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AGRICULTURAL LANDSCAPES
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SPECIAL ISSUE

PROCEEDINGS OF THE FIRST CAPACITY BUILDING WORKSHOP ON NATURE-CULTURE LINKAGES IN HERITAGE CONSERVATION IN ASIA AND THE PACIFIC (CBWNCL 2016)

AGRICULTURAL LANDSCAPES

Organized by

the World Heritage Studies and
the Certificate Programme on Nature Conservation
University of Tsukuba

In collaboration with

UNESCO World Heritage Centre
International Union for Conservation of Nature and Natural Resources (IUCN)
International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)
International Council on Monuments and Sites (ICOMOS)

SEPTEMBER 18-30, 2016
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Foreword

The 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage is an international legal instrument that brings together both natural and cultural heritage of Outstanding Universal Value. However, its implementation has maintained the divide between the practice of culture and nature due to the separation of articles 1 and 2 of the Convention. Efforts have been made in order to reinforce nature-culture linkages. Nevertheless, more work is needed. Initiatives such as the including of cultural landscape categories have been an attempt to bridge the gap, considering the "combined works of man and nature" as being of Outstanding Universal Value.

The contribution to address this gap by the Capacity Building Workshops on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific organized at the University of Tsukuba, is two-folded: it is an international platform for the exchange between heritage practitioners from the nature and culture sectors, and it is focused on a region underrepresented in the World Heritage List. CBWNCL is organized by the World Heritage Studies and Certificate Programme on Nature Conservation, ten years since the establishment of the PhD programme in World Cultural Heritage Studies. In 2017, we also saw the establishment of a UNESCO Chair on Nature-Culture Linkages in Heritage Conservation, which is a great achievement.

The World Heritage Centre is very pleased to be a partner of this endeavor, together with the advisory bodies to the World Heritage Convention, IUCN, ICCROM and ICOMOS. As part of the World Heritage Capacity Building Programme, we consider that training and nurturing the skills of heritage practitioners, site managers and researchers continues to be a priority in order to foster the sustainability of World Heritage sites and heritage in general.

An International Symposium on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific was held in the context of the Tsukuba Global Science Week 2016 and brought together internationally renowned experts. The meeting also highlighted the critical importance of agricultural landscapes in the context of the 2030 agenda and the Sustainable Development Goals, climate change and biodiversity conservation.

This special issue of the Journal of World Heritage Studies of the University of Tsukuba compiles the outcomes of the symposium and workshop, bringing together thirteen case studies from the participants of the CBWNCL 2016 focusing on agricultural landscapes. Eleven cases are from Asia and the Pacific, one from Latin America and one from Africa, showing a variety of situations in culturally diverse regions, including 9 World Heritage properties, 1 Tentative list site and 3 protected areas at national level. Interestingly, these varieties of cases share common challenges and issues. Through this platform of exchange, they may start sharing best practice solutions and integrated strategies.

Mechtild Rössler
Director of the UNESCO World Heritage Centre and the Division for Heritage

Introduction

The **First Capacity Building Workshop on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific**, with the theme "Agricultural Landscapes", was organized by the World Heritage Studies and the Certificate Programme on Nature Conservation (CPNC) at the University of Tsukuba, Japan, with the collaboration of the UNESCO World Heritage Centre, ICCROM, IUCN, and ICOMOS. This workshop was the first of a series of four workshops to run from 2016 to 2019, and gathered fourteen heritage practitioners from Asia and the Pacific, and five students from the CPNC. The workshop was inaugurated with an international symposium where five international experts, representative of the partner organizations – the UNESCO World Heritage Centre, IUCN, ICCROM and ICOMOS - and one academic specialist on agricultural landscapes from the Gadjah Mada University, Indonesia, gave keynote speeches dealing with the international development, the theoretical development and the local development of the Nature-Culture approach in the field of heritage conservation. These were joined by representatives of the Japanese governmental agencies in charge of heritage conservation – the Ministry of Environment and the Agency for Cultural Affairs – in a general panel discussion where the situations in Japan and the world were discussed.

The CBWNCL 2016 was divided in four modules:

- **Module 1:** Symposium
- **Module 2:** Understanding Nature-Culture Linkages in the Context of the Agricultural Landscape Conservation
- **Module 3:** Management, Implementation and Governance in Agricultural Landscapes
- **Module 4:** Reflection on Theory and Practice

In the first part of this special issue, we have compiled the articles presented by the participants of the CBWNCL 2016 during the second day of the International Symposium.

Fourteen case studies were presented covering a variety of themes and problematics ocurrying in agricultural landscapes. Twelve of them are legally protected and nine of them are already in the World Heritage List. However, the OUV does not necessary rely for all of them in their agricultural features. Sometimes, the agricultural landscape surrounds a monument, or a protected area. In some other cases, the agricultural landscape is part of a biosphere reserve.

The case studies were divided in four themes. The first theme was "Terraces", an important heritage structure characterizing agriculture in many places in Asia and the Pacific. Terraces combine architectural design, land management, traditional knowledge related to weather and soil, and social organization. They are representative of a society's way of life, and this was illustrated with the cases of the Ifugao Terraces in the Philippines (pp. 10-14), the Hani Terraces in China (pp. 15-19), the organic farming in Taiwan (pp. 20-25), and the Lai Chi Wo village in Hong Kong (pp. 26-32). The main problem of maintaining terraces is generational change and the lack of workforce due to migration, depopulation of rural areas, population aging, and the modernization of agricultural production. Moreover, in the cases of the Ifugao terraces and the Hani terraces, they confront infrastructure development (roads, dams, etc.) that menace the integrity of these outstanding agricultural landscapes. In the case of Taiwan and Hong Kong, the objective of institutions like HDARES (Taiwan) or the University of Hong Kong is to revitalize rural areas and to recover traditional knowledge that is progressively diminishing.

The second theme was "Agricultural surroundings" and the case studies under this topic illustrated the problem of a limited protection, focused on the cultural or natural heritage (eg. temples and architectural structures – Borobudur (pp. 34-39) and Anuradhapura (pp.47-53), or specific geological formations – Capadoccia (pp. 40-46). The presentations showed that the agricultural landscape surrounding the World Heritage core areas was also valuable, and

sometimes as valuable as the architectural structures or natural formations, specially for the life of the local communities and for the significance of the core areas themselves. Nevertheless, these agricultural landscapes are not subject of protection and are not sufficiently recognized as an important aspect that sustains the OUV of these properties.

The third theme was focused on "Indigenous and Traditional Agricultural Landscapes", where the examples explained were the Coffee Cultural Landscape in Colombia (pp.56-62), Kachendzonga National Park in India (pp. 63-67), both already in the World Heritage List, the Apatani cultural landscape (pp. 68-73) in the Tentative List of India, and the Cihaalay Cultural Landscape in Taiwan, a non-protected rural area. In these places, traditional agricultural practices have continued to conserve biodiversity, as well as cultural practices that are representative of the interrelations between nature and culture.

Finally, the fourth theme was dedicated to "Nature and Agriculture", and the sites presented are protected due to their natural values: Sundarbans in Bangladesh (pp. 76-81), Bia National Park in Ghana (pp. 82-88), and Lowe Howe Island in Australia (pp. 89-93). In these national parks, agricultural practices are performed by the communities surrounding the protected areas, which hold the biodiversity of the region. In the case of Lowe Howe Island, the cultural values present in the area are recognized at a national level, even though the World Heritage site has been inscribed based on natural criteria. In the case of Sundarbans, there are many cultural values related to the natural values that are not sufficiently acknowledged and due to the sectorial division of conservation (nature in one institution, and culture in another), the interrelations between natural and cultural values are difficult to be recognized and conserved in an integrated manner. In the case of Ghana, the linkages between biological diversity and cultural diversity are not sufficiently acknowledged in the conservation measures of the national parks. Therefore, it was highlighted that the biocultural approach could help to understand the complexity of these sites enabling a more comprehensive conservation system.

The second part of this special issue presents the report of the workshop. In the report, the symposium content is explained including the presentations and discussions of the first and second days. Then, the workshop and the field visits are described, and the results of the working groups are summarized. Finally, the main debates and findings of the CBWNCL 2016 are presented as conclusions.

Acknowledgements

The editors would like to thank the editorial board of the Journal of World Heritage Studies for accepting publishing these proceedings as their first special issue.

We would like to acknowledge and thank the continuous collaboration of the partners of this series of workshops, ICCROM, IUCN, ICOMOS and the UNESCO World Heritage Centre, in the development and implementation of this project. Their constant feedback and kind support have been fundamental. Moreover, we would like to especially thank Tim Badman, Jessica Brown, Kristal Buckley and Gamini Wijesuriya for accepting to collaborate as reviewers of this special issue of the Journal of World Heritage Studies. Special thanks go to Dr. Mechtild Rössler, Director of the UNESCO World Heritage Centre for her kind support and collaboration.

We would also like to acknowledge the patient work of the authors who have contributed with their articles, making this special issue comprehensive, showing the diversity of agricultural landscapes in the Asia and Pacific region.

Thanks are also due to the academic and administrative staff of the World Heritage Studies and Certificate Programme on Nature Conservation at the University of Tsukuba for accompanying this project. The cooperation of students from the University of Tsukuba involved in these programs is also appreciated, their support during the symposium and workshop has been indispensable.

The collaboration of Ai Fukuda, Misako Kikuchi, Masaomi Kurokawa, Yoko Nakai, Anna Bogdanova, Imme Arce Hüttmann, Daisuke Funaki, Manami Watanabe, Yuki Izumi, Ryohei Shoji, Shaka Kaloma Y. Francis, Kimio Sato, Krishna Prasad Paudel, Keiko Takahashi, Kazuhiko Kobayashi, Zilai Zheng, Nanae Shirakabe, and Satomi Mitsui was greatly appreciated.

Part One:

Proceedings of the International Symposium on Nature-Culture Linkages in Heritage Conservation, Asia and the Pacific

AGRICULTURAL LANDSCAPES

Terraces

The Rice Terraces of Ifugao Province, Philippines

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(1) Save the Ifugao Terraces Movement (SITMo)

Abstract

The Ifugao Rice Terraces in the Philippines is a living cultural landscape, a testimony to hundreds of years of a people's harmonious co-existence with nature. With several hundred years of trial and error, the Ifugaos were able to come up with a rich body of traditional knowledge which now sustains this magnificent complex of terraced fields, managed forests, intricate irrigation systems, and villages that come together to forge a distinct way of life, an attendant lifestyle forged from the synergy of an unforgiving terrain and the temperament of a people determined to survive. The resulting rice culture of the Ifugao is now threatened by several factors both natural and human-made.

KEY WORDS: Ifugao, rice terraces of the Philippine Cordilleras, Ifugao Archaeological Project, sacred Ifugao landscape

1. Introduction

1.1 Overview

Ifugao Province is located along the eastern flank of the Luzon Central Cordillera mountain ranges with a land area of 251,778 hectares. The combined area of terraces occupies 17,138 hectares of the total land area. The topography is marked mainly by rugged mountains and massive forests. The terraces are located at high elevation, between 800 to 1,500 MASL, with a slope range of 50% and above. As of the last census in 2010, the population of Ifugao stands at 197,000 inhabitants.

Though the Ifugao Rice Terraces (IRT) have been known to have existed for over 2,000 years (UNESCO N.D.), recent discoveries of the Ifugao Archaeological Project also reveal much younger dates, as recent as 200-500 years ago. Historical records indicate an Ifugao retreat to mountain *refugias* to facilitate more effective resistance to Spanish control (Martin and Acabado 2015). A related study suggests that the resultant terracing culture in the Ifugao Province was influenced as well by an adaptive response to climate change and growing aridity in the neighboring Cagayan lowlands during the Little Ice Age, in the 13th to the 19th centuries (Peterson and Acabado, in press). Radiocarbon dating from terrace studies place the antiquity of rice farming no earlier than the late 16th century and suggest that fields, in the early settlement of Kiyyangan (Kiangan, Ifugao), were most likely wetland agricultural pond fields for the cultivation of taro (Acabado and Martin 2015). These pond field systems, nonetheless, prepared terrain and waterways for the development of rice terraces.

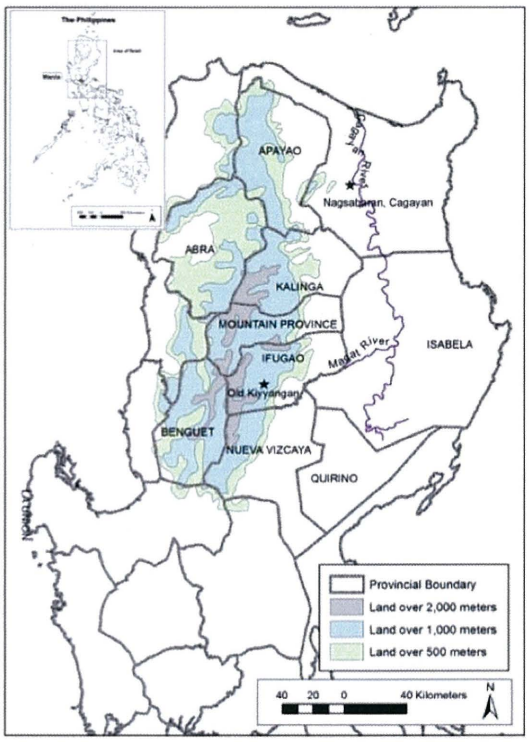

Figure 1. *Ifugao map (from Acabado, Zones of Refuge 2017 (in press)*

1.2 Brief Description: the Ifugao Rice Terraces System as a Sacred Agro-Cultural Landscape

The Ifugao agricultural system is an "agro-cultural complex," a term popularized by O'Connor (1995) to describe the interlocking nature of agricultural practices, social systems, political, historical, and cultural changes. This is an apt term because for the Ifugao, wet-rice cultivation is part of a much larger production system that includes swiddening and agro-forestry (Acabado and Martin, 2015). The rice is mainly planted to be interspersed with taro, legumes, beans and other crops. Its surrounding forests, both private and communal, are managed using an indigenous system of natural resources management passed down by earlier generations. Both the swidden and agro-forest serve as economic supplements and buffers in case of crop failure in the rice terraces. The maintenance of the living rice terraces reflects primarily a cooperative approach of the whole community which is based on detailed knowledge of the rich biodiversity existing in the Ifugao agro-ecosystem, a finely tuned annual system respecting the lunar cycle, zoning and planning, extensive soil and water conservation, mastery of a complex pest control regime based on the processing of a variety of herbs, accompanied by religious rituals (UNESCO, N.D.).

Notwithstanding the more recognizable agricultural feature of the terraces, it is equally important to understand the intangible and sacred component of the Ifugao terraced landscape. The traditional rice has always been at the center of the Ifugao way of life. Rice alone merited an entire cycle of rituals in the old Ifugao religion. Feasts of merit sanctified by ritual specialists that elevated individuals in the social hierarchy were pre-conditioned on existing rice field holdings. Social structure was defined by rice through rituals that necessitated the invocation of a thousand or so agricultural gods. Ritual rice fields were consecrated to set the pace of community labor and establish socio-political hierarchy. The terraced landscape is thus the setting of a belief system where gods and mortals communed, where sacrifices are offered, and divine providence is manifested.

2. Significance of the Heritage Place Including Natural and Cultural Value: Value Of The Ifugao Rice Terraces

In 1973, the Rice Terraces of Banaue, Ifugao were declared as a National Cultural Treasure, recognizing it as a part of the national patrimony of the Filipinos.

With the inclusion of five terraced clusters on the World Heritage List in 1995, UNESCO summarizes the Outstanding Universal Value (OUV) of the terraces as a living cultural landscape of unparalleled beauty, an enduring testimony to how people can exploit the resources around them without causing irreparable damage to the environment.

UNFAO, in recognizing the terraces as a Globally Important Agricultural Heritage System (GIAHS) in 2004, describes the Ifugao Rice Terraces (IRT) as the country's only remaining highland mountain ecosystem featuring a remarkable agricultural system. The

Figure 2. *The Banaue Rice Terraces (Photo by SITMo-IAP)*

Figure 3. *Rice terraces in Asipulo, Ifugao (Photo SITMo-IAP)*

continued viability of the rice terraces is a manifestation of strong culture-nature connections, engineering systems, innovation, and the determined spirit of the Ifugaos to maximize use of the mountainous lands for food production .

