current ecosystem-based management strategies, the complete context of TEKW, including its philosophical bases, must be recognized and respected. A case study of ecological and cultural knowledge of the traditional root vegetables yellow avalanche lily (<i>Erythronium grandiflorum</i>) and balsamroot (<i>Balsamorhiza sagittata</i>) illustrates ways in which these components can be integrated. Traditional ecological knowledge and wisdom (TEKW) of indigenous peoples has become a major focus of attention within the past decade (Freeman and Carbyn 1988, Johnson 1992, Berkes 1993, Doubleday 1993, Inglis 1993, Williams and Baines 1993). TEKW is acknowledged as having fundamental importance in the management of local resources, in the husbanding of the world's biodiversity, and in providing locally valid models for sustainable living. It has received major recognition as being complementary to, equivalent with, and applicable to scientific knowledge (Colorado and Collins 1987, Colorado 1988, Schultes 1988, Posey 1990, Gadgil et al. 1993, Hunn 1993, Corsiglia and Snively 1995, Salm6n 1996, Richards 1997). On the international front, the Brundtland Report, Our Common Future, notes, "... the larger society ... could learn a great deal from their [indigenous peoples] traditional skills in sustainably managing very complex ecological systems" (World Commission on Environment and Development 1987:115)." 	<p>Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples in British Columbia Author(s): Nancy J. Turner, Marianne Boelscher Ignace, Ronald Ignace Source: Ecological Applications, Vol. 10, No. 5 (Oct., 2000), pp. 1275-1287</p>	<p>https://www.fws.gov/nativeamerican/pdf/ek_turner-2000.pdf</p>
<p>Working with Indigenous Knowledge</p>	<p>Indigenous Knowledge</p>	<ul style="list-style-type: none"> For the purpose of this guidebook, indigenous knowledge (IK) refers to the unique, traditional, local knowledge existing within and developed around the specific conditions of women and men indigenous to a particular geographic area. [...] The development of IK systems, covering all aspects of life, including management of the natural environment, has been a matter of survival to the peoples who generated these systems. Such knowledge systems are cumulative, representing generations of experiences, careful observations, and trial-and-error experiments. IK is stored in peoples' memories and activities and is expressed in stories, songs, folklore, proverbs, dances, myths, cultural values, beliefs, rituals, community laws, local language and taxonomy, agricultural practices, equipment, materials, plant species, and animal breeds. IK is shared and communicated orally, by specific example, and through culture. Indigenous forms of communication and organization are vital to local-level decision-making processes and to the preservation, development, and spread of IK." 	<p>Grenier, L. (1998)</p>	<p>https://www.idrc.ca/en/book/working-indigenous-knowledge-guide-researchers</p>
<p>Rediscovery of traditional ecological knowledge as adaptive management</p>	<p>Various key words</p>	<ul style="list-style-type: none"> "Indigenous groups offer alternative knowledge and perspectives based on their own locally developed practices of resource use. We surveyed the international literature to focus on the role of Traditional Ecological Knowledge in monitoring, responding to, and managing ecosystem processes and functions, with special attention to ecological resilience. Case studies revealed that there exists a diversity of local or traditional practices for ecosystem management. These include multiple species management, resource rotation, succession management, landscape patchiness management, and other ways of responding to and managing pulses and ecological surprises. Social mechanisms behind these traditional practices include a number of adaptations for the generation, accumulation, and transmission of knowledge; the use of local institutions to provide leaders/stewards and rules for social regulation; mechanisms for cultural internalization of traditional practices; and the development of appropriate world views and cultural values. Some traditional knowledge and management systems were characterized by the use of local ecological knowledge to interpret and respond to feedbacks from the environment to guide the direction of resource management. These traditional systems had certain similarities to adaptive management with its emphasis on feedback learning, and its treatment of uncertainty and unpredictability intrinsic to all ecosystems. [...] Interest in Traditional Ecological Knowledge has been growing in recent years, partly due to a recognition that such knowledge can contribute to the conservation of biodiversity (Gadgil et al. 1993), rare species (Colding 1998), protected areas (Johannes 1998), ecological processes (Alcorn 1989), and to sustainable resource use in general (Schmink et al. 1992, Berkes 1999). Conservation biologists, ecological anthropologists, ethnobiologists, other scholars, and the pharmaceutical industry all share an interest in traditional knowledge for scientific, social, or economic reasons. For a long time, "tradition" was a problematic word for researchers in development and anthropology because, as Warren (1995) put it, "traditional" denoted the 19th-century attitudes of simple, savage and static." For this reason, some scholars favor the less value-laden term "indigenous knowledge" (Warren 1995). Nevertheless, the use of the term "Traditional Ecological Knowledge" has become established, among others, through the work of the International Conservation Union (IUCN) working group by that name (Johannes 1989, Williams and Baines 1993)." "The analysis of many Traditional Ecological Knowledge systems shows that there is a component of local observational knowledge of species and other environmental phenomena, a component of practice in the way people carry out their resource use activities, and further, a component of belief regarding how people fit into or relate to eco- systems. In short, traditional knowledge is a knowledge-practice-belief complex (Berkes 1999). We have therefore developed a working definition of Traditional Ecological Knowledge as a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. This definition, evolving from our earlier work (Gadgil et al. 1993, Berkes et al. 1995), further recognizes that Traditional Ecological Knowledge is an attribute of societies with historical continuity in resource use practice (Dei 1993, Williams and Baines 1993). By and large, these are nonindustrial or less technologically advanced societies, many but not all of them indigenous or tribal. Traditional knowledge may be holistic in outlook and adaptive by nature, gathered over generations by observers whose lives depended on this information and its use. It often accumulates incrementally, tested by trial-and-error and transmitted to future generations orally or by shared practical experiences (Ohmagari and Berkes 1997). Obviously, not all traditional practice and belief systems were ecologically adaptive in the first place; some became maladaptive over time due to changing conditions. [...] growing interest in traditional knowledge since the 1980s is indicative of the need to gain further insights into indigenous and/or local practices of resource use from an ecological perspective, which is the objective of this paper. We explore a diversity of traditional knowledge systems and discuss the usefulness of Traditional Ecological Knowledge in terms of providing understanding and information complementary to scientific ecology. The synthesis is partly based on the findings of a project on linked social-ecological systems (Berkes and Folke 1998), which sought to mobilize a wider range of considerations and sources of information than those used in conventional resource management (which we define as resource management based on Newtonian science and on the expertise of government managers). The overall objective of the project was to learn from a diversity of locally evolved management systems and their dynamics for improved ecosystem management. [...] Of special interest are practices by which ecosystems and biological diversity are managed to secure a flow of natural resources and ecological services on which people depend. First, we identify a selection of management practices based on local ecological knowledge. These practices range from monitoring specific resources to ecologically sophisticated practices that respond to and manage disturbance and build resilience (sensu Holling 1973, 1986) across temporal and spatial scales. Resilience in this context refers to the capacity to recover after 	<p>Rediscovery of Traditional Ecological Knowledge as Adaptive Management Author(s): Fikret Berkes, Johan Colding, Carl Folke Source: Ecological Applications, Vol. 10, No. 5 (Oct., 2000), pp. 1251-1262</p>	<p>https://www.fws.gov/nativeamerican/pdf/ek-berkes-2000.pdf</p>

		<p>disturbance, absorb stress, internalize it, and transcend it. Resilience is thought to conserve options and opportunity for renewal and novelty (Holling et al. 1995, Gunderson et al. 1997). Second, we identify a number of social mechanisms behind these practices and organize them sequentially from the generation of knowledge, to the underlying world view and values of the culture in which that knowledge is embedded. We do not address in any detail, the belief or spiritual component of traditional knowledge, as this is largely outside the realm of ecology (but see the discussion on the ecological role of sanctions and taboos by Colding and Folke 1997). Third, we evaluate traditional knowledge systems for the insights they provide for the qualitative (as opposed to quantitative) management of resources and ecosystems (Lugo 1995), and for parallels to adaptive management (Holling 1978, Gunderson et al. 1995)."</p>		
OECD (website)	Resilience	<ul style="list-style-type: none"> The capacity of a natural system to recover from disturbance 	Organisation for Economic Co-operation and Development (OECD) 2007	http://www.biodiversity-za.org/content/resilience
Resilience. Framing Concepts in Environmental Science	Resilience	<ul style="list-style-type: none"> Resilience is about cultivating the capacity to sustain development in the face of expected and surprising change and diverse pathways of development and potential thresholds between them. The evolution of resilience thinking is coupled to social-ecological systems and a truly intertwined human-environment planet. 	Folke, C. (2016). Resilience. Framing Concepts in Environmental Science. Oxford Online Encyclopedia. Oxford University Press. DOI: 10.1093/acrefore/978019389414.013.8	https://www.ecologyandsociety.org/vol21/iss4/art44/
Development and Application of a Resilience Framework to Climate Change Adaptation	Resilience	<ul style="list-style-type: none"> Resilience is defined formally in various ways, including by the Intergovernmental Panel on Climate Change (IPCC, 2008) as: "The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change." 	SEARCH Project – Briefing Paper IUCN D Mark Smith Director – Global Water Programme, IUCN, Switzerland	https://www.iucn.org/downloads/search_resilience_briefing_june_2011_v2.pdf
US ICOMOS on the Importance of Memory and Place in Heritage Resilience	Resilience	<ul style="list-style-type: none"> One definition (Merriam Webster) of resilience is "an ability to recover from or adjust easily to misfortune or change." This definition was chosen as it relates most closely to social and cultural resilience. It speaks to how people react to and recover from "misfortune or change," which can certainly be a by-product of disaster. This definition can be applied to both people and the built and natural environments and should be applied to cultural heritage. Heritage properties are among those at risk, and cultural heritage should be a central tenet to any resilience and DRR plans. 	Rodney Swink, Senior Associate for Planning and Development at Heritage Strategies International	https://www.usicomos.org/the-importance-of-memory-and-place-in-heritage-resilience/
UN-Habitat (website)	Resilience	<ul style="list-style-type: none"> Resilience refers to the ability of any urban system to maintain continuity through all shocks and stresses while positively adapting and transforming towards sustainability. Therefore, a resilient city is one that assesses, plans and acts to prepare for and respond to all hazards, either sudden or slow-onset, expected or unexpected. By doing so, cities are better able to protect and enhance people's lives, secure development gains, foster and investible environment and drive positive change. As risks and urban population are dramatically increasing, the concept of resilience has gained greater prominence in international development. This is of special relevance due to the fact that, as vulnerable groups and the poor are more prone to shocks and stresses and they may not have the resources to recover, the global agendas having resilience as a key concept will ensure that the call for sustainable and resilient cities leaves no one behind. Furthermore, it is essential to understand that resilience lies at the core of the humanitarian-development nexus due to the fact that, in its essence, it must seek the betterment of people. Ingraining resilience, therefore, must reduce risks by increasing capacities and must decrease fragility by enhancing effective and forward-thinking responses." 		https://unhabitat.org/resilience/
Resilience	Resilience	<ul style="list-style-type: none"> Resilience has rapidly become the most used and abused term in contemporary policy and decision making. Like the idiom of "sustainable development," it incorporates multiplicities of difference into a single and apparently incontrovertible consensus. Who could possibly disagree with making social, economic, and ecological "systems" more resilient in the face of our current environmental problems, especially global climate change? Surely resilience and the ability to "adapt" to adversity by "bouncing back" is in everyone's interest. The plurality of claims made on behalf of resilience in fields as diverse as urban planning, international security, environmental policy, financial regulation, development economics, and mental health echo the fragmented ends and means that came under the rubric of sustainable development. And as many critics of sustainability point out, the varied and sometimes incompatible interests served by sustainability depend on who wants to sustain what—livelihoods or profits, ecological health or economic wealth, individuals, species, or systems. With the recent mainstreaming of climate change as a political problem, resilience similarly threatens to subsume articulations of political difference to a totalizing will to action. Resilience risks becoming code word for "business as usual" as industrial, military, and political elites rearrange their operations to acknowledge the reality of climate change while maintaining relations of power. To be sure, there are examples of people doing progressive work under the name of resilience. Some critical scholars push its conceptual framework to include social transformation as a viable policy and political option. In large part, however, the problem with the resilience discourse is the ease with which it can be applied indiscriminately to any and all circumstances, obscuring the power that comes with providing authoritative representations of nature. [...] Indeed, one might say systems theory epitomizes the technological enframing of the world so that nature becomes meaningful only insofar as it is rendered available for human consumption (vis-à-vis Heidegger). Resilience discourses selectively focus on system survival at varying scales and levels. This manner of drawing boundaries around social-ecological systems draws attention to some phenomena while obscuring others. Species, habitats, and human populations that are deemed marginal to system survival may be rendered more expendable, making them more rather than less vulnerable to change. But pernicious effects of resilience can also arise from how things come to be included in systems, not just excluded. In this context, the discourse of resilience repositions nature as both threat and, if correctly managed, that which helps the city to bounce back from such threats. Nature is thus enfolded as a mode of governing complexity." 	Living Lexicon for The Environmental Humanities, Vardy, Smith, 2017	https://scholar.princeton.edu/sites/default/files/cf/files/environmental_humanities_2017-wardy-175-9.pdf
Social-ecological indicators of resilience	Resilience	<ul style="list-style-type: none"> "Common to each of the practices discussed above is that they emerge as a result of social-ecological interactions, in which human communities adapt to their environment and change that environment in the process. Practices can be seen as instances of self-organization that contribute to the structure and function of the landscape as a system. The resilience of this system, therefore, depends as much on these practices (the links between human and ecological components), as it does on ecological characteristics (biodiversity, habitat, ecosystem services) and social ones (institutions, networks, education)." "However, traditional communities in which the integrity and diversity of language, social institutions, cultural traditions and land use practices are maintained very likely also contribute to the diversity and resilience of their surrounding ecosystems." 	Oudenhoven, and al. (2011). Social-ecological indicators of resilience in agrarian and natural landscapes. Management of Environmental Quality: An International Journal	https://www.researchgate.net/publication/242195200_Social-ecological_indicators_of_resilience_in_agrarian_and_natural_landscapes
Evolution of Resilience	Resilience	<ul style="list-style-type: none"> Resilience thinking is about dealing with change and is useful to develop skills and tools to find ways to solve the challenges of the Anthropocene in concert with the planet. There are a variety of different meanings for different spheres of knowledge - psychology, engineering, disaster management, etc. - "In social-ecological systems thinking the definition of resilience has been broadened to embrace change and to manage it. Resilience in this field emphasises the ability to adapt in the face of change and disturbance, or to shift into something new and different to transform out of something undesirable." 	(Resilience paper from Maureen)	
Resilience, adaptability and transformability in social-		<ul style="list-style-type: none"> Resilience is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks. As amplified below, the focus is on the dynamics of the system when it is disturbed far from its modal state. The notion of speed of return to equilibrium (Pimm 1991) leads to what has been termed "engineering resilience" (Holling 1996) and, although related to one aspect of "ecological resilience," cannot be considered as the measure of resilience. Because of 	Walker, B., C. S. Holling, S. R. Carpenter, and A. Kinzig. 2004.	http://www.ecologyandsociety.org/vol9/iss2/art5/