To the Ifugao people, the rice terraces are a source of sustenance for the communities whose lives revolve around its ancient rhythms. It is an enduring symbol of a people's resilience against nature's upheavals and resistance to colonial designs. The history of rice terraces is the history of the Ifugaos, one that defines them as a people and as a culture. It is this identity value that is first and foremost the reason for maintaining this relic of the ancient past.

While the World Heritage inscription and GIAHS recognition use different standards in qualifying heritage sites in their respective lists, both emphasize the cultural heritage and its universal significance in terms of its contemporary functionality, despite its antiquity. Unprecedented changes in the socio-political landscape of a country necessitates both recognitions as a means of securing - not just national protection - but also the global safeguarding of this vulnerable heritage of humanity.

3. Management

While several government agencies, from national to local, are tasked to manage and monitor the rice terraces, no comprehensive management plan is in place to ensure that conservation policies are strictly enforced.

The Ifugao Rice Terraces are maintained by families, not merely as production areas for a staple crop but also for the sentimental reason that these real properties have been passed down from their venerated ancestors. In matters of policy, the single most important difficulty in coming up with an effective and comprehensive management plan for the entire landscape is that it is in the realm of private ownership: the Ifugao Rice Terraces are privately owned and managed by hundreds of individual owners. Under Philippine laws and as a general rule, public funds cannot be spent on private property and thus, public expenditure is constrained. While the government provides support for the World Heritage listed clusters, minimal assistance is given to the wider area that does not have the privilege of a recognized status. The special status of the World Heritage listed clusters gives them the seeming character of being properties of the public domain and thus in special circumstances they are beneficiaries of monetary assistance from the government.

4. State of Conservation and Challenges for Continuity

In 2001, merely six years after its inscription on the World Heritage List, the five inscribed clusters were put on the List of World Heritage in Danger due to the deterioration in their physical integrity caused by various factors, including natural events, such as extreme weather conditions. This was compounded by the changes that were already radically transforming the socio-cultural landscape of the Ifugao, such as out-migration, waning indigenous knowledge application, and the erosion of customary social institutions. The poor state of conservation of the Ifugao Rice Terraces catalyzed the much-needed cooperation of public and private stakeholders, both local and international. The needed funding from the government poured in to repair damaged terraces while civil society groups handled grassroots organizing and publicity of the plight of this cultural landscape. Terrace conservation made it to the priority list

of each agency. Under normal circumstances it would have not stood a chance to compete with other more pressing concerns like health care, education, or public infrastructure. The Ifugao Rice Terraces (officially the Rice Terraces of the Philippine Cordilleras) were removed from the List of World Heritage in Danger in 2012. This turn of events highlighted the possibility of a very effective public-private partnership, now if only this can be sustained.

5. Recommendations

The threats that put the Ifugao Rice Terraces on the List of World Heritage in Danger did not disappear after its danger listing was removed. Issues for cultural landscapes do not have sure-fire solutions owing to the unpredictability of contemporary socio-political dynamics, economic issues, and environmental factors.

It has always been our conviction that the conservation of the Ifugao Rice Terraces is largely dependent on the continuity of its indigenous knowledge system, one that mastered the natural environment creating a unique landscape and a distinct way of life. The indigenous knowledge that evolved with the Ifugao rice culture is one that mastered the rhythm of the natural environment to ensure the survival of a people. Waters from rivers and springs, conducted to terraces carved or built on carefully selected slopes, reflect indigenous hydraulics and soil management. The maintenance of private and communally managed woodlots signify understanding of the forests' role in nutrient replenishment and soil and water conservation. Cropping seasons, that are in tune with the movement of sun and moon, synchronized planting that afforded effective pest control and ensured availability of communal labor, and the wide-ranging variety of crops planted in both forest and rice fields ensured healthy biodiversity and a year-round food supply. All these comprise the nature-culture approach that sustained the rice terraces for generations, which ultimately precipitated the formation of value systems, spirituality, and socio-political institutions of the Ifugao.

It is rather unfortunate that contemporary practices, caused by culturally-insensitive public policies and inadequate planning, do not take into equal consideration the natural and human dimensions of conserving the Ifugao Rice Terraces. Like the evolving cultural landscape that it has begotten, the traditional knowledge lifeblood of the terraces must continue evolving through a process that puts into consideration both nature and human elements.

On matters of government policy, a long-term management plan that involves all stakeholders must be put in place, at the very least, in the Province of Ifugao. Such a plan should not be vulnerable to changes in politics or shifts in the administration. Legislation on a government subsidy for terrace farmers should also be looked into to address their economic issues. Mainstreaming indigenous knowledge education in the formal school curricula should also be taken seriously by the education department and the local governments.

In conclusion, I would like to quote Sven Arntzen, "A cultural landscape incorporates meaning and identity value in that it provides a setting or context in which people can view their existence, lives and practices. When a cultural landscape's identity value is a reason for its preservation, the meaning associated with the landscape helps determine the manner in which humans ought to relate to land" (Arntzen 1999).

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A Brief Analysis of the Conservation and Management of the Honghe Hani Rice Terraces in China

Yuxin Li[1]

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Abstract

The cultivation of traditional rice has deeply moulded the landscape and shaped the farming culture of the Honghe Hani Rice Terraces (HHRT). During long-term interactions with their natural environment, the Hani people have generated a unique farming system that has sustained these terraces for centuries. The cultural and natural values and their linkages are exemplary in this system; the Hani people need to be recognized for the conservation and management of the terraces. However, deep social changes make the further sustainability of the HHRT uncertain. Both the environment and culture are severely challenged. This paper examines the relationship between the irrigation systems and water culture based on the values of the HHRT. Through case analysis, this paper suggests that the HHRT can be sustained through protecting the linkages between nature and culture. These findings could be used to broaden the vision and enhance the practical experience of the rice terraces conservation.

KEY WORDS: agricultural landscape, rice terraces, cultural heritage, conservation, culture and nature linkages

1. Introduction

1.1 Overview of the Heritage Site

The Honghe Hani Terraces (HHRT) are located in Yuanyang County, Honghe Prefecture, Yunnan Province in southwest China. These terraces are over 1,300 years old. Around the century, the ancestors of the Hani people, now officially recognized as an ethnic group, migrated and ploughed terraces, multiplied, and lived in this territory. There are six long-dwelling ethnic groups in this area, among which the Hani people have the largest farming population on the rice terraces.

The rice terraces, created by the Hani people, are mainly distributed over four counties, Yuanyang, Honghe, Lvchun, and Jinping, with a total area of approximately 54,700 hectares. They are located on the eastern border of the Hengduan Mountains, which is known as Mount Ailao, famous for its high-mountainous landscape, deep valleys, and rich biodiversity. Rice terraces, within this area, are irrigated by the mother river, the Red River, which is an international river stretching through China and Vietnam.

1.2 Brief Description of the Landscape

There are many complex components regarding land use. There are four elements that constitute the organic components and are responsible for maintaining the sustainable development of the agriculture in the HHRT (Jiao 1999). These four elements are the forest, the village, the terraces, and the river, which are all integrated vertically in order to take advantage of the environment of high mountainous terrains, tropical climates, and

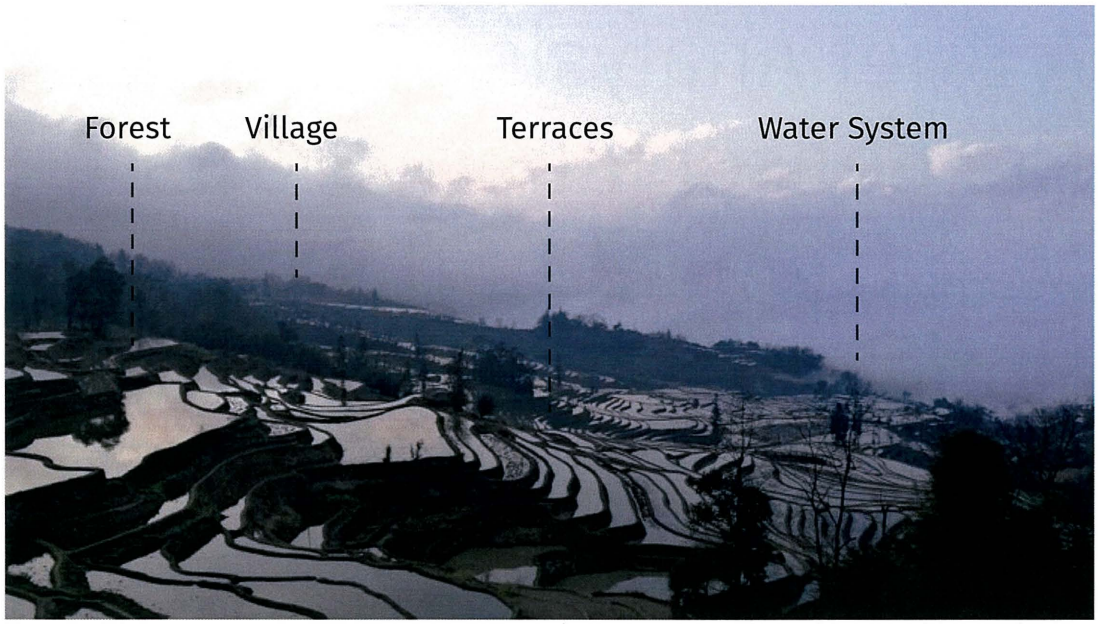

Figure 1. *Schematic Map of Forest-Village-Terrace-Water System (Photographed by author, Duoyishu Area, February 2017)*

heavy rainfall. The forest plays the role of a natural reservoir, helping to conserve water and soil. The village is the central focus of the landscape, providing active labor, livestock, and technology. The terraces are the guarantors of the agricultural products that sustain life, and the landscape provides a backdrop containing the other elements (Jiao 2003). The principal function of the river, at the bottom, is that of a climate regulator. Furthermore, due to the natural surface runoff and artificial irrigation system, soil, organic fertilizer, and water flow down from the top of the mountain to the bottom of the valley via the villages and terraces, enabling each element to contribute fully to the terraces' sustainability through the flow of water (Yao and Cui 2006; Zhu and Wang 2005).

The HHRT has been managed and maintained through the local knowledge of the Hani people. The unique environment and long-term farming practices promoted the Hani culture to form a set of traditions, with farming terraces at the core, including belief-systems, the agricultural calendar, farming techniques, water management systems, folk festivals, and other aspects. Therefore, activities driven by the cultural traditions of the Hani people, in this terraced landscape, deeply affect the environmental stability.

2. Significance of the Heritage Place including Cultural and Natural Values

The rice terraces of Laohuzui, Duoyishu, and Bada villages in Yuanyang County were inscribed as World Cultural Heritage sites in 2013 (under criteria iii, v), covering a total area of about 17,536 hectares. Compared to the terraces in the other three counties, the terraces in Yuanyang County are not the largest, but they contain the most representative landscape elements.

This landscape reflects great harmony between people and environment in spiritual, cultural, social, and ecological aspects. A resilient land management system, integrated farming and breeding systems, and water management systems illustrates a concept of sustainability through the four-element landscape pattern of "Forest-Village-Terraces-River" (UNESCO 2013). These systems comprise of a unique agriculture tradition in Asia, with a distinctive style which contains ecological balance, biodiversity, and cultural diversity

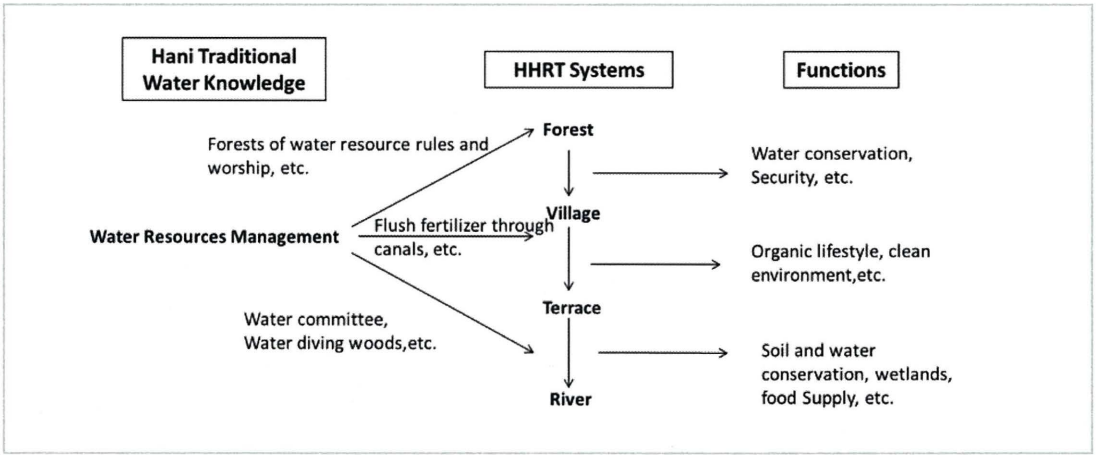

Figure 2. *Links of traditional water knowledge and the landscape (Li et al., 2016)*

(Deng et al. 2010). This work shown at higher altitudes and on a larger scale provides evidence of the Asian traditional rice cultivation and agricultural civilization.

3. Current Management Arrangements

3.1 Management Institutions

Because of the territorial jurisdiction principle for cultural relics in China, Honghe Prefecture is subject to the liability of conserving and managing the HHRT. The World Heritage Management Administration Office, established in 2013, is the protection and management organization for the HHRT at the prefectural level; it is also responsible for coordinating and arranging projects for the management offices of Yuanyang, Lvchun, Honghe, and Jinping counties at the county level.

3.2 Management System

In the overall management system of the HHRT, state, provincial, and prefectural governments provide funds and guidance. In practice, the prefecture government is the leading coordination agency that plans and deals with the comprehensive affairs of the overall heritage site, the County Terraces Management Offices are entrusted to implement daily conservation actions on site and administrative work. Farmers are responsible for the specific issues, such as forest protection, villages and terrace maintenance, and so on. Planning, implementation, supervision, evaluation, and feedback make up the principal work procedure.

3.3 Conservation and Management Practice

Case: Protecting culture by reintroducing water management system

Yakou Village is located in the HHRT property area in Yuanyang County. Starting in 2010, a continuous three-year drought occurred in the Yunnan province and destroyed considerable farmland. Even though they had a well-developed water management system, drought and the shortage of agriculture water aggravated poverty in Yakou Village. As a result of this drought, traditional sacred activities, related to water management regimes, began to disappear. The economic, social, and environmental situations were under serious threat.

In order to revive life in this village and sustain the landscape, a field study was conducted by the Terraces Management Office of Yuanyang County in 2012. After investigation, it was found that the destruction of the water environment and the loss of traditional water management, as well as the death of the old Migu (leader of village in the traditional social system), were major reasons for the situation. By reconnecting culture and nature, the vitality of economic, social, and environmental development has started to revert to sustainability. A series of actions, such as restoring the water environment, reintroducing the traditional water management regime of Yakou Village, and cultural and sacred activities related to the water resources were conducted by the new leader of the village. Meanwhile, the traditional water committee was reorganized in order to execute the regular checks on

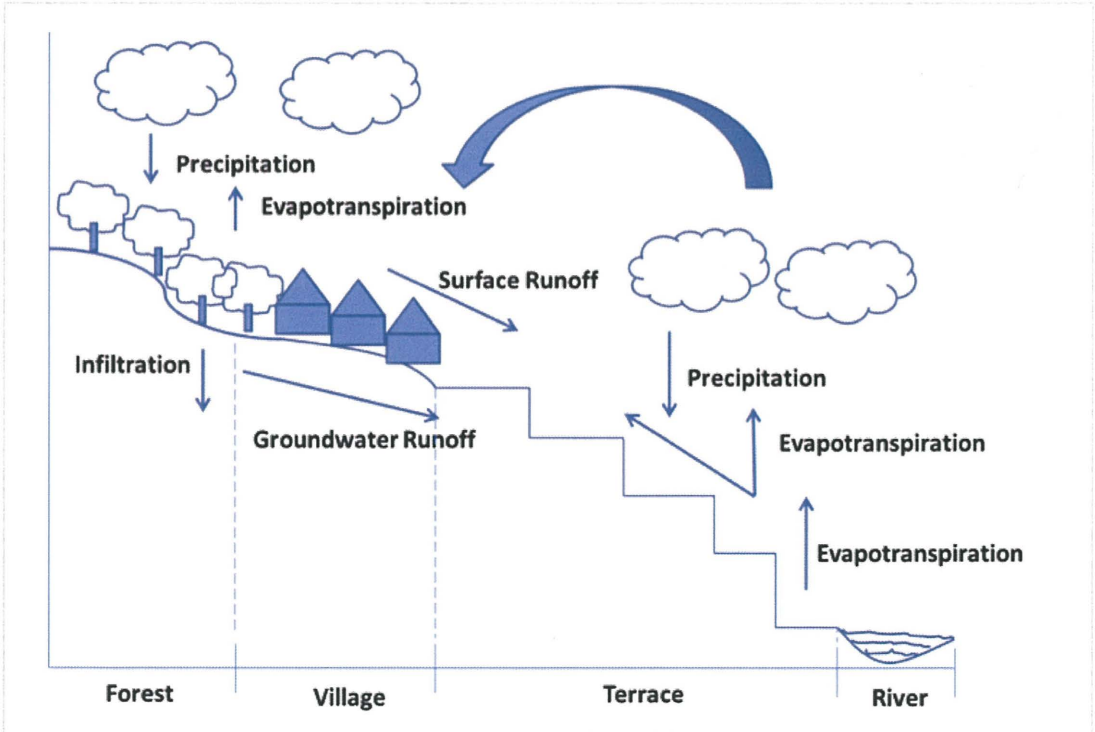

Figure 3. *Water Circulation System in the HHRT (Bai, 2013)*

the canal system and terraces. At the same time, Yakou benefited from a comprehensive environmental project with priority within the area of the Honghe prefecture.