<p>ecological systems</p>		<p>the possibility of multiple stable states, when considering the extent to which a system can be changed, return time doesn't measure all of the ways in which a system may fail—permanently or temporarily—to retain essential functions. It is also important to bear in mind that "systems" consist of nested dynamics operating at particular organizational scales—"sub-systems," as it were, of households to villages to nations, trees to patches to landscapes.</p> <ul style="list-style-type: none"> There are four crucial aspects of resilience. The first three can apply both to a whole system or the sub-systems that make it up. <ol style="list-style-type: none"> Latitude: the maximum amount a system can be changed before losing its ability to recover (before crossing a threshold which, if breached, makes recovery difficult or impossible). Resistance: the ease or difficulty of changing the system; how "resistant" it is to being changed. Precariousness: how close the current state of the system is to a limit or "threshold." Panarchy: because of cross-scale interactions, the resilience of a system at a particular focal scale will depend on the influences from states and dynamics at scales above and below. For example, external oppressive politics, invasions, market shifts, or global climate change can trigger local surprises and regime shifts." 	<p>Resilience, adaptability in social-ecological systems. Ecology and Society 9(2): 5</p>	
<p>Evolution of Resilience</p>	<p>Resilience Thinking</p>	<ul style="list-style-type: none"> In social-ecological resilience thinking "resilience reflects the ability of people, communities, societies, and cultures to live and develop with change and with ever-changing environments. It is about cultivating the capacity to sustain development in the face of change, incremental and abrupt, expected and surprising." Resilience thinking embraces learning, diversity and departs from the notion that humans and nature are interconnected to the point that they should be conceived as one social-ecological system. "There are a variety of different meanings for different spheres of knowledge - psychology, engineering, disaster management, etc. - "In social-ecological systems thinking the definition of resilience has been broadened to embrace change and to manage it. Resilience in this field emphasises the ability to adapt in the face of change and disturbance, or to shift into something new and different to transform out of something undesirable." Social-ecological resilience thinking (resilience thinking henceforth) stems from this biosphere-based worldview and focuses on social-ecological systems, seeing humans and the biosphere as intrinsically connected, and it broadens the definition of resilience beyond recovering or bouncing back. Resilience thinking moves away from the idea that the system is static, and towards the idea that they are ever changing. "Resilience then is the capacity of a system to keep developing in the face of disturbances while retaining essentially the same functions, structure and feedbacks – that is, without losing its identity." 	<p>Resilience paper (Evolution of Resilience) - definition is from Folke (2006) which was already cited</p>	
<p>IUCN Commission on Ecosystem Management (website)</p>	<p>Resilience thinking</p>	<ul style="list-style-type: none"> "The science of social-ecological systems provides a framework known as "resilience thinking" for understanding the processes of ecosystem change that are necessary for adaptation, and long-term sustainability. Within this context resilience is viewed as one of three integrated capacities: <ol style="list-style-type: none"> Resilience – the capacity of a system to recover from stress and disturbance while retaining its essential functions, structure, feedbacks and identity; Adaptability – the capacity of actors (both human and biological) in a system to influence resilience; and Transformability – the capacity of actors to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable. Resilience, adaptability and transformability all require capacity for social learning about systemic change in response to management intervention, external shocks and change within subsystems at lower and higher levels. Resilience thinking is fully consistent with the twelve principles of the Ecosystem Approach for equitable, inclusive and holistic management agreed by the International Convention on Biological Diversity. [...] Resilient ecosystems sustain biological diversity and human livelihoods in times of severe and wide-ranging change, and the concepts of "resilience-based ecosystem stewardship" helps people to enhance the resilience of the ecosystems within which they live, and upon which their livelihoods and wellbeing depend." 	<p>"Resilience" section</p>	<p>https://www.iucn.org/commissions/comm-ission-ecosystem-management/our-work/cems-thematic-groups/resilience</p>
<p>Embracing Change</p>	<p>Resilience</p> <p>Cultural Resilience</p>	<ul style="list-style-type: none"> Resilience may be defined as the capability of a system or process to absorb disturbance (Folke et al. 2010). Recent conceptions of resilience de-emphasize notions of "bouncing back to a previous state and place more emphasis on processes of "bouncing forward" involving absorption, learning, adaptation and transformation than on specific outcomes in relation to a previous status quo. Resilient systems and processes can be said to be sustainable in the sense that they have the capacity to persist over long time periods, i.e. without undermining their own preconditions. Arguably, all sustainable systems or processes are characterized by their capability to absorb adversity and continue to develop. An easier, alternative definition of resilience is, therefore, "the capacity to deal with change and continue to develop" (SRC, n.d.). I define cultural resilience as the capability of a cultural system (consisting of cultural processes in relevant communities) to absorb adversity, deal with change and continue to develop. Cultural resilience thus implies both continuity and change: disturbances that can be absorbed are not an enemy to be avoided but a partner in the dance of cultural sustainability (adapted from Thiele [2016, 36]). In the context of recent armed conflicts, archaeological heritage has been deliberately targeted for destruction, for example in Palmyra in Syria, in Timbuktu in Mali and in Bamiyan in Afghanistan. Consequently, this tangible heritage has been widely perceived to be particularly vulnerable and, in some cases, even threatened with eradication. Archaeological finds, sites and monuments have thus become an important test case for the application of the concept of resilience to the realm of culture and cultural heritage. On the most direct level, we may ask how much disruption of cultural heritage is permissible before it has exhausted its capacity to absorb disturbance and thus loses its cultural significance. To this question I will return at the end, after first addressing in some detail a second, more general question: how important is substantial conservation of cultural heritage for ensuring cultural resilience in relevant communities and thus contributing to their sustainability? There is a second, arguably more important, reason for cultural heritage to be able to enhance cultural resilience and mitigate the impact of disaster. That reason is linked to heritage values such as a sense of place and belonging supporting people's collective identity and self-esteem. As we know, not the least from the history of archaeology, assurance of cultural heritage and a joint origin and history may, on the one hand, provide psycho-social support in times of need, increasing a community's capacity to absorb disturbance (e.g. Trigger [1995]; Saito [2016]). On the other hand, it may be a prerequisite for fostering appreciation of the origins, histories and cultural heritage of other cultures and can thus benefit mutual reconciliation, dialogue and peace in post-conflict recovery (e.g. Bokova [2015]). Such benefits of heritage for disaster-risk reduction and post-disaster recovery often become manifest in distinct cultural expressions such as sacred sites, traditions and other cultural property. Protecting and celebrating cultural heritage to the extent that it is linked to a community's collective identity and supports its members' self-confidence does not, however, necessarily increase the chances for sustainable peace and understanding between cultures, despite this being often assumed." 	<p>Holtorf, C. (2018) Embracing change: how cultural resilience is increased through cultural heritage. World Archaeology50 (4)</p>	<p>https://www.tandfonline.com/doi/pdf/10.1080/00438243.2018.1510340</p>



Connecting Practice: Phase III

Workshop

7-8 February 2019



Participants of the Connecting Practice workshop
Photo credit: Alibek Otambekov

Introduction

The first workshop for Phase III of the Connecting Practice project, supported by The Christensen Fund, was held at the ICOMOS International Secretariat from 7-8 February 2019.

Connecting Practice is a joint initiative between ICOMOS and IUCN in order to explore, learn and create new approaches to recognizing and supporting the interconnected character of the natural and cultural values within heritage designation and management frameworks. In addition to this, a goal of the project, and in particular of Phase III, is to establish new and stronger partnerships with a variety of organizations in order to enhance understanding and collaboration. The project enables IUCN, ICOMOS and their partners to test ideas that can

influence a shift in conceptual and practical arrangements for considering culture and nature within the World Heritage Convention and beyond, and for helping to define strategies that can translate theory into practice at a site level.

Phase III specifically focuses on landscapes that demonstrate significant biocultural values (agriculture, fishing, shellfish gathering, etc.) and identifies three main questions:

- How to understand better the cultural-socio-ecological system of the property?
- How to support/strengthen its resilience?
- How to incorporate the learning into improved management systems?

Annex 1: Workshop Programme

Annex 2: Draft Glossary

Annex 3: Draft Questionnaire

Annex 4: List of Participants

Participants: Gwenaëlle Bourdin, Kristal Buckley, Luisa De Marco, Mahécor Diouf, Yoshihide Endo, Aurélie Fernandez, Fujio Ichihara, Rita Johansen, Bill Kenmir, Nupur Prothi Khanna, Marie-Laure Lavenir, Leticia Leitão, Yuxin Li, Pernilla Malmer, Kerstin Manz, Francesco Marchese, Akane Nakamura, Alibek Otambekov, Peter Shadie, Peter Sheehan, Susanna Simon, Maureen Thibault, Gretchen Walters, Leanna Wigboldus

*A full list of participants and their organizations is available as Annex 4 of this report.

Venue:

Médiathèque de l'architecture et du patrimoine,
11 rue du Séminaire de Conflans
94 220 Charenton-le-Pont, France

Workshop Programme

1. Ms. Marie-Laure Lavenir welcomed the participants to the Connecting Practice Project and introduced Mr. Peter Shadie as the Director of World Heritage Programme at IUCN. Ms. Gwenaëlle Bourdin presented an overview of the Connecting Practice Project (Phases I and II) and welcomed guests from partner institutions, including The Christensen Fund, the GIAHS (Globally Important Agricultural Heritage Sites) programme, ICCROM and the World Heritage Centre.
2. Ms. Kristal Buckley presented on the creation and implementation of Phase III, specifically emphasizing these areas as places of learning and areas to improve practice in order to provide benefits and to increase understanding by taking a 'learning-by-doing' approach. She also presented the Connecting Practice Concept Paper and the annotated glossary of concepts and terms that will be created as part of Phase III.

3. Mr. Alibek Otambekov presented some of the initiatives that The Christensen Fund is working on to support biocultural landscapes, specifically in relation to maintaining biocultural resilience, defining biocultural practices, encouraging traditional agricultural systems and working on community access and approaches to natural resources. The specific areas of work relate directly to sustainable traditional practices (including consolidation of women groups and traditional food), traditional institutions (including the preservation of native languages), and community and natural resources (including the recovery of traditional water and land use systems). Mr. Otambekov also pointed to local community efforts to preserve the cultural landscapes including the creation of botanic gardens, biocultural parks, establishment of farming schools and supporting handicrafts.
4. Mr. Yoshihide Endo presented on the GIAHS initiative and defined GIAHS as “remarkable land use systems and landscapes, which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development”. Mr. Endo provided an overview of the designation process, the characteristics that are essential to GIAHS designations, and the use of Dynamic Conservation and action plans.
5. Ms. Leticia Leitão presented on the concept of resilience in relation to heritage and the dynamic nature of this idea. She emphasized the fact that although public institutions are focused on *command and control*, what is really needed in these instances is a system that is dynamic and constantly adapting. Ms. Leitão provided various case studies and outlined three aspects of resilience: **Persistence** (a system absorbs shocks but eventually returns to its original place), **Adaptability** (system adapts to change and becomes something slightly different from the original) and **Transformability** (a system shifts and crosses the threshold to become something different).
6. Ms. Pernilla Malmer presented on resilience from the perspective of a natural institution (SwedBio) from the Stockholm Resilience Centre. Ms. Malmer emphasized the seven principles for building resilience: 1) maintain diversity and redundancy, 2) manage connectivity, 3) manage slow variables and feedback, 4) foster complex adaptive system thinking, 5) encourage learning, 6) broaden participation and 7) promote polycentric governance systems. She also introduced ‘resilience assessments’ and emphasized the dynamic nature of the concept of resilience.
7. Ms. Rita Johansen presented on the Vega Archipelago World Heritage site and provided a background on the management systems and plan, how they combine cultural and natural values, the issues and conflicts at the site, and the importance of community engagement and its resilience.
8. Mr. Peter Sheehan provided a background presentation of the *Cultural Sites of Al Ain* World Heritage Site (UAE), and Mr. Francesco Marchese and Ms. Leanna Wigboldus presented on the conclusions and recommendations that were found throughout the fieldwork. Mr. Mahécor Diouf, Ms. Gretchen Walters and Ms. Maureen Thibault presented on the *Saloum Delta* (Senegal) and provided a background of the site, the methodology used for value and resilience assessments and the recommendations.

9. Some key points that were discussed in relation to the field works included multiple designations, how these could be used as an opportunity, site managers/local communities, how to better involve them into management of the site, synergies between institutions and local people and between responsible institutions, and language/translation in documents and site management. When asked for the most helpful/valuable aspect of the fieldwork, both site managers pointed to increased collaboration and connections, both with local groups and institutions.
10. Group discussions on the draft glossary were organized during the afternoon, with the meeting divided into three facilitated working groups to discuss the creation of an annotated glossary. The discussion that resulted from this exercise had a few distinct comments:
 - a. Use only unifying words that can be used for both culture and nature and remove concepts that are too specific and concentrated on one or the other;
 - b. Sacred/spiritual landscape definitions should be included within the glossary;
 - c. The two most useful terms were listed as 'Resilience' and 'Biocultural'; and
 - d. There could be interaction between the World Heritage Leadership Programme and Connecting Practice to develop a glossary of definitions and terms that could be beneficial to both groups.
11. Ms. Gretchen Walters presented the draft questionnaire as part of the Phase III framework, which would be completed by site managers of various cultural landscapes and mixed sites. The three working groups were asked to discuss the questionnaire and various concepts were outlined here as well:
 - a. The aim and audience of the questionnaire must be clearly defined;
 - b. There should be less information about an individual site manager and more questions about possible additional management at the site (or more information about the management team/lack of a management team);
 - c. It was suggested that the questionnaire framework be divided into 5 sections: Basic site and manager information; Understanding the natural and cultural integration at the site; Governance and Management structures; Opportunities and Barriers of integrated cultural and natural values; and Next Steps for future work;
 - d. Management frameworks, structures, plans and any management changes that happened as a result of inscription should be included;
 - e. The questionnaire should be provided in French and English and (if possible) Spanish;
 - f. It could be helpful to have an anonymous questionnaire so that individuals don't feel awkward with their answers; and
 - g. It was suggested that the glossary could be done in collaboration with the questionnaire.

In addition, each group also stated that the questionnaire should be split into a quantitative and qualitative section, with follow-up, in-depth interviews and questions being done after the basic data is collected through the questionnaire. Various recommendations about specific questions were also made and will be taken into account during the finalization of the questionnaire.