The return of a good water environment gave relief to the effects of the drought. Apart from this, the historic scenery and the water environment are the main attractions for tourists. Compared with other villages, the understanding of nature, culture, and their linkages is deeper in this village.

4. Current State of Conservation and Challenges for Sustainability

Generally, the current state of the conservation of the HHRT is good. This is due to the efforts made by the local community and conservation departments, in both the ecological and the cultural aspects. The terraces and forests within the property area have been maintained well.

However, the conservation efforts are being challenged by the following problems:

(1) The labor: The influences of modern culture and lifestyles are placing the traditional knowledge and its transmission in danger. The young workforce, which is the major provider of labor in the maintenance of the terraces, is gradually moving to the cities, while the farmers staying in the villages are mainly elderly. It is unattractive to the younger generation to engage in the highly labor-intensive work and complex activities related to terrace farming.

(2)The environment: Unordered construction, chemical fertilizers, and plastic pollution, as well as the increasing amount of tourists, have negatively impacted the original self-cleaning system of this terraced landscape. The quality of the local ecological environment faces a high risk of damage as the result of pollution.

(3) The knowledge: Although the awareness of the importance of traditional culture in sustaining this cultural landscape is increasing, there is an absence of an adaptive and effective mechanism to continuously transmit indigenous knowledge and skills, which includes cultural and natural recognition.

(4)The conservation: The conservation plans and fieldworks, specifically aimed at the wetland function, biodiversity, and cultural diversity, are still not perfect. Furthermore, owing to the complex situations of tangible and intangible heritage, it is difficult to enact specialised laws and regulations to protect this environment.

5. Conclusions and Recommendations

The HHRT is the result of interactions between people and the environment, it represents a complex land use system with diverse ecological and cultural functions. Although it is challenged by some cultural, natural, and social issues, it is believed that protecting the linkages between nature and culture in the HHRT is a feasible way to help in sustaining the landscape and the quality of people's life. This does not only need to be realized in the research of values, but also in conservation practices, as this harmonious interaction has been developed and achieved between humans and the environment over centuries.

In order to enhance the protection and management of the HHRT through conserving nature-culture linkages, it is recommended that the ecological preservation knowledge of the local community be utilized. From the aspect of cultural promotion, the necessary steps are investigation, recording, and dissemination of the indigenous culture-nature linkages. Subsequently, the current situation and development trends should be clarified. To increase the interest in farming and maintaining terraces in the local community, special farming courses in formal schools, effective agricultural compensation (Liu et al. 2017), and farming methods that meet the needs of modern life could be implemented. Moreover, to enhance protection and promote awareness of culture-nature linkages, it is necessary to emphasize traditional social organizations and enact specific legislation. From the aspect of ecological preservation, training courses and construction guidelines in the local community are important on site, as well as a tourism management plan for the heritage site, to prevent or limit negative environmental changes. The encouragement of ecological tourism could be attempted to entertain and educate both villagers and tourists as well. To summarize, deepening research on the culture-nature linkages from both traditional and modern perspectives is necessary in order to enhance the state of conservation and support the sustainability of the HHRT.

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Promotion of Organic Agriculture in Eastern Taiwan

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Abstract

The Hualien District Agricultural Research and Extension Station (HDARES) has actively helped indigenous tribes to build stable, high-quality crop production systems, develop organic farming, and adopt the concept of eco-agriculture. In doing so, the HDARES helps locals to maintain biodiversity, sustain food production, improve their livelihoods, and protect the ecosystem.
To protect indigenous traditional wisdom, HDARES focuses on recovering indigenous and organic farming technology and industry. The community of the Xinshe Tribe recovers and applies its traditional farming skills, making efforts to maintain the cultural customs of the Kavalan ethnic group. The Fushin Eco Farm introduced organic pest control measures to implement the concepts of the Satoyama Initiative. Thus, the work of HDARES is oriented to the recovery of nature-culture linkages in agricultural landscapes for the conservation of biodiversity and cultural traditions.

KEY WORDS: indigenous traditional culture, eco-agriculture, leisure tourism industry

1. Introduction

Agricultural landscapes are expressions of the interrelations between cultural and natural heritage; according to research, the continuation of traditional systems produces higher biological and cultural diversity (Fan et al., 2013; Yen et al. 2016). Eco-agriculture is a system that supports both agricultural production and biodiversity conservation while working in harmony to improve the livelihoods of rural communities (Scherr and McNeely 2002); for example, producing crops with less pollution or damage to the environment. This approach enhances the role of traditional agriculture in food security and ecological conservation, increases the competitiveness in the high-quality agricultural industry, and ensures its sustainable development.

For centuries, many indigenous peoples have developed, maintained, and adapted different types of eco-agriculture systems. Their knowledge, traditions, land use practices, and resource management institutions are essential to the development of their viable eco-agriculture systems; however, due to modernization, migration, and aging population, decreased emphasis has been placed on traditional knowledge, to the point that it is disappearing.

The Hualien District Agricultural Research and Extension Station (HDARES) is responsible for conducting agricultural experiments and research for Hualien and Yilan counties in Eastern Taiwan as well as performing multifunctional operations such as, demonstration and extension, farmers' education and marketing counselling, and

technological and technical collaborations. In addition, HDARES has become a regional center for agricultural research development and extension. The work of HDARES is closely related to farmers' rights and interests as well as to the construction of rural areas. Therefore, the functions of HDARES are crucial for the agricultural development of Eastern Taiwan.

The offices of HDARES are based in the Hualien and Yilan counties of Eastern Taiwan (see Figure 1). These counties cover 6,772 km, of which more than 13% is alpine hillside. Among the 736 km^2 of arable land (10.9% of the total land area), paddy fields cover only 293 km^2 (39.8% of arable land) while dry land covers the remaining 443 km^2 (60.2% of arable land).

The main cultivated crops of Hualien County are rice, maize, tea, pomelo, watermelon, plum, peanut, lily, and sweet potatoes, while that of Yilan County are rice, cabbage, kumquat, orange, pomelo, tea, onions, wax apple, Yin Liu, and garlic.

The area of arable land in Hualien County is mostly covered with calcareous schist alluvial soil, shallow soil and gravel that causes poor soil fertility, while that of Yilan is slate alluvial soil, which causes poor drainage in some areas. This geographical area is characterized by mountainous terrain and steep slopes, short and rapid rivers, and frequent typhoons, earthquakes, and other natural disasters. Among the region's households, 47,188 (15.5% of the total number of households) live from agriculture and 202,000 people (25% of the total population) are farmers (HDARES 2014).

In this context, HDARES has subscribed to the Satoyama Initiative, an international action plan created by the United Nations University and the Japanese government, which aims to encourage the preservation and utilization of biodiversity. At the core of the initiative is the concept of "socio-ecological production landscapes and seascapes," which encompasses the ecological habitat formed through the long-term interaction between humans and nature as well as the dynamic landscapes utilized by humans. (IPSI 2017) In landscapes and seascapes utilized for ecological production, natural resources may be used, then recycled, and used again. Additionally, the values and importance of traditional culture should be recognized, thus striking a balance among sustainable food production, people's livelihoods, and ecosystem protection. In this way, the Satoyama Initiative promotes the recognition of cultural values in productive landscapes, supporting the interlinkages between nature and culture that contribute to environmental conservation, especially biodiversity conservation.

2. Strategies of HDARES for the conservation of the agricultural landscape in Eastern Taiwan

2.1 Development of ecological farming and conservation of the agricultural landscape

HDARES develops organic production technology and techniques for crops and cultivates this knowledge in farmers, helping Eastern Taiwan to become an organic production hub in Taiwan. In recent years, organic research conducted by the HDARES has further ventured into the field of ecology with studies performed to identify ways to create

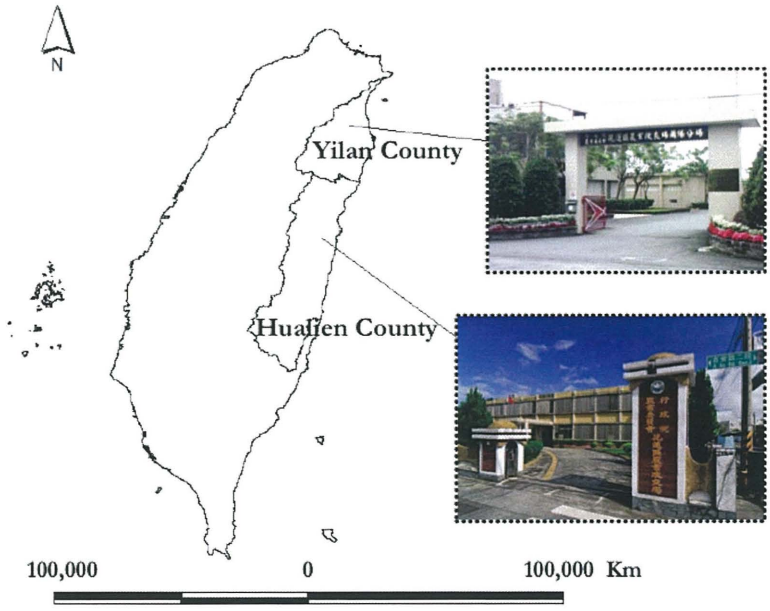

Figure 1. *The location of HDARES in Taiwan*

diverse biological habitats inside organic farmland, to develop techniques for operating and managing ridge vegetation, and to teach farmers to use the principles of ecological balance for pest control. These efforts have reduced the costs incurred by farmers in pest prevention and control, elevated their revenue, and facilitated the sustainable development of agricultural production.

Also, over the past few years, the HDARES has actively helped indigenous tribes in building stable, high-quality crop production systems, developing organic farming, adopting the concept of eco-agriculture, preserving wildflowers, and building hedges around organic farmland ridges. In doing so, the HDARES helps locals to maintain biodiversity, sustain food production, improve their livelihoods, and protect the agricultural landscape (Fan et al. 2013).

2.2 Promotion of the indigenous tribe leisure tourism industry

Indigenous tribes in Taiwan are often located in places with stunning natural landscapes, with each tribe having its own distinct culture, which gives them advantages in attracting and developing tourism. HDARES made an inventory of tribe resources and then customized strategies for each tribe according to the results. Counselling tutors provide suggestions and advice to every tribe and meet with tribe members regularly to discuss and brainstorm tour content. The purpose of this resource is to help these tribes in developing mature and distinguishing tourism industries, revitalizing the economy of the indigenous tribes (Sun et al. 2016).

3. Development of ecological farming and conservation of the agriculture landscape

In general, planting rice requires a large paddy field and monoculture (i.e., only one type of crop is grown) which typically leads to lower biodiversity and a higher risk of pests and diseases. To resolve these problems, the HDARES modified the international concept of eco-agriculture to include ecological engineering methods appropriate for Taiwan. To protect indigenous traditional wisdom, HDARES has started researching and promoting indigenous crops. They focus on recovering both indigenous and organic farming technologies and industries. The Xinshe Tribe community recovers and applies its traditional farming skills and makes efforts for maintaining the cultural customs of the Kavalan ethnic group indigenous to Taiwan. Additionally, the Fushin Eco Farm has introduced an organic pest control measure to implement the concepts of the Satoyama Initiative (Tseng et al. 2015).

Thus, the work of HDARES connects traditional knowledge and cultural values of indigenous people in Eastern Taiwan to the conservation of biodiversity in the agricultural landscape.

3.1 In the Xinshe Tribe

Located in the Fengbin Township on Taiwan's

Figure 2. *The agriculture landscape of Xinshe Tribe (Author: Chung-Yu Hsu)*

Figure 3. *The agriculture landscape of Fushin Eco Farm (Author: Li Lin)*

east coast, the settlements of the Xinshe Tribe are surrounded by paddy fields (see Figure 2); rice has been grown there continually for a century. For the Kavalan ethnic group residing in the area, rice harvesting has been their livelihood for generations. They have a strong affection for rice because it is their staple food, and the custom of brewing rice wine is also an important part of Kavalan rituals.

HDARES first conducted a soil test in the area from which they found that the paddy fields have accumulated a wealth of organic matter, making them highly suitable for organic farming. The team recommended the use of Taikeng No. 2, a rice variety that is not only suited to the Hualien region but is also delicious and resistant to numerous pests and diseases. In regards to planting techniques, the spacing between each row of rice was increased to facilitate ventilation. Additionally, the amount of nitrogen fertilizer was controlled to prevent the rice tissues from becoming overly soft and susceptible to pests and diseases.

As part of the implementation of the concept of eco-agriculture, HDARES planted specimens of the *Asteraceae* family as ridge vegetation to attract natural enemies of pests - a method that disproves the traditional belief that weeds must be removed from ridges.

As mentioned, paddy field pests, such as planthoppers, leafhoppers, and snout moths, can be effectively prevented and controlled by using their natural predators, such as ladybugs and parasitoid wasps. These effective pest killers can be retained by constructing an eco-friendly environment, thus minimizing the need of pesticides. The retention of pests' natural predators and growing of flowering plants on ridges are new methods that challenge the traditional idea that emphasizes the removal of weeds on ridges. These new ideas can serve as a reminder to those in agriculture to think outside the box, such as considering replacing monoculture with biodiversity which will increase the prevention and control of pests and diseases as well as enrich the agricultural ecosystem.

The concept of ecology extends beyond paddy fields, it is also a part of life. For example, farmland can be used to enrich the educational content of the Municipal Xinshe Elementary School. Students from the Municipal Xinshe Primary School and Preschool visit the farm monthly to perform various farming activities, enabling them to learn about the rice-growing process and agricultural ecosystem. Rice growing allows children to connect with their land. Moreover, for the Kavalan family, rice is something that brings the family together and allows their family bonds to become stronger.

3.2 In the Fushin Eco Farm

The Fushin Eco Farm primarily focuses on performing farm-related experiments. Located in the Ruisui Township, Hualien County, the Fushin Eco Farm is divided into three land types: public farmland, private farmland, and natural areas (see Figure 3).

The public farmland is used for experiments; various experiments are performed by the Fushin Eco Farm in collaboration with the National Dong Hwa University, HDARES, and the Forestry Bureau. The experiments aim to find the means of resolving conflicts between farmers and animals, such as through the exploitation of purse nets and the natural predators of pests. The habitat is composed of wetlands, bustling with biodiversity and life. In the future, this area may be open to visitors for eco-experience tours.

The private farmland is divided into 20 equally sized parcels, with local residents invited to farm the land. The villagers can use the farmland to grow crops, at no cost for the

first three years, on one condition: they must practice organic farming. Villagers who fail to meet this requirement lose their access to the farmland (Tseng et al. 2015).

The Fushin Eco Farm owner explains that the purpose behind the provision of the private farmland is so, that the Fushin community will learn to accept the practice of organic farming. The Fushin community is mostly surrounded by conventional farmlands and the residents have little organic farming experience. Therefore, by providing access to their farmlands, the Fushin Eco Farm enables villagers to learn, accept, and adopt environmentally friendly farming methods. Additionally, these activities enable conventional farmland to be transformed into organic farmland. Promoting organic farming through practice is an idealistic approach with the goal that villagers get in contact with organic farmland, familiarize themselves with it, and ultimately accept it.