Key Concepts:

- New connections with organizations such as GIAHS and SwedBio are positive outcomes.
- Further emphasis needs to be placed on practice and implementation of connecting culture and nature on the ground rather than simply ideological concepts. Practices can change policies.
- Local people, inhabitants, indigenous groups and communities should be more implicated in the governance and management of sites.
- The fieldwork should document the types of influence on the interlinkages between natural and cultural values.
- The network of sites involved in the project should be expanded. In order to reach more site managers, Phase III fieldwork includes one visit each to four sites instead of two visits each to two sites as in the previous phases. Although the Phase III fieldwork is less in-depth, we are connecting with more site managers and building a diverse project network.
- The Connecting Practice project is not intended to solve all problems; rather it is a tool to help increase practical applications of nature/culture interactions at sites.
- The concept of resilience is important to understand from a variety of viewpoints, particularly as there are so many definitions about this concept and how it is used in both natural and cultural contexts. The use of the three resilience concepts (persistence, adaptability and transformation) need to be further worked with to see how they can be used for cultural heritage and how these concepts can be integrated into our understanding of sites. It needs to be emphasized that resilience is a dynamic and complex area of work, and the three resilience concepts are not necessarily either/or, but rather they all work together and change.
- The glossary and questionnaire could be used in the future for Tentative List nominations and for other sites that are not specifically defined as World Heritage.

Next Steps for Connecting Practice

- The glossary and questionnaire will be completed and distributed.
- The fieldwork reports will be finalized.
- Two more visits to pilot cases will take place in 2019.
- A second Phase III workshop will be held early 2020 and will include an analysis of the responses to the questionnaire, questions from the field visits, and lessons and reflections from Phase III.
- It was proposed that a final meeting/gathering of all people from Phases I-III be organized at the end of this Phase.

Closing Statements were made by The Christensen Fund, GIAHS and ICOMOS and final discussions emphasized the importance of collaboration with other institutions and groups.

Connecting Practice: Phase III

Workshop 7-8 February 2019

Venue:
Médiathèque de l'architecture et du patrimoine (next to ICOMOS)
11 rue du Séminaire de Conflans
94 220 Charenton-le-Pont
Room: Viollet-le-Duc (2nd floor)

Thursday, 7 February 2019
09.00 – 17.30

Agenda

09.00 – 09.15	Arrival of the participants
09.15 – 09.25	Welcome of the participants and overview of the Connecting Practice Project
09.25 – 09.40	Presentation of Phase III, the Concept Paper, Glossary and Questionnaire
09.40 – 10.00	Presentations of The Christensen Fund and GIAHS <i>10 minutes each, including questions</i>
10.00 – 10.45	Presentations on key concepts of Phase III by Leticia Leitão, Pernilla Malmer and Rita Johansen <i>15 minutes each, including questions</i>
10.45 – 11.00	Discussion/Questions on Phase III and key concepts
11.00 – 11.20	Coffee Break (at ICOMOS)
11.20 – 11.40	Presentation of Al Ain fieldwork and results
11.40 – 12.00	Presentation of Saloum Delta fieldwork and results
12.00 – 12.30	Discussion of lessons learned throughout the fieldwork
12.30 – 14.00	Lunch (at ICOMOS)
14.00 – 15.15	Group discussions on the Glossary <i>3 facilitated working groups</i>
15.15 – 15.45	Presentation by rapporteurs of group work on the Glossary <i>10 minutes per group</i>
15.45 – 16.05	Coffee Break (at ICOMOS)
16.05 – 17.30	Group discussions on the Questionnaire <i>3 facilitated working groups</i>

Friday, 8 February 2019
09.00 – 15.00

Agenda

09.00 – 09.15	Arrival of the participants
09.15 – 10.30	Group discussions on the Questionnaire continued <i>3 facilitated working groups</i>
10.30 – 10.50	Coffee Break (at ICOMOS)
10.50 – 11.50	Presentation by rapporteurs of group work on the Questionnaire and debrief of discussions
11.50 – 12.30	Collection of key conclusions
12.30 – 14.00	Lunch (at ICOMOS)
14.00 – 15.00	Closing session and next steps

ICOMOS
international council on monuments and sites



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Connecting Practice: Phase III

Workshop

Draft Glossary of Terms

Agricultural biodiversity is the outcome of the interactions among genetic resources, the environment and the management systems and practices used by farmers. This is the result of both natural selection and human inventive developed over millennia. The components of agricultural biodiversity include genetic resources for food and agriculture, ecosystem services, abiotic factors (such as climate) and socio-economic and cultural dimensions. Agricultural biodiversity is largely shaped and maintained by human activities and management practices, and a large number of people depend on agricultural biodiversity for sustainable livelihoods. These dimensions include traditional and local knowledge of agricultural biodiversity, cultural factors and participatory processes, as well as tourism associated with agricultural landscapes. [Convention on Biological Diversity (2018)]

Agricultural ecosystem (or agro-ecosystem) is the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes (COP decision V/5, appendix, Convention on Biodiversity, CBD, cited by the FAO).

Agrobiodiversity is the result of natural selection processes and the careful selection and inventive developments of farmers, herders and fishers over millennia. Agrobiodiversity is a vital sub-set of biodiversity. Many people's food and livelihood security depend on the sustained management of various biological resources that are important for food and agriculture... [FAO (2018)]

Biological diversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and ecosystems. (Article 2 of the Convention on Biological Diversity, www.cbd.int/convention/)

Bio-Cultural diversity refers to the continuing co-evolution and adaptation between biological and cultural diversities. It also involves the diversities of place and reflects people's ways of living with nature. This co-evolution has generated local ecological knowledge and practices across generations that allow societies across the world to manage their resources sustainably while also maintaining cultural identity and social structures. [Ramsar Convention (2018) Bio-Cultural Diversity Thematic Group]

Biocultural Heritage is the knowledge, innovations and practices of indigenous peoples and their biological resources, from the genetic varieties of crops they develop, to the landscape they create. Its components are inextricably linked in the daily practices and worldviews of indigenous peoples, and sustained over generations thanks to their cultural and spiritual values. (www.bioculturalheritage.org)

Biocultural Landscapes are intertwined holistic systems that have been shaped by human management over long periods of time. By its very nature a biocultural landscape is shaped by – and shapes – human culture. (<https://www.christensenfund.org/experience/biocultural-landscape/>)

Dynamic conservation is all those actions which are directed towards sustaining otherwise decreasing rates of use, towards sustained yield management, or towards increasing sustained use. (<http://202.73.13.50:55381/agrovocv10i/#Concepts>).

Ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. It is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems. (<http://www.cbd.int/ecosystem/>)

Ecosystem management is a process that aims to conserve major ecological services and restore natural resources, while meeting the socio-economic, political and cultural needs of current and future generations. The principal objective of ecosystem management is the efficient maintenance, and ethical use of natural resources. Ecosystem management acknowledges that the interrelation of socio-cultural, economic and ecological systems is paramount to understanding the circumstances that affect environmental goals and outcomes. It is a multifaceted and holistic approach, which requires a significant change in how the natural and human environments are identified. Several approaches to effective ecosystem management engage conservation efforts at both a local or landscape level and involves: adaptive management, natural resource management, strategic management, and command and control management. (<http://en.wikipedia.org/wiki/Portal:Agropedia>)

Free, prior and informed consent (FPIC) is acknowledged by several international human rights law instruments. The International Labour Organization Indigenous and Tribal Peoples Convention, 1989 (No. 169) refers to the principle of free and informed consent in the context of relocation of indigenous peoples from their land in its Article 16. Article 7 recognizes indigenous peoples' "right to decide their own priorities for the process of development" and "to exercise control, to the extent possible, over their own economic, social and cultural development." In Articles 2, 6 and 15, the Convention requires that States fully consult with indigenous peoples and ensure their informed participation in the context of development, national institutions and programmes and lands and resources. As a general principle, Article 6 requires that consultation be undertaken in good faith, in a form appropriate to the circumstances and with the objective of achieving consent (E/CN.4/Sub.2/AC.4/2005/WP.1). The underlying principles of free, prior and informed consent can be summarized as follows: (i) information about and consultation on any proposed initiative and its likely impacts; (ii) meaningful participation of indigenous peoples; and, (iii) representative institutions. (Commission on Human Rights, Sub-Commission on the Promotion and Protection of Human Rights, Working Group on Indigenous Populations, Twenty-second session, 19–13 July 2004).

Globally Important Agricultural Heritage Systems are remarkable land-use systems and landscapes rich in globally significant biological diversity that have evolved from the coadaptation of a community with its environment and its needs and aspirations for sustainable development. (www.fao.org/nr/giahs/en/)

Indigenous knowledge is the expression that indicates long-standing traditions and practices of certain regional, indigenous, or local communities. Traditional knowledge encompasses the wisdom, knowledge and teachings of these communities. In many cases, indigenous knowledge has been orally passed down for generations from person to person. Some forms of IK are expressed in stories, legends, folklore, rituals, songs and laws. (<http://www.wikipedia.org/>).

In-situ-conservation is on-site conservation (eg. at a World Heritage Site). It is the conservation of genetic resources for natural plant and animal species and is the process of protecting endangered species within their natural habitats, either by protecting or restoring the habitat, or by protecting the species from predators/threats. (<http://www.wikipedia.org/>)

Land use is the human use of land. Land use involves the management and modification of natural environment or wilderness into a built environment such as fields, pastures, and settlements. It has been defined as "the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it" (FAO, 1997a; FAO/UNEP, 1999).

Resilience is about cultivating the capacity to sustain development in the face of expected and surprising change and diverse pathways of development and potential thresholds between them. The evolution of

resilience thinking is coupled to social-ecological systems and a truly intertwined human-environment planet. (Folke, C. (2016). Resilience. *Framing Concepts in Environmental Science*. Oxford Online Encyclopedia. Oxford University Press. DOI: 10.1093/acrefore/9780199389414.013.8)

Soil Degradation is a chemical, physical or biological decline in soil condition and quality because of poor or detrimental management. It is usually used in agricultural, industrial or urban settings and can be extremely harmful to environments. Soil erosion can relate to loss of organic matter within the soil, a decline in fertility, different types of erosion (water or wind), changes to salinity, acidity or alkalinity, and/or as an effect of toxic chemicals/pollutants or constant flooding. (<https://www.environment.nsw.gov.au>)

Sustainability is the capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time. Long-lived and healthy wetlands and forests are examples of sustainable biological systems. For humans, sustainability is the potential for long-term maintenance of well being, which has environmental, economic, and social dimensions. (<http://www.wikipedia.org/>)

Sustainable agriculture is an agricultural practice that seeks to make use of nature's goods and ecosystem services, while producing an optimal yield in an economically, environmentally, and socially rewarding way, preserving resources for future generations. Making the transition to sustainable agriculture for farmers and agricultural producers is a process that aims to use water, land, nutrients, and other natural resources effectively, or at the rate they are replenished, so that resources are conserved. For example, using water effectively means considering other ecosystem services that water provides (flood mitigation, nutrient cycling, drinking water supply and sanitation). Sustainable agriculture also refers to the management of biodiversity so that biological resources are sustained, for example, maintaining wild relatives of crop species within agricultural landscapes (woodlots and hedgerows) sustains biodiversity; and minimize the impact of agriculture in the wider environment in order to sustain the other ecosystem services, such as, minimizing chemical inputs, especially non-renewable sources, so there is minimal damage to the surrounding ecosystem. (<http://www.cbd.int/ibd/2008/sustainable-agriculture/>)

Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987, p 43). Sustainable development is often explained as balancing three components: environment, society and the economy. The well-being of each of these three areas depends on the well-being of the others. In other words, it's impossible to have a vibrant healthy environment and society if the economy is very weak. (http://greenwave.cbd.int/resources/sustainable_development)

Traditional knowledge is cultural knowledge, commonly described as "traditional environmental knowledge" (TEK), has been passed on from generation to generation, through language as well as practical teachings. TEK has shaped ways of life, worldviews, and sense of place, serving material as well as psychological and spiritual needs. Through constant innovation, TEK has remained alive and vibrant in those societies that have maintained a close link with and direct dependence on the local environment, particularly the Indigenous Peoples and local communities that represent the largest share of the world's cultural diversity. (Maffi, L. (2014). *Biocultural Diversity: the true web of life*. In L. Maffi and O. Dilts (eds.) *Biocultural Diversity Toolkit: an introduction to biocultural diversity*. Salt Spring Island, Canada: Terralingua. pp. 6-16.)

Connecting Practice: Phase III

Workshop
7-8 February 2019

Draft Questionnaire – List of Questions V 2.0

Objective of questionnaire: to understand from World Heritage site managers if and how they relate cultural and natural concepts (e.g. resilience, biocultural approaches) to management, and what the issues with site management are related to simultaneously managing for nature and culture objectives.

A. Property name:

B. Background Site Manager

1. Age
2. Sex – M, F, Other
3. Country or continent of birth
4. What is your highest educational qualification?
5. In which country was most of your education carried out?
6. What subjects did you specialise in at school / university/ training?
7. Do know about natural concepts (or nature conservation)? Y/N
 - a. Where did you learn about natural concepts? (drop down – School, high school university,)
 - b. What natural concepts where you taught?
8. Do you know about cultural concepts? Y/N
 - a. Where did you learn about cultural concepts? (drop down – School, high school university,)
 - b. What cultural concepts where you taught?
9. How many years have you been working at the site (or in general) on WH?
10. In which domain has most of your career been in?
11. In which country have you carried out most of your career?
12. Additional comments either from the site manager or the interviewer

Connecting Practice: Phase III

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Draft Questionnaire – List of Questions V 2.0

C. Knowledge of Nature - Culture concepts, relation to management, and site values

1. Describe the property in your own words (use bullet points)
2. What makes this site important?
 - a. What are the WH site values?
 - b. Is there a difference between the WH values of the site and the reasons of why the site is important? (Y/N)
 - c. If not, why not?
3. What tool kits ideas/ theories do you use to manage or evaluate natural aspects of the site?
 - a. Describe the most important nature concepts that influence you as a site manager? [3b]
4. What tool kits / ideas/ theories do you use to manage or evaluate cultural aspects of the site?
 - a. Describe the most important cultural concepts that influence you as a site manager? [3b, 5b]
5. As a site manager, are you able to integrate nature concepts into management? Y/N
 - a. If so, which and how?
 - b. Are there issues with doing this?
6. As a site manager, are you able to integrate cultural concepts into management? Y/N
 - a. If so, which and how?
 - b. Are there issues with doing this?
7. Indicate your level of knowledge or use with each of the following concepts (tick as many boxes as needed):

	Resilience	Concept 2	Concept 3	Concept 4	Concept 5
I do not know this concept					
I know this concept					
I know this concept but cannot use it					
This concept is relevant to site management					
I use this concept in managing my site					
Other					

Connecting Practice: Phase III

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Draft Questionnaire – List of Questions V 2.0

D. Site Management

1. Are there issues with simultaneously managing the natural and cultural values of the site?
 - a. If so, what are these issues?

2. Other than WH, what other international bodies recognise this site? [1d, 2c, 5c]

3. Other than WH, what other national bodies recognise this site? [1d, 2c]

4. Describe how the recognition by these other bodies different or similar to WH [1f, 2c]

5. Describe the people in and around the property (ethnicity, religion, language, livelihoods (pastoralist, farmers, fishermen) etc

6. How do these peoples talk about the landscape? Are there local words, phrases or stories that capture the relationship between the sites natural and cultural aspects?
 - a. What language(s) do people use to convey these stories and words?
 - b. Please report the words and their meaning (rather than simple translation) of the key words and phrases used, as you understand them

2. How is the site recognised by these people?
 - a. Does it contain sacred areas, pasture, hunting, agriculture, fishing, stories etc other? [1g, 2a, 2b, 2c, 2e, 2g]
 - b. Is this site recognition by these the local populations different or similar to WH? Different/Similar [1g, 1h, 2c, 2e, 2g]
 - c. Describe how this site's recognition by these the local population differ or similar to WH [1g, 1h, 2c, 2e, 2g]

3. Who are the different organisations that participate in the properties management? [2c, 2d, 2g]
 - a. Is there a difference or similarity amongst the different organisations managing the site? Difference/similarity [2c, 2d]
 - b. Describe this difference or similarity [2c, 2d]

4. Who are the different people that decide on the vision of the site's management?
 - a. Are they part of an organisation?
 - i. If so, what position do they have?

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- b. Are they part of the local population? [1g, 1h, 2c, 2d, 2h]
 - c. Are they representative of the local population?
 - i. If so, which part?
 - d. Is there a difference or similarity between the different group's visions of the sites?
Difference/similarity [1g, 1h, 2c, 2d, 2f, 2h]
 - e. Describe this difference or similarity group by group. [1g, 1h, 2c, 2d, 2f]
5. How could the WH designation of the landscape assist in managing the place?
6. Additional comments either from the site manager or the interviewer

Connecting Practice: Phase III

7-8 February 2019
Workshop Participants

Name	Title / Institution
Bourdin, Gwenaëlle	Director, Evaluation Unit, ICOMOS International
Buckley, Kristal	Lecturer in Cultural Heritage, Deakin University
De Marco, Luisa	Architect at Ministry of Cultural Heritage and Activities (Italy)
Diouf, Mahécor	World Heritage Site Manager, Saloum Delta (Senegal)
Endo, Yoshihide	Coordinator of the Globally Important Agricultural Heritage Systems Secretariat (GIAHS) – FAO
Fernandez, Aurélie	Agronomist for the Globally Important Agricultural Heritage Systems Secretariat (GIAHS) – FAO
Ichihara, Fujio	Project Manager, Sites Unit, ICCROM
Johansen, Rita	World Heritage Coordinator, Vegaøyen – The Vega Archipelago (Norway)
Kenmir, Bill	Area Reserves Manager, The Royal Society for the Protection of Birds (RSPB)
Khanna, Nupur Prothi	Voting Member, India, ICOMOS-IFLA International Scientific Committee on Cultural Landscapes (ISCL)
Lavenir, Marie-Laure	Director General, ICOMOS International
Leitão, Leticia	Consultant
Li, Yuxin	Programme Specialist, Secretariat of ICOMOS China
Malmer, Pernilla	Senior Advisor at SwedBio, Stockholm Resilience Centre, Stockholm University
Manz, Kerstin	ICOMOS-IFLA International Scientific Committee on Cultural Landscapes (ISCL)
Marchese, Francesco	Consultant
Nakamura, Akane	Junior Professional Officer, Asia and the Pacific Unit, World Heritage Centre, UNESCO
Otambekov, Alibek	Program Officer – Central Asia, The Christensen Fund
Shadie, Peter	Director, World Heritage Programme, IUCN
Sheehan, Peter	Historic Buildings & Landscapes Manager, Department of Culture and Tourism - Abu Dhabi (UAE)
Simon, Susanna	Director of the Madriu-Perafita-Claror Valley Management Plan, Madriu-Perafita-Claror Valley Management Commission (Andorra)
Thibault, Maureen	Communications and Projects Assistant, ICOMOS International
Walters, Gretchen	Assistant Professor of Development and Conservation Practice, University of Lausanne
Wigboldus, Leanna	PhD Candidate in World Heritage, University College Dublin

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Connecting Practice: Phase III Virtual Workshop via Zoom

Online Session 1 – Fieldwork
Monday, 21 September 2020, 13:00-16:10 Paris time
Participants

Name	Institution
Al Nuaimi, Abdul Rahman Rashed	World Heritage Sites Management Manager, Department of Culture and Tourism - Abu Dhabi
Alymkulova, Anara	Institute for Sustainable Development Strategy (ISDS)
Bourdin, Gwenaëlle	Director, Evaluation Unit, ICOMOS International
Brown, Jessica	Chair, Specialist Group on Protected Landscapes, IUCN-WCPA
Buckley, Kristal	Lecturer in Cultural Heritage, Deakin University
De Marco, Luisa	Architect at Ministry of Cultural Heritage and Activities (Italy)
Endo, Yoshihide	Coordinator, Globally Important Agricultural Heritage Systems Secretariat (GIAHS) – FAO
Fernandez, Aurélie	Agronomist, Globally Important Agricultural Heritage Systems Secretariat (GIAHS) – FAO
Goulart, Mónica	Architect, Pico Natural Park
Leitão, Leticia	Consultant
Li, Yuxin	Programme Specialist, Secretariat of ICOMOS China
Marchese, Francesco	Consultant
Nordin Jonsson, Åsa	World Heritage Site Manager, Laponian Area
Ossola, Carlo	Landscape Policy Section, Federal Office for the Environment (Switzerland)
Prothi Khanna, Nupur	Voting Member, India, ICOMOS-IFLA International Scientific Committee on Cultural Landscapes
Roba, Hassan	Special Advisor, African Rift Valley, The Christensen Fund
Safarov, Abduvohid	Executive Director, Anahita (Tajikistan)
Shadie, Peter	Director, World Heritage Programme, IUCN
Thibault, Maureen	Communications and Projects Assistant, ICOMOS International
Tolnay, Zsuzsa	World Heritage Coordinator, Hortobágyi Nemzeti Park Igazgatóság
Wigboldus, Leanna	PhD Candidate in World Heritage, University College Dublin



Connecting Practice: Phase III Virtual Workshop via Zoom

Online Session 2 – Questionnaire for Site Managers
Wednesday, 23 September 2020, 13:00-16:00 Paris time

Participants

Name	Institution
Alymkulova, Anara	Institute for Sustainable Development Strategy (ISDS)
Badman, Tim	Director, IUCN Nature-Culture Initiative
Bourdin, Gwenaëlle	Director, Evaluation Unit, ICOMOS International
Buckley, Kristal	Lecturer in Cultural Heritage, Deakin University
De Marco, Luisa	Architect at Ministry of Cultural Heritage and Activities (Italy)
Goulart, Mónica	Architect, Pico Natural Park
Leitão, Leticia	Consultant
Marencic, Harald	Deputy Executive Secretary, Common Wadden Sea Secretariat, World Heritage Site
Marinelli, Marcella	Coordinator, World Heritage Site, Schokland and Surroundings
Masen, Jonas David	World Heritage Site Manager, Namib Sand Sea
Nordin Jonsson, Åsa	World Heritage Site Manager, Laponian Area
Roba, Hassan	Special Advisor, African Rift Valley, The Christensen Fund
Safarov, Abduvohid	Executive Director, Anahita (Tajikistan)
Thibault, Maureen	Communications and Projects Assistant, ICOMOS International
Tolnay, Zsuzsa	World Heritage Coordinator, Hortobágyi Nemzeti Park Igazgatóság
Walters, Gretchen	Assistant Professor of Development and Conservation Practice, University of Lausanne
Wigboldus, Leanna	PhD Candidate in World Heritage, University College Dublin