The Fushin Eco Farm possesses an objective identical to that of the HDARES and the organizations have enjoyed a productive partnership, especially in the implementation of the concept of eco-agriculture. The farm insisted on using organic materials for planting even without using *Bacillus thuringiensis*[1]. Therefore, when faced with an invasion of corn borers (*Ostrinia furnacalis*), the farm sought guidance from the HDARES, which subsequently introduced them to the concept of ecological protection and they built a corn borer prevention and control experiment location for the farm. HDARES also planted a row of Chinese hibiscus flowers beside the cornfield to prevent and control the corn borers pest. Additionally, HDARES added a sheet spread with parasitoid wasps (*Trichogramma ostriniae*) during the initial experiment stage, and planted sunflowers before the hibiscus blossomed.

4. Promotion of indigenous tribe leisure tourism industry

Taiwan's indigenous agriculture, cultural, and ecological resources are quite diverse and interesting. Leisure developments in indigenous areas, combined with the cultural creativity industry, have not only contributed to the establishment of leisure features, but have also helped conserve indigenous culture and promote tribal economic prosperity.

To promote indigenous tribe's agriculture industry in Eastern Taiwan, HDARES assisted tribes in enhancing their strengths and competitiveness for tourism. Eight tribes were chosen based on their potential in tourism: Leshui, Syanox, Tafalong, Fushin Eco Farm, Kiwit, Ceiroh, Namukang and Cilamitay tribes. HDARES provides suggestions and advice for every tribe and meets with the tribe members regularly to discuss and brainstorm tour contents.

In the case of Fushin Eco Farm, due to the fact that the farm is mainly for crop production, they faced many problems in the development of the leisure industry. For instance, the division of labor is unclear, there is a lack of manpower and a lack of design of experiential activities. HDARES made an inventory of the tribe resources and they designed experiential activities for the Fushin Eco Farm according to the result. The most attractive characteristic of the farm is the use of the concept of eco-agriculture in their agricultural practices. Therefore, HDARES recommended that the farm provides visitors with agricultural technology instruction, eco-guided tours, and farmer's cooking activities.

After the development of the leisure industry, the Fushin Eco Farm found that the cohesion of the community increased, not only in restoring the traditional farming model and the protection of indigenous culture, but also in enhancing economic benefits.

5. Future research

Ecological farming involves the introduction of symbiotic species to support the ecological sustainability of the farm. HDARES will continue to develop an organically friendly environment to cultivate and explore ecological agriculture cooperation and promotion strategies suitable for rural communities by following the Satoyama Initiative.

With financial support from the Council of Agriculture from 2017 through 2020, HDARES will cooperate with the following international institutions to conduct a 4-year integrated project, called "Integrated project for enhancing eco-agriculture and sustainable development of rural Taiwan": the National Dong Hwa University (NDHU), National Taiwan University (NTU), Agricultural Engineering Research Center (AERC), Miaoli District Agricultural Research and Extension Station (MDARES), Chinese Taipei Committee, and the International Commission on Irrigation Drainage (CTCID).

The main research strategy is to combine the efforts of social sciences and natural science studies with a focus on enhancing landscape resilience and community adaptive capacity. It aims to encourage the preservation and utilization of biodiversity. There are five research strategies:

i. To increase the diversity and resilience of agricultural production landscapes.

1 *Bacillus thuringiensis* is a Gram-positive, soil-dwelling bacterium, commonly used as a biological pesticide.

ii. To increase the agrobiodiversity of paddy fields and enhance ecosystem services through habitat restoration within the farmlands and its surroundings.

iii. To enhance the adaptive capacity of rural communities through collaborative planning and multi-stakeholder participation.

iv. To explore relevant international policies for promoting eco-agriculture in Taiwan.

v. To learn from innovative international technologies and practices, and to share Taiwan's experience with international societies.

Following the Satoyama Initiative, HDARES will continuously support the promotion and recovery of nature-culture linkages in agricultural landscapes for the conservation of biodiversity, cultural traditions, and to achieve the objectives of increasing food production and improving rural livelihoods.

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The Significance, Conservation Potential and Challenges of a Traditional Farming Landscape in an Asian Metropolis: a Case Study of Lai Chi Wo, Hong Kong

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Abstract

Lai Chi Wo is a remote farming valley located in the northeast of Hong Kong, China. The agricultural landscape is the result of more than 300 years of interaction between a traditional Hakka settlement and its natural environment, which reflects the ancient Chinese Feng Shui philosophy. Although the site is one of the most intact and authentic vernacular cultural landscapes in South China, with important environmental and cultural values, there is no effective protection system available to conserve the landscape as a whole. Its isolation, and the weak attachment of the younger generation further threaten the landscape's sustainability. Since 2013, a collaborative local initiative has been implemented to revitalize the landscape, the natural and cultural heritage, and the community of this once-deserted village. The regeneration of this agricultural landscape has provided a portal for wider society to participate in the environmental and cultural stewardship process.

KEY WORDS: Lai Chi Wo, traditional farming landscape, farming terrace, *Feng Shui* village, *Feng Shui* forest, rural revitalization

1. Introduction

At first glance, Hong Kong is a hustle and bustle cosmopolitan city, well known for its overpowering urban landscape, with high-rises and high-density development. Only 24.2% of its area is, in fact, covered by urban land-use (HKSAR 2017a). Beyond the metropolis lies another, disappearing, rural Hong Kong, where the vast farming landscape once supported the living of most of Hong Kong's population. Many farmlands, orchards, and terraces still exist, although most are abandoned. There are also depopulated villages, that have been shaped by generations of rural communities who have designed, constructed, and managed the farming landscape for hundreds of years. Among them is Lai Chi Wo, one of the most intact traditional farming landscapes still existing in today's Hong Kong.

The traditional farming landscape in Hong Kong is the result of long-term interactions between human settlements and their natural environment; the landscape setting also embodies the ancient Chinese wisdom of *Feng Shui*. This paper examines the spatial setting, the cultural and ecological characteristics of Lai Chi Wo, and presents Lai Chi Wo as an example to discuss the significance, conservation potential, and challenges of the traditional farming landscapes in Asian metropolises, such as Hong Kong.

2. Lai Chi Wo: a traditional Hakka farming landscape

Hong Kong is situated at the mouth of the Pearl River estuary (Figure 1, left) and is characterized by its rugged topography. Flatlands are scarce, therefore most of the large, early settlements

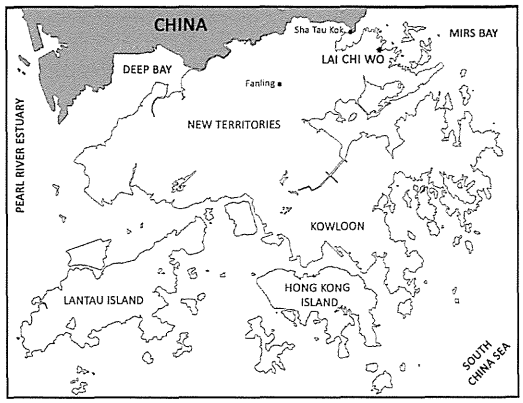

Figure 1. *Location map of Lai Chi Wo and Hong Kong*

are located at the northern and northwestern side of the territory, where extensive flatlands could be found (Owen and Shaw 2007). The northeastern part of Hong Kong, on the other hand, is far more rugged, with fewer flatlands available for traditional paddy farming. These hilly landscapes were usually inhabited by the late settlers, the Hakkas (客家), 300 years ago. In Hong Kong, the Hakkas are recognized as one of the four major indigenous ethnic groups. They are a subgroup of the Han Chinese that originated in northern China who began to settle in the territory after the repeal of the Coastal Evacuation Order in 1669 (Liu 1999).

Lai Chi Wo is located in the remote valley of the northeastern shore of Hong Kong (Figure 1, right) and is about 13 km from the closest downtown area. It is a natural valley, with an area of about 1 km^2, embraced by mountains, with the northern side facing Mirs Bay. The archeological findings from the site showed that there has been human activity since 2,000 years ago (HKSAR 2014). The village was settled in the late seventeenth century by two Hakka clans, the Tsangs (曾) and the Wongs (黃). Their ancestors adapted to the rugged topography and modified the hillslopes into terraces for paddy farming. At its agricultural prime in the 1950s, Lai Chi Wo fed a few hundred villagers and supported nearby fishing communities. The farmlands once covered more than 40 hectares of land. Today, the site is enveloped and isolated by the statutory protection areas.

The village was once abandoned in the 1990s–2000s and most of the villagers moved abroad. However, the Hakka community of Lai Chi Wo still demonstrates very strong community cohesion and attachment to their motherland, even when most of the villagers live abroad. For every traditional festival, such as the spring and autumn tomb-sweeping festivals (春秋二祭) and the ten-year *Dai Jiu* festival (打醮), the overseas villagers return to Lai Chi Wo to join in the rituals. They still use their Hakka dialect within their community. Lai Chi Wo is also the center of Hing Chun Yeuk (慶春約), a rural alliance of seven nearby Hakka villages, connecting the Hakka communities of different villages together.

3. *Feng Shui* – an ancient Chinese philosophy and science of co-existence with nature

Traditional farming landscapes in Hong Kong embrace the Chinese notion of human coexistence with nature. This was expressed through the ancient Chinese belief system of *Feng Shui*. *Feng Shui* literally means "wind and water" in Chinese. It is an esoteric set of geomancy theories and practices that "allows humans to comprehend and take advantage of the forces of nature that surround them, but also guides the creation and maintenance of landscapes" (Watson 2007). People believe practicing *Feng Shui* can ensure good fortune, that includes wealth, progeny, good harvests, and official positions (Knapp 1990). *Feng Shui* is deeply rooted in Chinese culture and has shaped almost every settlement landscape in ancient China, including rural villages, such as Lai Chi Wo.

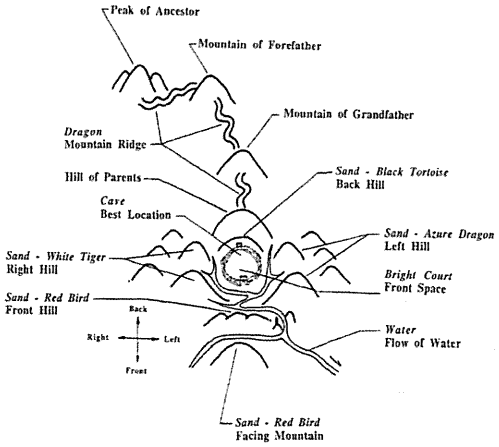

Figure 2. *An ideal layout and symbolic elements of a Feng Shui village (Mak and Ng 2005)*

An ideal *Feng Shui* setting model was established in ancient China to help people find and modify a site for settlement, as shown in Figure 2. It follows two fundamental principles, "facing onto water and sunny side" and "backing onto mountain and shading side" (Cheng and Kong 1993). The landforms are undulating rather than linear, blessed with gentle winds and slow, meandering streams to promote good and gentle circulation (Coggins 2003). Lai Chi Wo village sits northwest, at the

Figure 3. *This aerial photograph, taken in 1956, gives a glimpse of the old farming landscape and Feng Shui setting of Lai Chi Wo and nearby branched villages. ①=Lai Chi Wo village, ②=Hillside Feng Shui forest, ③=Estuary Feng Shui forest, ④=Paddy terraces, ⑤=Mui Tze Lam village, ⑥=Kop Tong village, ⑦=Siu Tan village . (Mapping and Survey Office, Hong Kong SAR Government)*

foothill, and facing southeast to the sea. The settlement lies between two ridges on the southern, sunny slope, forming a protective arc to shield the village from cold winds in the winter, yet they receive sun throughout the year (Owen and Shaw 2007) (Figure 3). The village stands above a floodplain and is nourished by slow moving, meandering streams. The axial arrangement of village houses also ensures that the heat of the sun is seasonally captured, or evaded, by the southeast-facing front (Figure 4). Between the village and the hills, a species-rich, mature, forestland is maintained, the *Feng Shui* forest. It blankets the hills behind, while all other hillsides were stripped bare for fuel in the old days. The *Feng Shui* forest serves as a natural barrier to protect the village from landslides and hill fires, as well as moderating the microclimate and providing natural resources, such as foods and fuels (Yip et al. 2004). Furthermore, the villagers of Lai Chi Wo plant bamboos to block the bad (strong) wind and maintain an estuary *Feng Shui* forest near the shore to protect the village from sea wind and wave, which is unique in Hong Kong. The *Feng*

Figure 4. *The layout plan of the village houses: all houses are neatly arranged along three vertical and nine horizontal lanes with the same facing direction (southeast) enclosed by the village wall according to the note given by the Feng Shui master hundred years ago to optimize living environment and control over-expansion which might exceed the carrying capacity of the landscape*

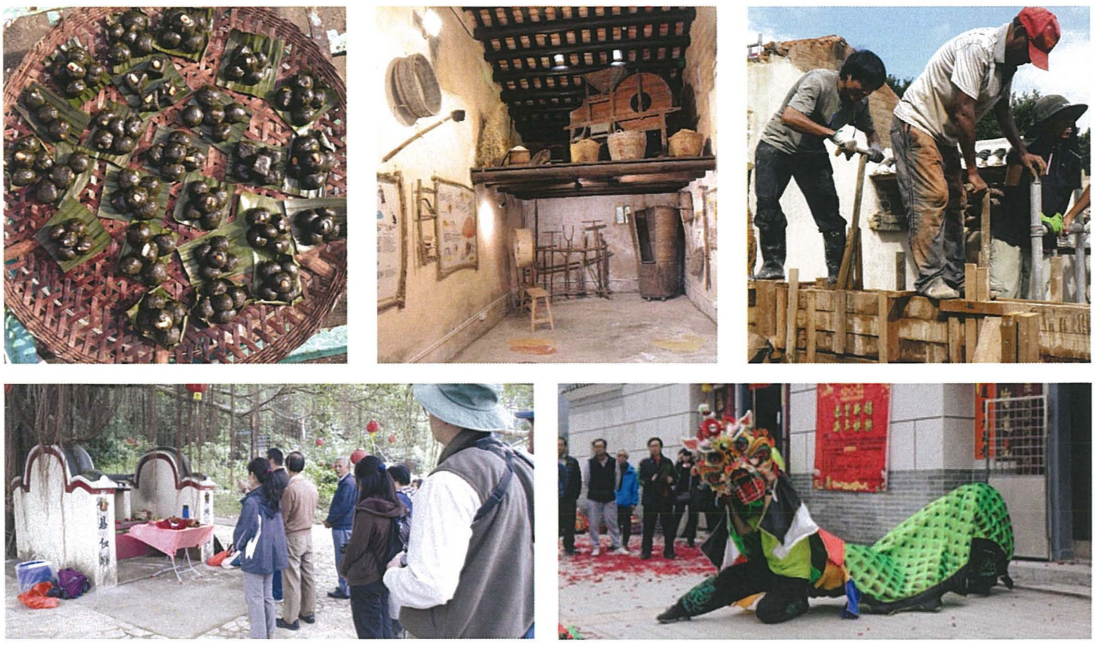

Figure 5. *The Hakka traditions preserved in Lai Chi Wo. Upper left = Hakka snack, Cha Kwo (茶粿), made with rice powder and local plant Paederia scandens, upper middle = Traditional rice farming tools displayed in the village exhibition room, upper right = Building mortared wall using soil, rice straws, raw sugar/sticky rice and oyster shells, lower left = Earth god worship, lower right = Hakka Unicorn dance (舞麒麟)*

Shui setting is a characteristic landscape feature of traditional farming villages in South China and it has been proven that the embracing hills and the southern exposure were an ideal spatial configuration for village settlement and paddy rice cultivation (Lovelace 1985).

Feng Shui displays the philosophical thinking of the ancient Chinese about the concept of balance and harmony with nature in the development of traditional settlements, with many specific manifestations that embody the rich comprehension of nature's rules. It represents a Chinese indigenous form of environmental design and management that builds community solidarity (Coggins 2003). Today, Lai Chi Wo village still endeavors to protect its *Feng Shui*, although perhaps not quite so strenuously as before; these principles guide the management and the use of the environment by emphasizing elements of the natural order that have worked for generations. The traditional belief system protects not only the site's integrity as a *Feng Shui* village but also sacred trees under the earth god as a tradition of worshipping nature. This strong belief has made the site the most intact *Feng Shui* farming village in Hong Kong, whereas most other similar landscapes have been destroyed, fragmented, or intruded in modern South China upon rapid urbanization (Cheng et al. 2009).

4. Farming landscape: a place to incubate nature-based culture

Historically, most of the villages in Hong Kong were villages of rice subsistence farmers. Lai Chi Wo was no exception: two crops of rice and, often, a third crop of winter sweet potatoes, were grown in the small farming fields. The warm and humid climate resulted in a prevailing farming mode of paddy rice cultivation among villages in the South China region. The Hakka ancestors opened the foothill and upland areas; they terraced the hillslopes along the contour lines into small, flat farming plots to adapt their double-crop rice tradition into the marginal hilly terrains they occupied. Some steeper upland terraces were used to grow fruit trees. The terrace design was an important landscape modification feature, associated with the local Hakka culture, in response to rice cultivation and soil erosion (Fan 1992). The farming terrace system was supported with an extensive, but carefully designed, irrigation that directed the freshwater source from the upper hills to feed every single terrace field and farmland for the cultivation of rice and other crops.

Natural resources have never been limited in Lai Chi Wo. A wide application of local materials could be found in every aspect of the previous village life. The villagers used stones collected from the streams and hills to build retaining walls to support terrace and irrigation channels. They used local trees, grasses, and bamboos as fuels and for making farming tools and weaving baskets. Local soil was the basic building material to produce mud bricks and mortared walls. The local plants provided rich resources for making clothes, dyes, foods, etc (Figure 5). The use of local, natural materials, as well as the way the Hakka ancestors built their dwellings on slopes, minimized the economic input under the previous harsh living conditions. And this close and reliant relationship with the natural environment incubated the indigenous knowledge of nature,

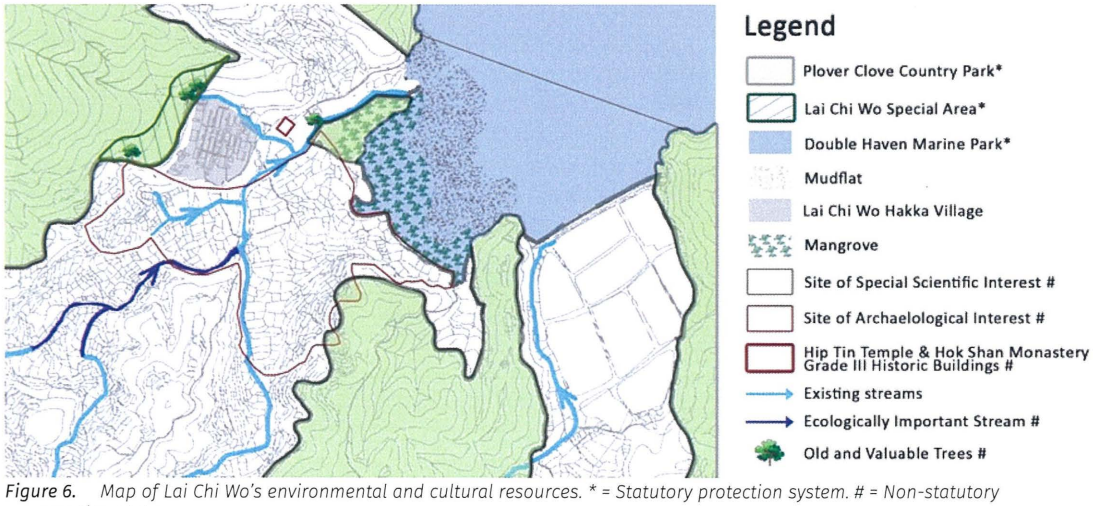

Figure 6. *Map of Lai Chi Wo's environmental and cultural resources. * = Statutory protection system. # = Non-statutory conservation status*

adaptation, and the mindset for the sustainable use of natural resources for the sake of long-term self-sufficiency. It has become a form of a unique natural manifestation of the local Hakka culture, which can still be seen from the village's older generations today.

5. Revitalization of deserted landscape

The rice farming tradition continued essentially unchanged in rural Hong Kong until the mid-twentieth century. After World War II, however, the government started to massively develop the rural areas that, together with the influx of refugees of the Civil War in mainland China, led to an important directional change in local agricultural development, which heavily impacted on the rice farming tradition of rural communities (Liu 1999). From about the 1960s, rice farming ceased to be practical in the villages because of the ever-increasing opportunities for better-paid work in towns and abroad. The young people of the villages moved to urban areas, abroad to the UK, or other European countries, to seek new job opportunities, leaving the farmlands lying abandoned. The last paddy field in Lai Chi Wo went out of production in about the late 1970s. The original farming community of Hakkas was gone. On the other hand, the rich environmental resources of Lai Chi Wo has attracted the government to invest substantially in nature conservation. The government announced the establishment of the Plover Clove Country Park in 1979 to protect the water catchment, and later the designation of the Yan Chau Tong Marine Park in 1996, to protect the marine resources in the inner sea (Figure 6). The hillside and estuary *Feng Shui* forests of Lai Chi Wo have been zoned as protected areas because of the species richness and abundance as well as its unique composition (HKSAR 2017b). The site is also an integral part of Hong Kong's UNESCO Global Geopark due to its special geological significance and part of the irrigation streams has been recognized as Ecological Important Streams too. Recent research further indicates the outstanding integrity of the subtropical forest-mangrove system which is associated with a human settlement, probably the best in China, displayed in Lai Chi Wo catchment (Morton 2016). However, it must be noted that the major dwelling and farming areas of Lai Chi Wo are still privately owned and not designated to any statutory protection but enveloped by a statutorily protected area. The environmental protection designation of the surroundings has successfully protected the enclave, Lai Chi Wo, from any development so far, including road access, but, further exacerbated the isolation and inaccessibility, which cut-off Lai Chi Wo from economic opportunities and accelerated its abandonment. The village was deserted. Farmlands were left abandoned and overgrown with trees. The terrace and irrigation structures collapsed and degraded. Only the village houses were minimally maintained, relying on the remittances sent back from the villagers who were resident abroad or in town. This socio-economical change has terminated the long-term intimate interaction of the indigenous rural communities with the natural environment, completely detaching the local community from their homeland.

In 2013, a local initiative, named "Sustainable Lai Chi Wo," was launched (http://www.socsc.hku.hk/psl/laichiwo). It is a multi-year, rural revitalization program led by The University of Hong Kong, in collaboration with the local indigenous community, NGOs, and the private sector to revitalize the landscape, natural, and cultural heritage as well as to rebuild the community network of Lai Chi Wo (Figure 7). This is the first revitalization attempt in Hong Kong for a deserted village. The program implements farming, research, and capacity training via a collaborative approach, and engages not only the local community but also the wider society to participate in rural sustainable development. This program helps the retired villagers to resettle and attracts

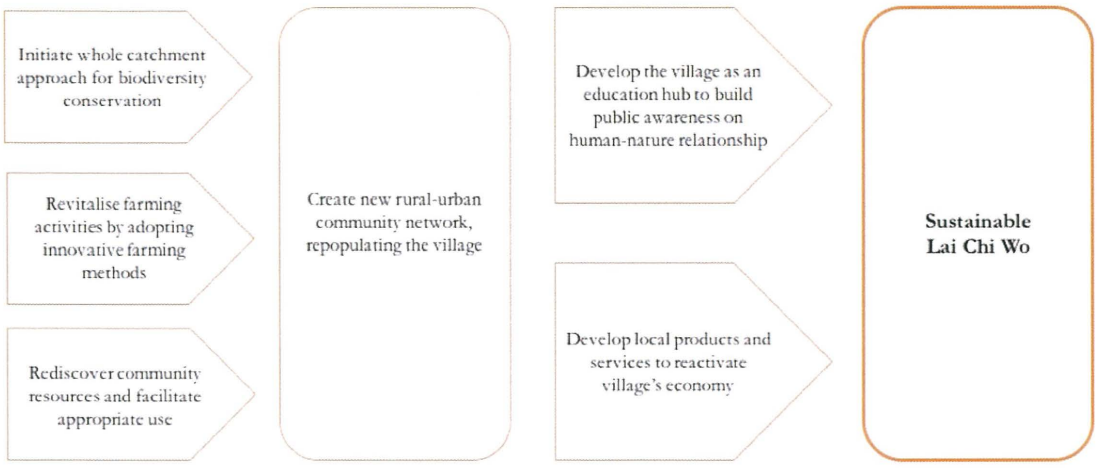

Figure 7. *The program logic of the Lai Chi Wo's revitalization*

new settlers from the city who have a strong environmental consciousness to move into Lai Chi Wo and set up their own farms in order to restore the vibrancy of the farming landscape and community. So far, the program has restored the farmlands and irrigation system of five hectares of land and facilitated the setup of seven community farms by villagers and new settlers for small-scale organic production. The village has been repopulated from zero population to near 20 active, indigenous villagers and non-indigenous new settlers regularly living, farming, and running small tourism-related businesses inside the village since the program started.

6. Conservation challenges and sustainability

As a continuing organically evolving cultural landscape, Lai Chi Wo displays a high level of spatial integrity, cultural authenticity, and ecological uniqueness, which is rarely seen in any modern metropolis under the force of rapid urbanization. Lai Chi Wo, as a case, exemplifies the interlinking relationship of nature–culture in the context of a traditional agricultural landscape, in which the understanding of the traditional system and lifeway of Lai Chi Wo provides a powerful reminder of environmental stewardship and its fragility against urbanization and globalization (Atha 2012). "Rural" has long been absent in local mainstream discussions on the city's development until the recent environmental awakening and raised awareness of food security among the society. The village revitalization of Lai Chi Wo has brought the topic of rural sustainability to wider public discussion (SCMP 2015). Nevertheless, the current heritage protection in Hong Kong is monument-focused and little attention has been paid by local government to any historic landscapes (Atha 2012). The privately owned dwelling and farming area of Lai Chi Wo cannot enjoy statutory protection, whereas the current environmentally centered country park and marine park system neglects the importance of the nature–culture interaction and under-represents the cultural significance of the landscape. The recognition of "cultural landscape" in the local heritage protection system, therefore, would help the development of appropriate conservation strategies to safeguard the fruits of nature–culture interactions.

Moreover, there is a more critical succession issue. The indigenous participants of village revitalization are mainly the returned villagers from overseas who are usually over 60 years of age. They are the last village-born generation who know the customs, remember the traditional knowledge, and have witnessed the village's changes over time. They provide the most valuable first-hand information for the reconstruction of Lai Chi Wo's genuine history and culture. However, their next generation, mostly born abroad, has never lived in or even visited the village. The young generation is unlikely to return, but they will succeed the land and property ownership from their parents. Their weak attachment to Lai Chi Wo indeed poses considerable uncertainty about the continuity of the Hakka tradition and the long-term sustainability of the privately owned site in the near future.

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Agricultural Surroundings

The Landscape of Borobudur Temple Compounds and its Environment

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Abstract

Borobudur Temple Compounds is a Buddhist temple complex, designated as World Heritage since 1991, that has become a major tourist destination in Indonesia. This complex consists of the Borobudur, Pawon and Mendut Temples which are located in a straight line. The Borobudur region includes rural areas that are characterized by the extent of the existing agricultural land, especially paddy fields. Over time large areas of farmland have become urbanized, damaging the traditional agricultural landscape. Therefore, cultural heritage management of the site must not only be focused on the monuments, but also on the surrounding environment. One way to maintain the landscape of Borobudur is to raise public awareness about the importance of preserving both: heritage and environment. The local communities' awareness could also play an active role to conserve the rural areas of Borobudur. A new master plan is needed for the integrated management of Borobudur region and for the conservation of the agricultural land, particularly the paddy fields.

KEY WORDS: rural area, agricultural land, urbanization, new master plan

1. Introduction

1.1 Overview of the heritage site

Borobudur Temple Compounds is located in Borobudur village, subdistrict of Borobudur, Magelang Regency, Central Java Province, Indonesia. Although the Borobudur Temple Compounds is comprised of three stone temples – Mendut, Pawon, and Borobudur, Borobudur is the main temple and the largest of the three. The monument was built on a hill that rises about 46 meters above the surrounding plain, and measures around the base about 120 square meters. More than 55,000 cubic meters of andesite stone were carved to build this massive structure in the form of a low step-pyramid. It consists of six rectangular terraces, three circular terraces, and a huge bell-shaped stupa on top. The wall and balustrade of the rectangular terraces are adorned with meticulously worked reliefs.
Inside the Borobudur cultural heritage there are archaeological remains that must be preserved, namely the Borobudur Temple, the Pawon Temple, and the Mendut Temple and other ancient remains. The Borobudur cultural heritage region became a designated World Cultural Heritage Site in 1991, under the name "Borobudur Temple Compounds." The Borobudur Temple underwent restoration twice. The first time was in 1907-1911, by the Dutch government led by Theodoor van Erp, a military officer. The second restoration was carried out by the government of Indonesia and UNESCO in 1973-1983. After the second restoration, many tourists, both domestic and foreign, visited the Borobudur Temple.

The Borobudur Temple provides a panoramic view of the beautiful agricultural land that characterizes this area. The temple stands on a hill that has a height of about 15 meters from the surrounding area. Surrounding hills, mountains, and large rivers form the Borobudur landscape of rural character. Most of the Borobudur region is a green field of

agricultural land planted with paddy. Original plants from the Borobudur region are known, namely banana, bamboo and coconut. Despite the current rapid development in the Borobudur area, these plants are still commonly found.

1.2 Brief description of the agricultural landscape

The Borobudur region is dominated by agricultural land consisting of *sawah* (wet rice farming), *kebun* (mixed forest gardening) and *tegalan* (dryland cultivation of food crops). Types of crops in the wet rice farming include rice, pulses, and vegetables. *Kebun* (mixed forest gardening) are usually located near the settlement land with crops species such as rambutan tree (*Nepehelium lappaceum*), papaya (*Carica papaya*), banana (*Musa spp*), jackfruit (*Ortocarpus heterophyllus*), breadfruit (*Artocarpus communis*), *duwet* (*Syzigium cumini*), kepel (Stelechocarpus burahol), sapodilla (*Manikcara kauki/M. Achras*), coconut trees (*Cocos nucifera*), teak (*Tectona grandis*) and *sengon* (*Albizia falcataria*). Types of plants that are in the *tegalan area* (Dryland cultivation of food crops) are cassava (*Manihat utilissima*), tobacco (*Nicotiana tabacum*), chilli (*Capsicum annum*), peanuts (*Arachis hypogaea*) and beans (*Vigna sinensis*). Planting design on tegalan areas (dryland cultivation of food crops) occurs in the form of interplanting, (*tumpang sari*) which is a mixture of crops in one field.

Most of the population are farmers of wet rice, which can be harvested twice a year. Wet rice farming with technical irrigation dominates village land use, with rivers and springs as the water sources for irrigation. During the rainy season paddy fields are planted with rice, while in the dry season crops such as maize, cassava, peanuts, tobacco and chilli are planted.

Some farmers, working on their land, hire their neighbors in exchange for half of the product. When the harvest season comes, usually several villagers work together to help farmers harvest rice, and they share the product. To harvest rice, farmers are still using the traditional method called *ani-ani*: cutting the stalks of rice with a bamboo tool clipped on their fingers, even when this is time consuming. These jobs are usually done by women farmers. This way of working has been done by farmers for generations.

2. Significance of The Heritage Place

2.1 Borobudur Temple Compounds as a World Cultural Heritage Site

In 1991, Borobudur was inscribed on the World Heritage List, together with two other smaller stone temples, Pawon and Mendut. These three stone temples are located in a straight line about three kilometres on east-west orientation, and are regarded as belonging to a single temple complex. Known as the Borobudur Temple Compounds, this World Cultural Heritage Site met three criteria of the Operational Guidelines for the Implementation of the World Heritage Convention: *(i) The Borobudur Temple Compounds with its stepped, unroofed pyramid consisting of ten superimposing terraces, crowned by a large bell-shaped dome is a harmonious marriage of stupas, temple and mountain that is a masterpiece of Buddhist architecture and monumental arts; (ii) The Borobudur Temple Compounds is an outstanding example of Indonesia's art and architecture from between the early 8th and late centuries that exerted considerable influence on an architectural revival between the mid 13th and early 16th centuries. (vi) Laid out in the form of a lotus, the sacred flower of Buddha, Borobudur Temple Compounds is an exceptional reflection of a blending of the very central idea of indigenous ancestor worship and the Buddhist concept of attaining Nirvana. The ten mounting terraces of the entire structure correspond to the successive stages that the Bodhisattva has to achieve before attaining to Buddhahood.*[1]

2.2 Other values

Besides the cultural values (historical, architectural, spiritual, aesthetical) that support the inscription of Borobudur Temple Compounds as a World Heritage property, the area of the Borobudur Temple has value as a rural natural environment that ought to be recognized. The Borobudur region has rural characteristics comprised of numerous agricultural lands, especially paddy fields. The value of natural resources that exist around this heritage can be added to increase the value of Borobudur's heritage. The study of cultural landscapes in Indonesia has not been carried out extensively, although there are many cultural landscapes.