Connecting Practice: Phase III Virtual Workshop via Zoom

Online Session 3 – Commentary on Emerging Keywords
Monday, 28 September 2020, 13:00-16:00 Paris time

Participants

Name	Institution
Alymkulova, Anara	Institute for Sustainable Development Strategy (ISDS)
Bourdin, Gwenaëlle	Director, Evaluation Unit, ICOMOS International
Brown, Steve	Lecturer, University of Canberra
Buckley, Kristal	Lecturer in Cultural Heritage, Deakin University
De Marco, Luisa	Architect at Ministry of Cultural Heritage and Activities (Italy)
Fernandez, Aurélie	Agronomist, Globally Important Agricultural Heritage Systems Secretariat (GHIAS) – FAO
Jopela, Albino	Head of Programmes, African World Heritage Fund
Kenmir, Bill	Area Reserves Manager, The Royal Society for the Protection of Birds (RSPB)
Leitão, Leticia	Consultant
Malmer, Pernilla	Senior Advisor at SwedBio, Stockholm Resilience Centre, Stockholm University
Safarov, Abduvohid	Executive Director, Anahita (Tajikistan)
Scott, John	Senior Programme Officer, Secretariat of the Convention on Biological Diversity
Shadie, Peter	Director, World Heritage Program, IUCN
Thibault, Maureen	Communications and Projects Assistant, ICOMOS International
Wigboldus, Leanna	PhD Candidate in World Heritage, University College Dublin

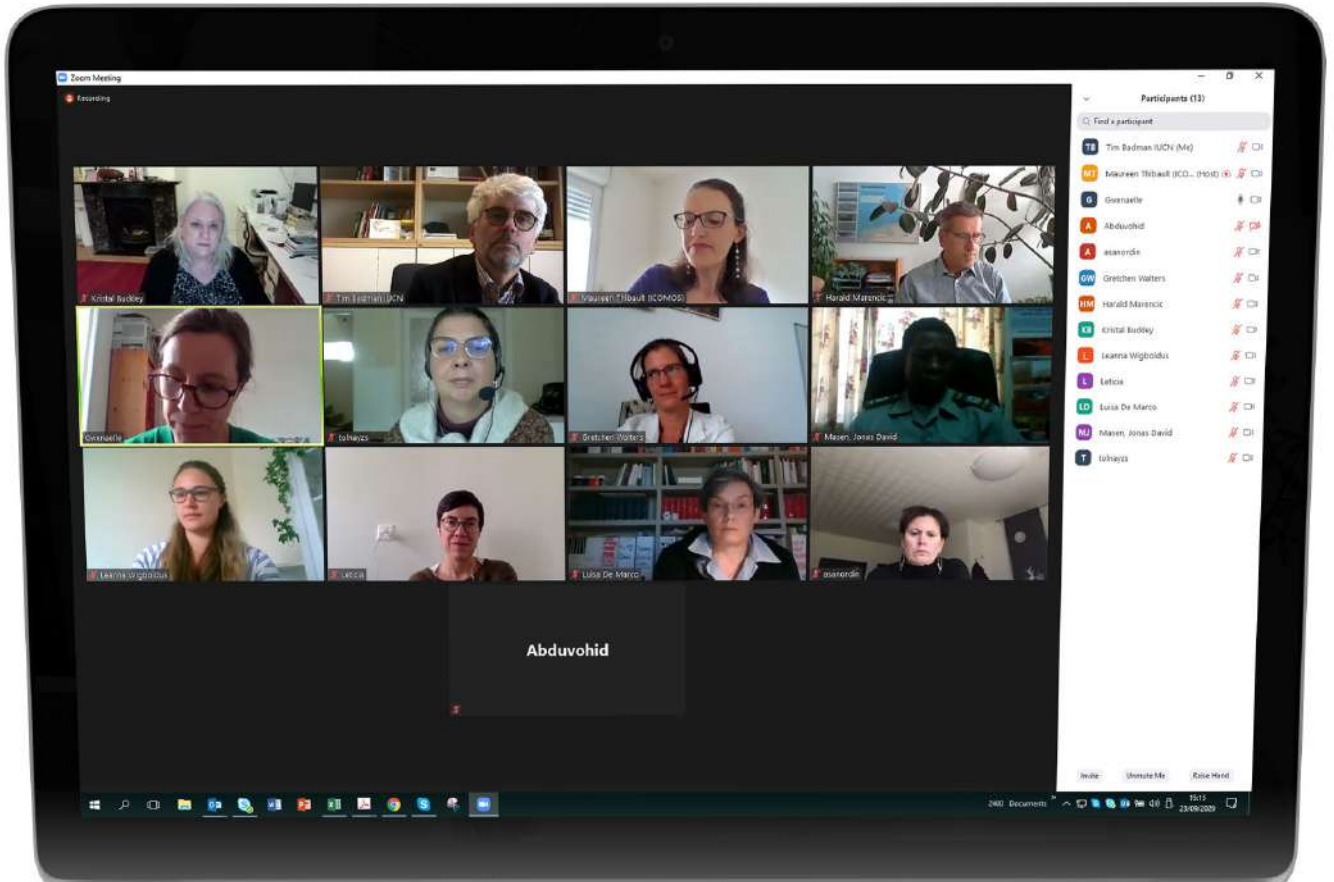


Connecting Practice: Phase III Virtual Workshops via Zoom

Online Sessions 4 & 5 – Lessons Learned and Next Steps
Lessons Learned: Wednesday, 30 September 2020, 13:00-16:00 Paris time
Next Steps: Friday, 2 October 2020, 13:00-15:00 Paris time

Participants

Name	Institution
Andraud, Anaïs	Assistant, Evaluation Unit, ICOMOS International
Badman, Tim	Director, IUCN Nature-Culture Initiative
Bourdin, Gwenaëlle	Director, Evaluation Unit, ICOMOS International
Brown, Jessica	Chair, Specialist Group on Protected Landscapes, IUCN-WCPA
Buckley, Kristal	Lecturer in Cultural Heritage, Deakin University
De Marco, Luisa	Architect at Ministry of Cultural Heritage and Activities (Italy)
Fernandez, Aurélie	Agronomist, Globally Important Agricultural Heritage Systems Secretariat (GIAHS) – FAO
Jo, Eugene	Programme Manager, ICCROM-IUCN World Heritage Leadership, Programmes Unit, ICCROM
Leitão, Leticia	Consultant
Ossola, Carlo	Landscape Policy Section, Federal Office for the Environment (Switzerland)
Thibault, Maureen	Communications and Projects Assistant, ICOMOS International
Wigboldus, Leanna	PhD Candidate in World Heritage, University College Dublin





**ICOMOS-IUCN
SIDE EVENT**

CONNECTING PRACTICE

**Monday 1 July 2019
01:10 - 02:00 PM
Room B3**



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