In 1992, Cultural Landscapes have been recognized as subject of Outstanding Universal Value, with its sub-categories: a) clearly defined landscapes designed and intentionally crafted by man, b) organically evolved landscapes, and c) associative cultural landscapes.[2] Borobudur and its environment could be categorized as a cultural landscape composed of the existing agricultural land, the culture of rural communities that is still ongoing, the architecture of the region, and its natural forms. The cultural landscape approach could more appropriately define the area of

1 http://whc.unesco.org/en/list/592
2 http://whc.unesco.org/en/culturallandscape/

Table 1. JICA Zonation of Borobudur Region

No	Zone	Remark
1.	Zone-1: sanctuary areas (Archaeological Environment Preservation)	Zone for protection and prevention of destruction of the physical environment of the archaeological monuments.
2.	Zone-2 (Archaeological Park Zone)	Zone for provision of park facilities for the convenience of visitors and preservation of the historical environment.
3.	Zone-3 (Land Use Regulation)	Zone for regulation of land use around the parks and preservation of the environment while controlling development in areas surrounding the parks.
4.	Zone-4 (Historical Scenery Preservation Zone)	Zone for maintenance of the historical scenery and prevention of destruction of the scenery.
5.	Zone-5 (National Archaeological Park Zone)	Zone for undertaking archaeological surveys over a wide area and prevention of destruction of undiscovered archaeological monuments.

Source: JICA, 1979

protection and its values. The natural values in Borobudur area would benefit from a nature-culture approach for conservation and management.

3. Current Management Arrangements

3.1 Old Master plan

In response to the request of the government of the Republic of Indonesia, the Government of Japan conducted a study on the development of the National Archaeological Parks at Borobudur and Prambanan in Java. JICA (Japan International Cooperation Agency) has conducted this study for a masterplan of the Borobudur and Prambanan area, completed in 1979. Unfortunately, this masterplan is not supported by the government law and therefore cannot be applied, although it is included in the document proposing Borobudur as World Heritage. According to the JICA masterplan, the Borobudur region is divided into five zones (table 1, figure 1).

Currently, the JICA masterplan is not valid because the period of this masterplan is for 20 years and it ended in the year 1999. This masterplan could have been useful to consider the larger environment and other values of Borobudur, such as its agricultural landscape, through zones 1, 2, and 3, which include the environment, the scenery and the land use. The importance of re-arranging the new masterplan lies in the need to protect and preserve the values of Borobudur and the wider environment.

3.1 Heritage Management

Related to the JICA masterplan, Heritage management of the Borobudur Temple and its surroundings is currently carried out by 3 different agencies. The Borobudur Conservation Office under the Ministry of Education and Culture, manages zone 1 (the monument of the temple and its yard). Zone 2, a tourist park around the temple, is managed by PT Taman Wisata Candi Borobudur and Prambanan under the State Minister for State Owned Enterprises. Zone 3, in the form of settlements surrounding the temple along with the agricultural land area, is managed by the

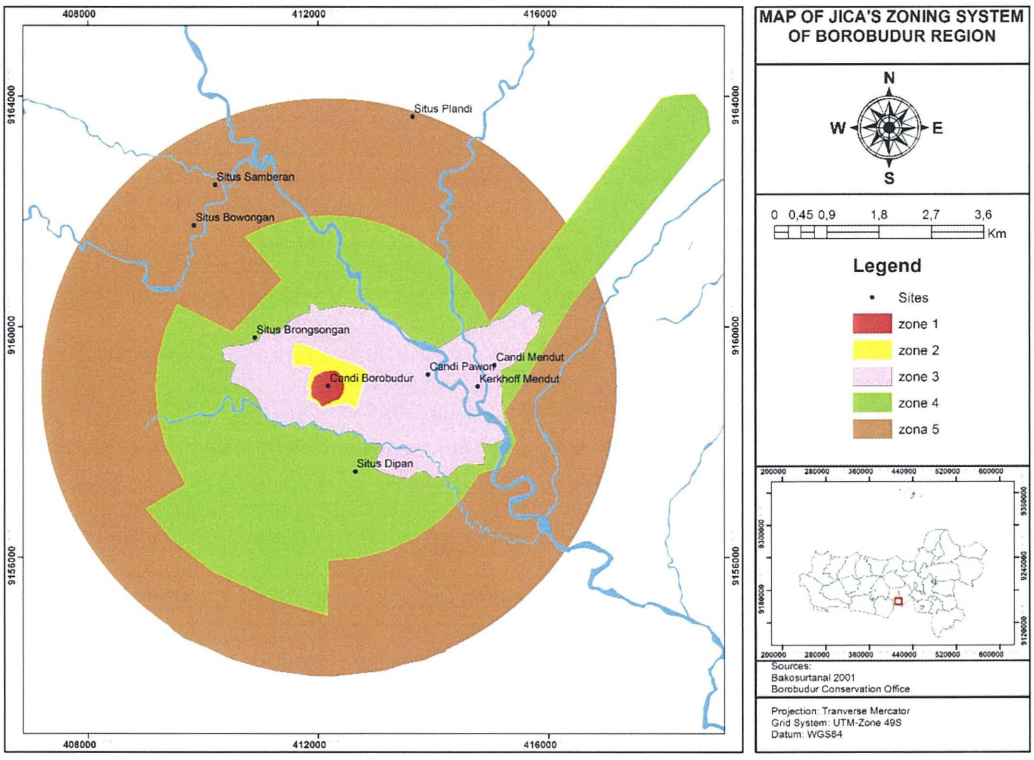

Figure 1. Map showing zoning system in Borobudur Region according to the JICA master plan of 1979 (Source: Prepared by Fransiska Dian Ekarini)

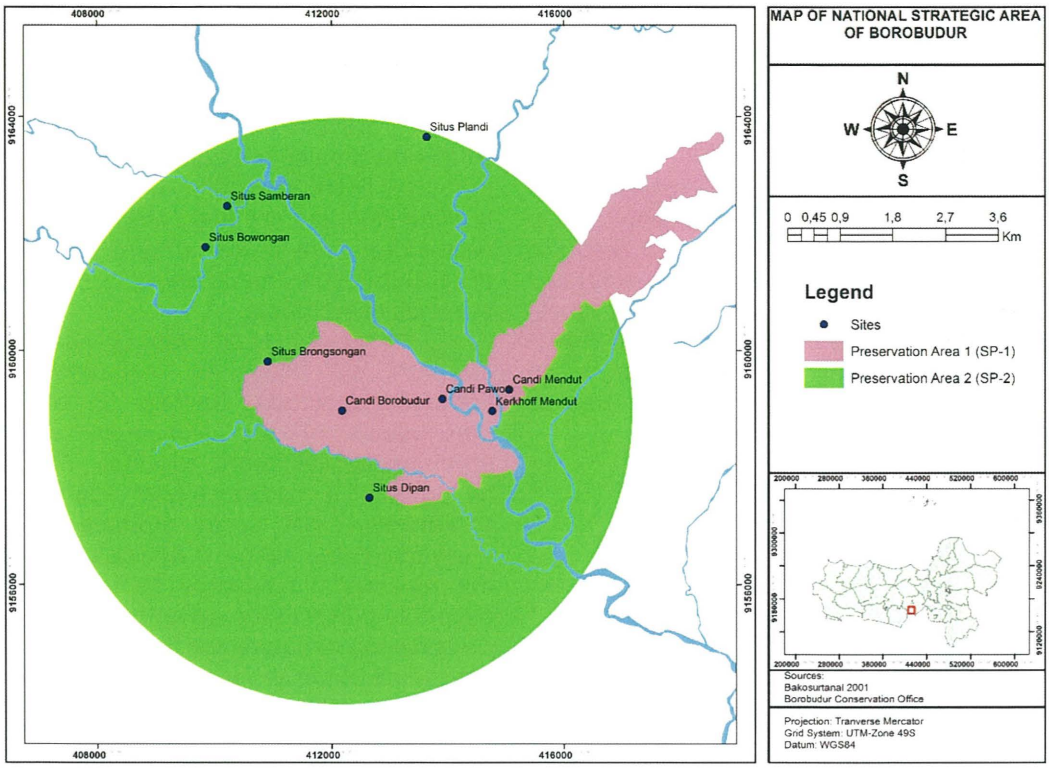

Figure 2. *Map showing the National Strategic Area of Borobudur (Source: Prepared by Fransiska Dian Ekarini)*

Local Government of the Magelang Regency, under the Ministry of Home Affairs. Visitors who go to Borobudur Temple will pass through zone 3 and zone 2 first, and then to the monument of the Borobudur Temple.

As for the sustainability of agricultural land, which characterizes the Borobudur area, we can only conduct monitoring and evaluation activities and provide recommendations to other authorized institutions. This is something that makes the preservation of agricultural land in the World Heritage of the Borobudur area a difficult task: there is an unclear management of sustainability of the Borobudur area, and a lack of coordination between agencies regarding the implementation of applicable legislation.

With such a management system, local people obtain almost no financial or cultural benefits from Borobudur's heritage. Income from the tourism sector of the Borobudur Temple is managed by PT Taman Wisata Borobudur and Prambanan Temple, which is the central institution. The local government of the Magelang Regency does not get an important role in the management of the Borobudur Temple. This is also true for the local people. Local people around the temple have not gained an important role in managing the preservation of the Borobudur Temple. Most people utilize the tourism in Borobudur Temple through trading, parking, or cleaning services. An official Government statistic shows that Borobudur is the poorest village in the Magelang Residency. It calculates economic poverty as an economic inability measured by the food expenditure approach (equivalent to 2,100 kcal per person per day), plus the inability to fulfill non-food basic needs (education, basic health, housing facilities, and clothing, Magelang Government 2015)[3].

3.2. Spatial Management

The management of a World Heritage property is not only limited to the monument but also to the surrounding environment. The area around Borobudur Temple is dominated by an agricultural landscape and its management is coordinated by the Regional Government of the Magelang Regency. The land around the monument is owned by the local people. In order to maintain the regional landscape of Borobudur as a World Heritage area and a national strategic area, land use in this region is governed by Spatial Planning and Regional Planning of the Magelang Regency and Presidential Regulation Number 58 of 2014 (concerning Spatial Planning of Borobudur Area and its Vicinity).

In this spatial planning regulation, the Borobudur area is divided into 2 zones (Figure 2): preservation area 1 (SP-1) and preservation area 2 (SP-2). Even if with these new spatial regulations, the Borobudur area was divided into two zones and management still relies

3 Based on data from Magelang government, in the year 2012 in Magelang Regency there are 56 villaes belonging to high poverty level which is worse than the national poverty level. Criteria of the poverty classification uses: high, if the poverty rate is greater than 26.23%, moderate, if the poverty rate is in the range of 13.35 and 26.23% and low, if the poverty rate is smaller than 13.35%.

on the old regulations (Presidential Decree Number 1/1992).

4. Current State of Conservation and Challenges for Continuity

Current conditions in the Borobudur area include land use change from agricultural to non-agricultural uses. Many *sawah* (wet rice farming), *kebun* (mixed forest gardening) and *tegalan* (dryland cultivation of food crops) have been urbanized. In the period 2005-2015 the percentage of agricultural land decreased in the Borobudur national strategic area as seen in the chart below (Figure 3).

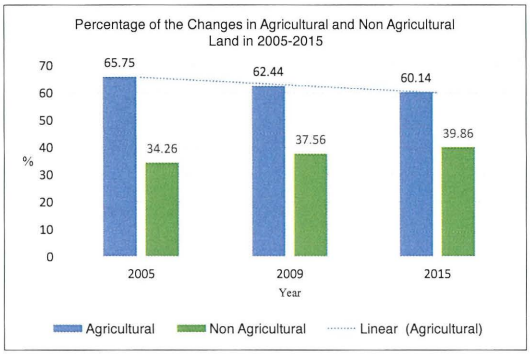

Figure 3. Graph of percentage of land use change from agricultural to non-agricultural land from 2005 to 2015 (Source: Ekarini, F.D, 2016)

There are several challenges in the preservation of the Borobudur area such as increasing pressure of development, tourism, weathering of stone temples, and management of heritage values, which are not integrated in the strategic plan or the master plan. This is consistent with global issues of concern to the World Heritage Committee, such as climate change, energy and mining, tourism, and urbanization (World Heritage Centre, 2007).

The separation of the institutions in charge of the management of the monuments and the existing agricultural landscape around the temple is not optimal for heritage management. Management of the monuments (temples) is under the Borobudur Conservation Office, while permission for land use change is under the authority of Magelang Government, without going through the permission of the Borobudur Conservation Office. For example, if there are people who would like to sell or change the use of their farming land, they will just apply for consent to the Magelang Government without consultation with the Borobodur Conservation Office. This situation makes it difficult to control the preservation of the agricultural landscape surrounding Borobudur.

5. Recommendations

The preservation efforts of World Heritage requires strong and clear regulations. The agricultural landscape around Borobudur Temple is located in an area outside the temple monument that is not managed by the institutions that deal with the archeological heritage. Thus, it is difficult for coordination in case a problem concerning the agricultural land in the area of Borobudur arises. Providing incentives to the community who maintain the farming land has not been able to cover the necessities of life for the farmers, so the trade of agricultural land for urbanization sometimes becomes unavoidable.

A new master plan is needed to establish an integrated management of Borobudur's cultural heritage so that the preservation of the monument and its environment can work together. We need to develop a nature-culture approach to conservation that could promote a more integrated conservation of the monument and the agricultural landscape by inviting local people to preserve the agriculture so that the conservation of nature can be maintained and the culture of the society remains sustainable.

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The Interlinking of Nature and Culture in Göreme National Park

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Abstract

Located on volcanic topography, in the center of Anatolia, Cappadocia has been a World Cultural and Natural Heritage Site since 1985. The region has also been designated by national authorities as a National Park, Protected Archeological Site, Protected Natural Site, Protected Urban Site, and a Tourism Conservation and Development Area. The volcanic structure and the geological formations of the land constitute the main natural assets of the region. The human-made physical environment, which is generated by carving out the tuff masses and tuff ground, form the cultural assets. Thus, nature and culture have an extraordinary relationship in Cappadocia.
This paper aims to examine the relationship between nature and culture in Cappadocia, with a focus on the agricultural landscape as a significant component of the overall heritage value. It proposes to consider the agricultural landscape as a link between the cultural and natural assets.

KEY WORDS: national park, Göreme, nature, culture, cultural landscape,agricultural landscape

1. Introduction

1.1 Overview of the heritage site

Cappadocia is located in Central Anatolia, Turkey and comprises of the administrative districts of five provinces: Nevşehir, Aksaray, Kırşehir, Niğde, and Kayseri, which have common geological features. Nevşehir province is the core area of the region and contains the settlements that are referred to in this paper (Figure 1).

Cappadocia has a rich historical background and it is known that the region has been settled since the early ages of human occupation; however, the observable heritage mostly dates back to the Middle Byzantium period (Rodley 1985). Hittites, Persians, Romans, Seljuks, and Ottomans have inhabited this part of Anatolia[1]. Cave dwellings, churches, and monasteries, as well as underground settlements, reveal how this region has been settled over the course of time. Furthermore, it is believed that the region was an important center for religious and secular life during the Middle Byzantine period (Kalas 2004). Today, several rock-cut churches, decorated with rich frescos, constitute part of the significant cultural and historic value of the area.

The distinct topographic and geological structures of the region have been generated by the volcanic eruptions of the nearby mountains, Hasan and Mount Erciyes. The entire area is covered with layers of tuff,

1 For more information about the history of Cappadocia, see: Rodley, L. 1985. Cave Monasteries of Byzantine. Cambridge: Cambridge University Press; Giovannini, L. (Ed.). 1971. Arts of Cappadocia. London: Barrie and Jenkins; Kalas, V. 2004. Early explorations of Cappadocia and the monastic myth. Byzantine and Modern Greek Studies, V.28 (1):101-119

Figure 1. *Ortahisar Castle and the settlement pattern (Solmaz Şakar, 2010)*

which have been eroded by the effects of climatic factors, such as rain, wind, and flooding (Topal and Doyuran 1998). This process has formed the unique geological formations that can be seen today, called fairy chimneys.

In this region, since the early period of Christianity, the inhabitants have used this geological structure to create spectacular structures. The tuff layers were carved out to form caves, which were used as living spaces for both people and their animals. Later, over the carved out spaces, masonry buildings were constructed with local stones from the quarries in the vicinity. Together, these masonry structures and carved spaces formed the residential architecture. In this way, an outstanding architectural pattern was generated in which the built environments and the natural environments are interlocked (Solmaz 2013) (Figure 2).

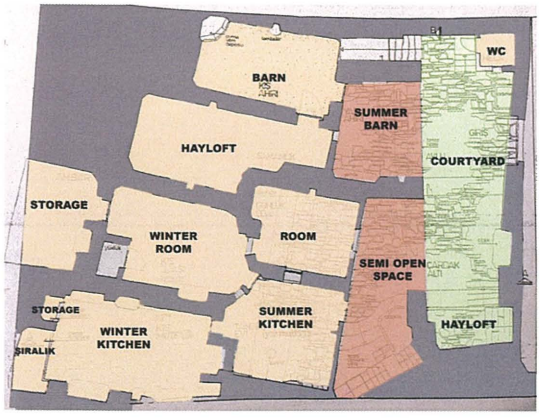

Figure 2. *Plan layout of the ground floor of a rock carved house (Erençin, 1976)*

In the 1980s, the geology of the area became more widely known and the site began to attract great attention due to its unique natural heritage and historic/cultural heritage that dates back to early ages. Thus, Cappadocia was declared as a World Cultural and Natural Heritage Site in 1985.

1.2 Brief description of the agricultural landscape

Agricultural landscapes should be considered of significant value within the Cappadocia World Heritage site since agriculture is an activity that has shaped the local people's way of life and the space in which they lead their daily lives. Traditional living habits, such as agricultural production and consumption activities, have shaped the vernacular architecture. In this region, some spaces, such as storage spaces and cellars, occupying the ground floor of a traditional building were created according to the crop types and related to agricultural production. Courtyards were also designed by taking agricultural practices and livestock breeding into consideration (Figure 3).

Viniculture is the most significant agricultural practice, which strongly supports the heritage values of the region. Every year in September, grapes are harvested and used for producing wine, vinegar, and *pekmez* (molasses-like syrup made from boiling grapes). Special places for wine making located in the ancient monasteries show that viniculture has been in progress in Cappadocia since early times. In addition to the tuff formations, vineyards are an essential component of Cappadocia's cultural landscape. It is possible to see the impressions of viniculture, not only in the natural landscape

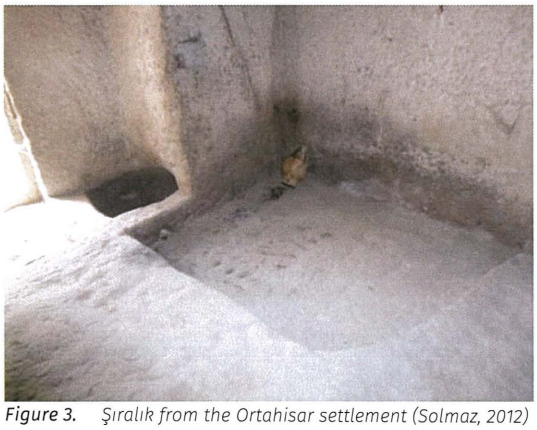

Figure 3. *Şıralık from the Ortahisar settlement (Solmaz, 2012)*

but also in the built environment. Today, some special architectural elements and/or spaces for wine and *pekmez* production still exist in traditional houses in Ortahisar, Ürgüp, and Uçhisar towns and the small villages of Cappadocia (Solmaz 2013). These architectural elements, created from carving the rock or built from masonry, include *şıralık*, built in kitchens, aiwans, and storage rooms in traditional houses (Figure 3). To make *pekmez*, the grapes are squeezed using the stone or rock carved *şıralık*. The fermented grape juice is moved to another space, with a hole or a pot, to rest after squeezing. The mixture is boiled after the grape juice is blended with marl, a calcium carbonate or lime-rich mud or mudstone, which contains variable amounts of clays and silt (Solmaz 2013). These architectural elements, built in traditional houses, are examples of how agricultural activities and production affects the formation of residential architecture. Thus, agricultural landscapes are strongly related with the vernacular architecture and these two elements should be considered as significant in supporting the value of each other.

Storehouses, a characteristic of this region, must be considered along with agricultural activities. These underground spaces are built by carving out the tuff layers and adding a ventilation pipe, which allows for the optimum humidity level to be achieved to maintain the freshness of the produce, mostly potatoes and lemons. (Ministry of Food, Agriculture and Animal Breeding- MFAAB 2015). In the Cappadocia region, 65% of the land can be used for cultivation. There are several types of crops in the region; the important ones, according to production rates, are wheat, potato, sugar beet, grape, pulse, and pumpkin seeds. In Turkey, 30.6% of the pumpkin seeds, 13% of the grapes for wine, 6.4% of the grapes for other products, and 5.3% of the potatoes are produced in Cappadocia (MFAAB 2015).

Extensive vineyards surround Göreme Open Air Museum, which is an important part of the National Park. The vineyards are irreplaceable elements of the landscape and the museum's "spirit of place[2]" would disappear without these vineyards. Thus, it is crucial to encourage the local people to continue this type of agriculture in the rural areas of Cappadocia.

Although it is not the main source of income nowadays, agricultural activities are still widely undertaken using traditional techniques (Figure 5). They are regulated by the government in the protected sites, such as the National Park, the World Heritage site, and other nationally listed areas. Sustaining the existing types of crops and agricultural techniques in these protected sites is encouraged by the governmental organizations since they represent the values of these rural

Figure 4. *The agricultural landscape behind the settlement in Ortahisar (Solmaz Şakar, 2016)*

Figure 5. *Vineyards surrounding the Göreme Open Air Museum (Solmaz Şakar, 2016)*

2 According to Christian Norberg-Schulz (New York: Rizzoli, 1980, pp:5): "... Since ancient times the genius loci, or "spirit of place", has been recognized as the concrete reality man has to face and come to terms with in his daily life. Architecture means to visualize the genius loci, and the task of architect is to create meaningful places, whereby he helps man to dwell."

Figure 6. *Vineyards in the National Park (Solmaz Şakar, 2016)*

areas (Figures 4 to 6). The growth of new plant species is prohibited in these protected sites. In relation to the agricultural activities of the region, there are 61 cooperatives, with 3,950 members, and 5 associations, with 4,942 members (MFAAB 2015). Agricultural activities are the visible traces of the relationship between the people and the landscape. It is important to keep this relationship alive.

2. Significance of the heritage place, including natural and cultural values

In the beginning of 20th century, Cappadocia was a theme in engravings and drawings by early travelers (Kalas 2000). By the end of the 1960s, the region began to become a popular destination for tourists and, in the 1970s, it received increasing attention.

The conservation activities also arose during the same period. One of the first long-term development plans for Turkey was prepared for Cappadocia in 1967. Unfortunately, it was not implemented due to the National Park Law at the time, which covered only the forested areas, not the geological areas, like Cappadocia. In 1986, a new National Park Law changed this situation. Protected sites were defined by the High Council of Immovable Monuments and Antiquities, in 1976, and they instigated classification according to the type of asset, such as archaeological site, natural site, and urban site. The first two classifications are graded as degree I, II or III according to the perceived importance and features of the site (Figure 7). In 1985, UNESCO declared a large part of Cappadocia as a World Mixed Natural and Cultural Heritage Site (the formal name is: Göreme National Park and the Rock Sites of Cappadocia). It was one of the first sites on the World Heritage List from Turkey. The site complies with the requirements of the criteria (i) as representing a masterpiece of post-iconoclastic Byzantine art period, criteria (iii) as having the remnants of Byzantine, Seljuk, and Ottoman civilizations, criteria (v) as being an outstanding example of traditional human settlement, and criteria (vii) as having exceptional natural beauty and an aesthetic importance (UNESCO 2016). In 1986, the Ministry of Forestry declared the area to be a National Park, and in 1989, the land was designated as a Tourism Development Area by the Ministry of Tourism. Thus, it can be seen that several governmental organizations are responsible for the Cappadocia region, which has both natural and cultural values.

The natural assets are the focal point in the significance of the region. Not only the tuff formations and fairy chimneys but also the agricultural areas surrounding the settlements strengthen the value of the landscape. There are both large agricultural areas around the traditional settlements and some smaller areas adjacent to traditional buildings in the settlements. In the center of the World Heritage site, Göreme National Park contains significant relics of the earlier monastic life in Cappadocia and is encircled by vineyards and orchards. Thereby, this spectacular cultural landscape within the National Park is generated not only by the relics but also by the surrounding agricultural landscape, underscoring that the heritage values of the site are of both cultural and natural worth.

3. Current management arrangements (Legislations, institutions, resources)

The Cappadocia World Heritage site does not currently have a comprehensive management plan yet. It is a challenging situation due to the fact that it covers a wide area of land, there are different types of protected sites involved, five provincial boundaries, and the number of settlements in the region.

There are two council authorities engaged in managing the cultural and natural heritage. All projects related to cultural heritage in the protected sites are negotiated and finalized by the Regional Conservation Council for Cultural Property; natural heritage is overseen by the Regional Conservation Commission of Natural Property. In addition to these two main boards, local municipalities also have a small office, which is in charge of the implementation of conservation activities. Unfortunately, no non-governmental organization currently has an active role in the conservation activities of the region.

One of the negative impacts of the current legislation is the lack of communication between the two main councils. Natural properties, which involve the agricultural landscapes, are now considered separately from the cultural properties. As mentioned above, the agricultural landscape is one of the key elements of this cultural landscape and they cannot be detached from the cultural assets. However, separate conservation development plans for each settlement have been drawn up by the governmental organizations and local municipalities. To safeguard and protect this heritage site, Cappadocia needs an integrated and comprehensive plan including all settlements and agricultural areas.

4. Current State of Conservation and Challenges for Continuity

The legal and administrative aspects of the process of preserving the cultural and natural heritage in Cappadocia have changed several times. There used to be only one council; however, the 2011 division into two separate councils, for these two heritage categories, has

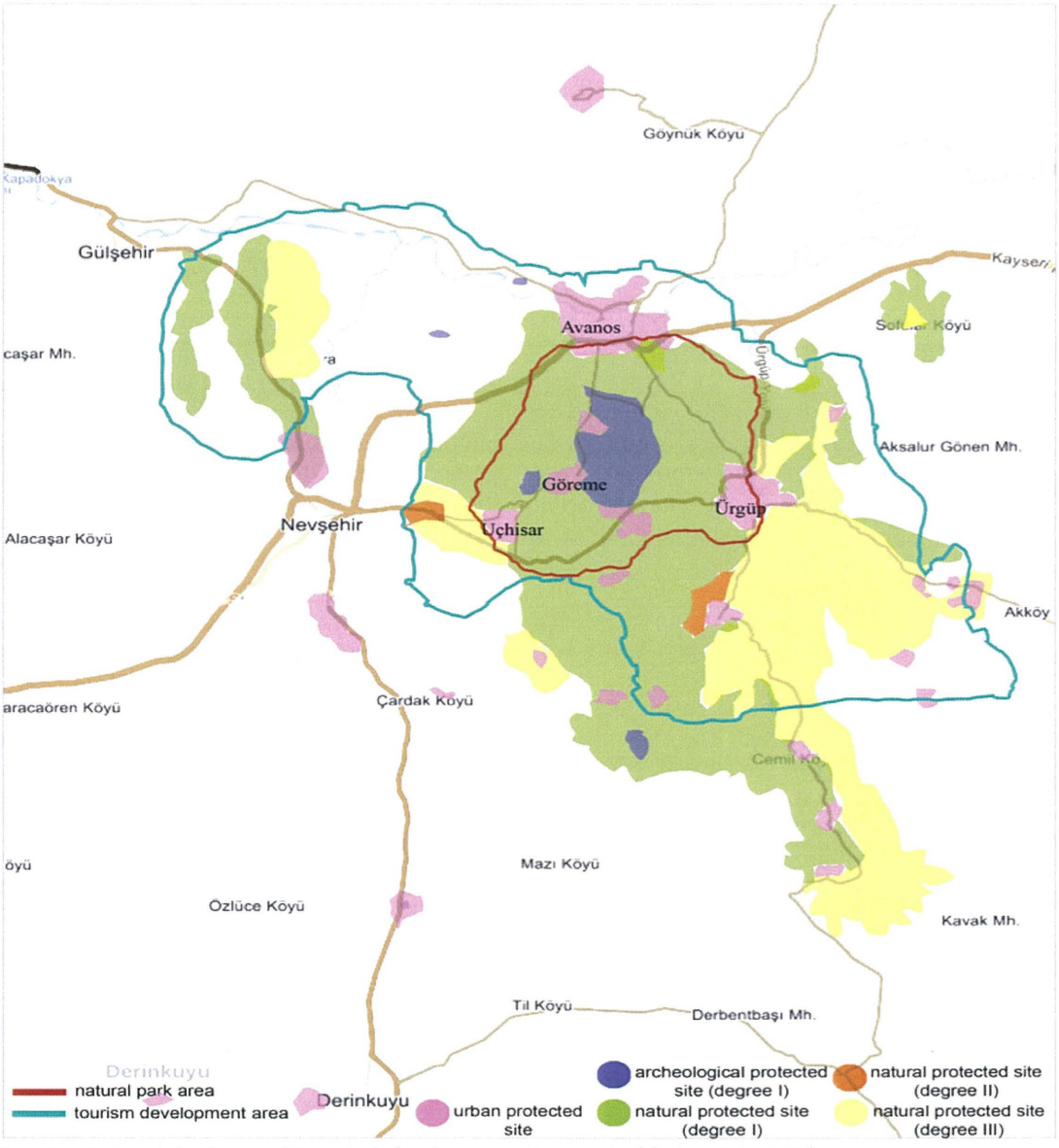

Figure 7. *Protected sites in central Cappadocia (Yandex map used as template) (Solmaz Şakar, 2016)*

led to many situations and problems since it was not possible to uniformly separate the natural and cultural assets. In Cappadocia, the cultural and natural heritage is interlocked and cannot be managed without one another. This legal modification in 2011 may be suitable for many other heritage sites, but it may cause some conflicts in such a site in which culture is embedded with nature. The complex situation in Cappadocia reveals that an integrated approach needs to be developed for this kind of mixed heritage site.

Tourism is also one of the challenges for the preservation of authenticity in Cappadocia. Due to the increasing number of tourists, a significant number of traditional houses have become tourist facilities and as a result, they have been altered in the process of restoration. Starting in the 1970s, many of the traditional buildings in protected sites were abandoned due to the danger of rock falls. When the region became popular, these dangerous areas were renovated and transformed into tourist facilities; however, these transformations to the settlements had a negative impact on the authenticity of the area. Reports on the state of conservation, submitted to the World Heritage Centre in 2006 and 2014, reveal the past and current challenges of preservation. In the 2006 report, "pressure by new tourism investments, development pressure, natural disasters, and visitor/tourism pressure" were considered as risks and threats to the site (UNESCO 2006). In the 2014 report, impacts on the authenticity of the heritage place are emphasized as "changes in traditional ways of life and knowledge system" and "identity, social cohesion, changes in local population and community" (UNESCO 2014).

5. Recommendations

The Cappadocia World Heritage site is appreciated not only for its natural beauty and unique geologic forms but also for the physical environment, which has resulted from human activities; therefore, a nature-culture approach is crucial for this location. This spectacular cultural landscape area has been created using the advantages of nature and the abilities of the inhabitants over the centuries. However, conservation approaches in the region mostly focus on one side of the heritage value and it is important to adopt a holistic approach in order to preserve the relationship between nature and culture.

First, a conservation council should be founded to manage both the natural and cultural heritage. There needs to be a research project focusing on the agricultural land in need of protection in Cappadocia region. The study should determine the features of the land, types of crops, as well as the relationship with the built environment. It is important to understand how the built environment and agricultural land affect each other. The traditional agricultural techniques used in Cappadocia should be defined and sustainable development methods of these techniques should be sought.

The agricultural landscape needs to be regarded as a junction between cultural and natural assets. This integrated relationship between culture and nature could be the key to the sustainable conservation for the whole Cappadocia region.

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The Hinterland of Ancient Anuradhapura: Remarks about an Ancient Cultural Landscape

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Abstract

The slightly rolling terrain of the North Central Province in, Sri Lanka, is characterized by a semi-arid climate, with a deficiency of rainfall occurring during the summer months. Rice is the predominant crop, cultivated for the local markets. Irrigation enables rice cultivation and is based on 2,000 years of traditional water harvesting techniques. Reservoirs, locally called Wewas or tanks, are the basis of this sophisticated system. Approximately 10,000 of the tanks that originated during the period of the ancient dry zone hydraulic civilization are still in use today. Most of the tanks are smaller scaled, frequently covering less than 5 hectares, and are generally aligned cascade-like alongside shallow valley courses. Canals and spillways connect them and build a complex system for floodwater harvesting, water storage, and water distribution components. The ancient hydraulic irrigation landscape, in the environs of Anuradhapura, with its sophisticated adaptation strategies to the local environmental conditions, was the economic basis for the flourishing of the Kingdom of Anuradhapura. Therefore, Anuradhapura can be identified as an example that clearly illustrates the interrelationship between nature and culture.

KEY WORDS: traditional knowledge, water management, irrigation

1. Introduction

The emergence of water harvesting systems in Sri Lanka can be dated back to the 3rd century BCE (Withanachchi 2013). In the subsequent centuries, these systems developed into unique and integrated structures, spreading throughout the lowland dry zone of the country. Nowadays, almost all of the river basins draining the lowland dry zone utilize irrigation schemes (Withanachchi 2013; Bebermeier et al. 2017).

Anuradhapura, located in the north central lowlands of Sri Lanka (8° 21' N, 80° 23' E; 89 meters above sea level), is the capital of the North Central Province. The bedrock of the study area is dominated by plutonic rocks, mostly granitic, migmatitic, and charnockite gneisses of the Precambrian age. The topography is composed of a flat terrain with some gently rolling plains, accompanied by a few isolated hills (Wagalawatta et al. in press). Further, Anuradhapura is located in the dry zone of Sri Lanka, which has an annual average precipitation of 1,198mm (Schütt et al. 2013). Due to the continuous agricultural settlements, potential natural vegetation growth is scarce; however, some secondary forests have developed on the slopes of the isolated hills. Wet rice is the main crop, mostly cultivated in the valley bottoms. Chena agriculture, a traditionally shifting cultivation method, is mainly practiced along the plateau divides (Wagalawatta et al. 2015).

In the century BCE, Anuradhapura started to develop as one of the early urban

centers in South Asia (Deraniyagala 1996). This city development was accompanied by a successive transition of its hinterland into a unique cultural landscape. The inner city, with its sacral, administrative, and representative buildings, is surrounded by agricultural fields and woodland. Human-made reservoirs, called tanks or *Wewas*, were used for water harvesting, water storage, and water distribution sustained husbandry by providing irrigation water (Figure 1). In this rural area, irregular occurring monasteries, frequently accompanied by rural settlement areas, served as ancillary central places, providing sacral and administrative functions (Figure 2). The World Heritage comprises the ancient Citadel, three major monasteries, and extends over an area of about 16 square miles (40 km^2). It also includes multiple of the surface and near subsurface monuments (Democratic Socialist Republic of Sri Lanka 2003).

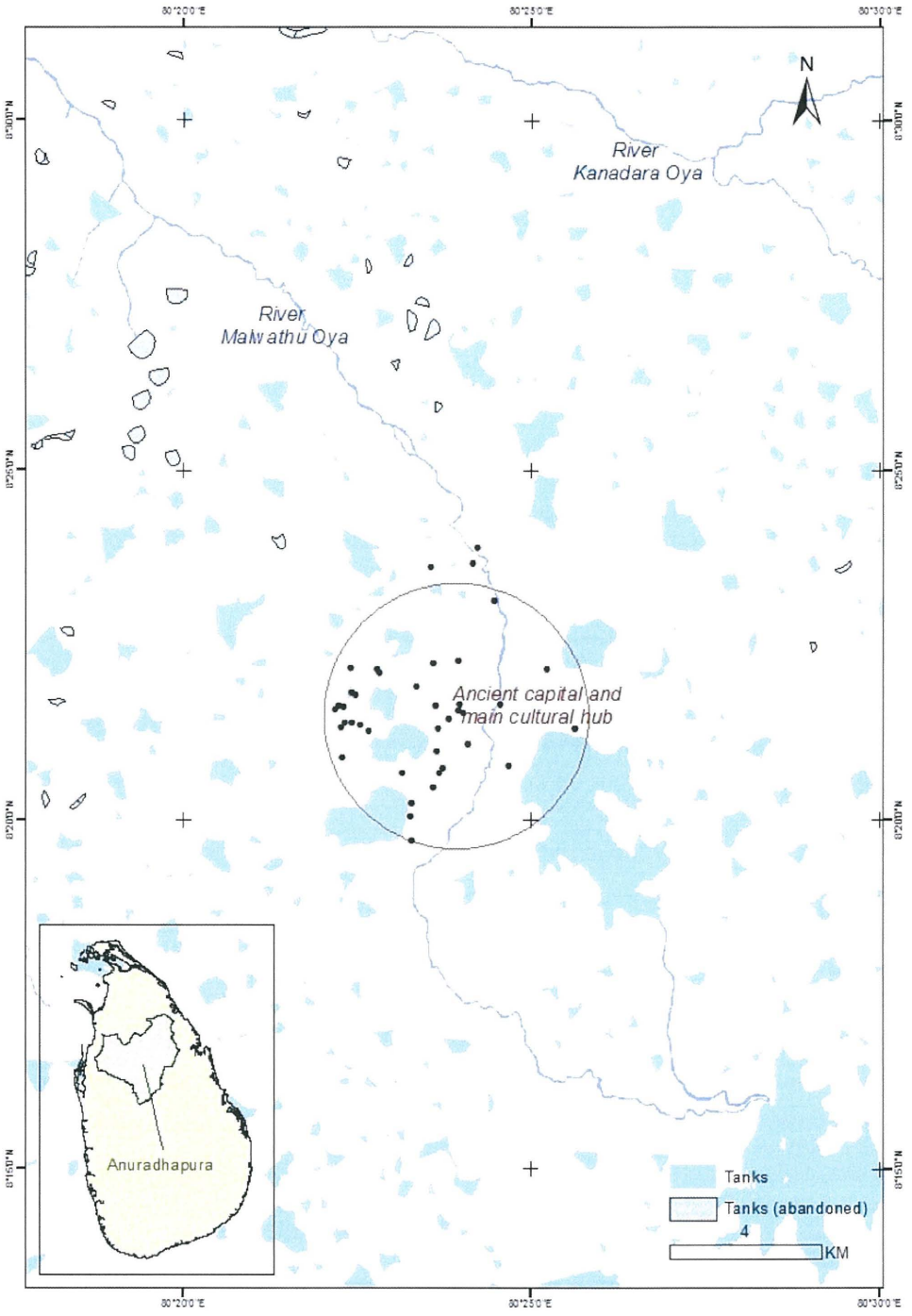

Figure 1. *Distribution of tanks and archaeological sites in the environs of Anuradhapura. (Compiled using survey department 1:50,000 topo sheet numbers 25;26;30;31)*

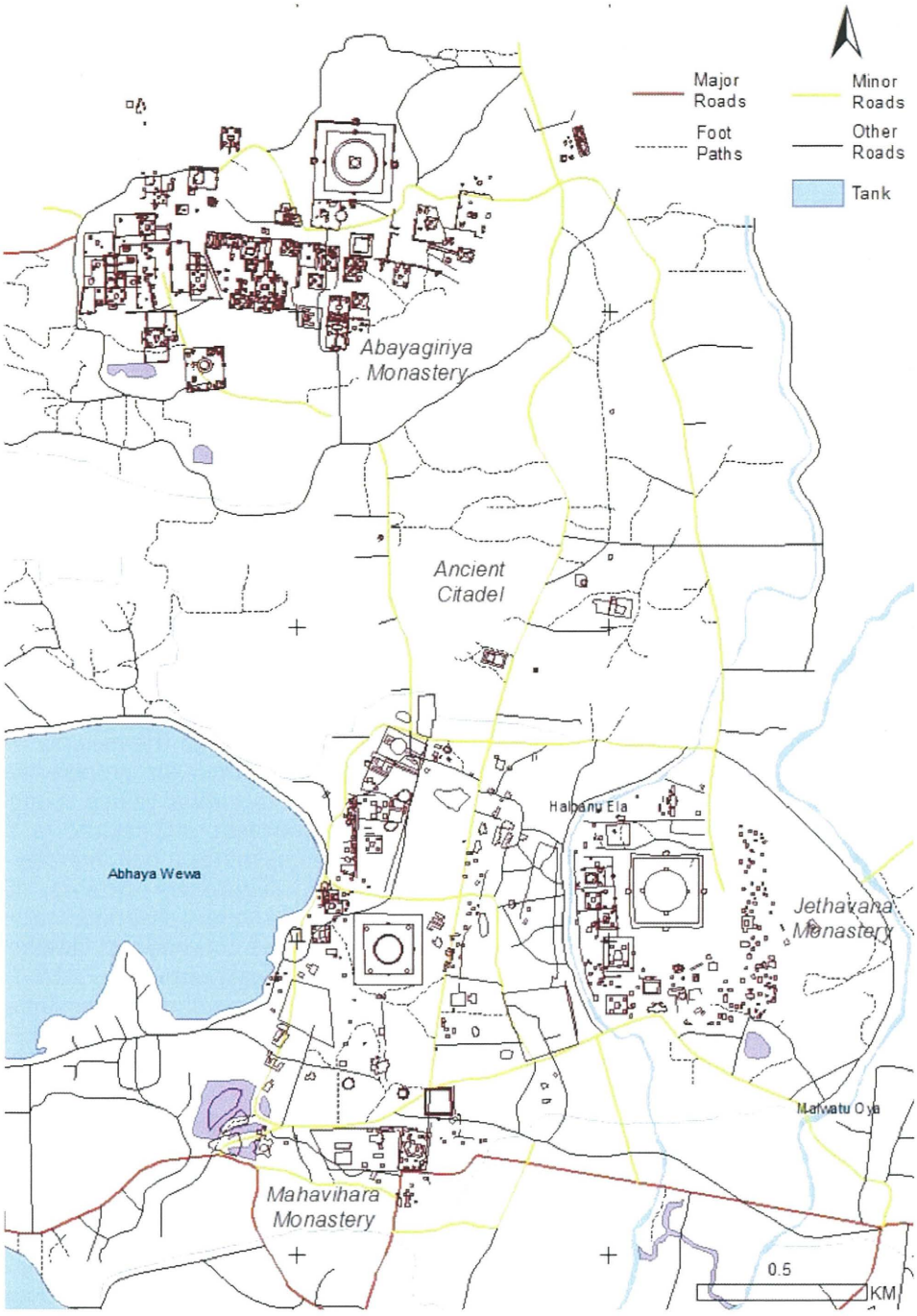

Figure 2. Main heritage area in Anuradhapura, with the ancient fortified city center, the citadel and monasteries Jetavanaya, Mahavihara and Abhayagiriya. (Compiled using survey department 1:15,000 town map)

The principle land management system in the ancient dry zone of Sri Lanka is the "tank cascade system" (Figure 3, Figure 4). It assures the availability of water, which is the most critical natural resource for agriculture and domestic purposes, throughout the year. These water-conveying systems consist of a series of reservoirs, which alternates alignment with paddy fields along the thalweg of shallow valleys. Being interconnected by canals, the water is routed through the cascade and is mainly utilized for paddy irrigation (Jayasundara 2011; Panabokke 2002; Schütt et al. 2013). The tank cascade systems are defined as a connected series of reservoirs, organized within water catchment areas, and used for storing, conveying, and utilizing water from a periodical rivulet (Maddumabandara 1985). This sustainable natural resource management system in the ancient dry zone of Sri Lanka has been functioning since the 3rd century BCE and is still in use today.

When Anuradhapura was inscribed on the World Heritage List in 1982, the ancient site, with its architectonical remnants, was considered in the nomination. The cultural landscape, which had developed synchronously with the city, has not yet been included as part of the value of the site. This paper will introduce the highly sophisticated water management system, which is still in use in the dry zone of Sri Lanka. By highlighting its uniqueness, its potential as a World Heritage cultural landscape is demonstrated.

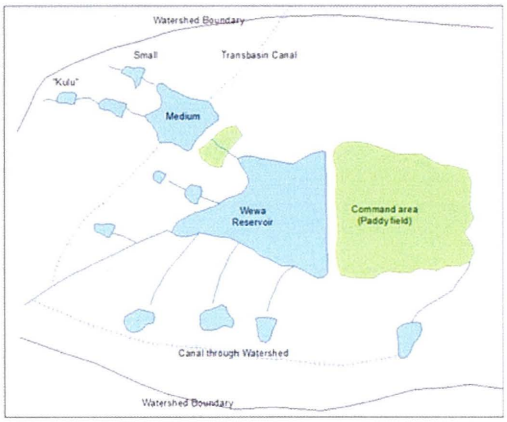

Figure 3. *Schematic representation of the components of tank cascade system (after Jayasundara, 2011)*

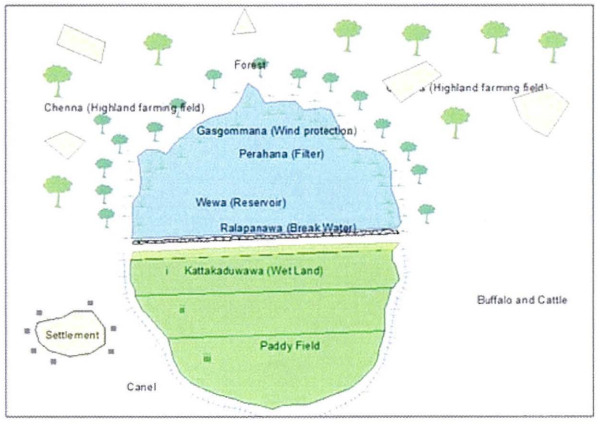

Figure 4. *Schematic representation of the Wewa ecosystem (after Jayasundara, 2011)*

2. Significance of the Anuradhapura dry zone hydraulic landscape, including natural and cultural values

Anuradhapura was inscribed as a UNESCO World Heritage site in 1982 based on the evaluation of the architectural and artistic characteristics that meet the living heritage values. When defining the Outstanding Universal Value (OUV) for the Anuradhapura World Heritage site, the important interchange of human values in the development of architectural tradition played a pivotal role (criterion *ii*). According to the definition in the Statement of Significance (SOS), "The sacred city exerted a considerable influence on the development of architecture during several centuries. It includes remarkable monuments, particularly the Dagobas of colossal size, placed on circular foundations and surrounded by a ring of monolithic columns, characteristics of the Sinhalese stupas" (Democratic Socialist Republic of Sri Lanka 2003 p. 7, 8).

Based on criterion *iii*, the exceptional testimony to Sinhalese culture is acknowledged: "Anuradhapura attests in a unique and specific way to the Sinhalese civilization. On numerous occasions, the city was submitted to the assaults of invaders from southern India: the Tamils, Pandyas, and Cholas. It stands as a permanent manifesto of the culture of Sri Lanka - impervious to outside influences" (Democratic Socialist Republic of Sri Lanka 2003 p.7, 8).

Finally, criterion *vi*, which demonstrates the attributes of living heritage values, was considered as a reason for inscribing Anuradhapura as a UNESCO World Heritage site. "The city is one of the principal shrines of Buddhism. A cutting from the fig tree of Buddha, brought there in the 3rd century, has flourished and, today, the Bodhi - tree spreads out over the center of the site from a sanctuary near to the "Brazen palace". The relics of Siddhartha have, moreover, shaped the religious topography of Anuradhapura, where the Dagobah Thuparama was built by the king Tissa in the 3rd century B.C. to house the clavicle of Buddha, and important religious relic presented by Asoka" (Democratic Socialist Republic of Sri Lanka 2003 p.7, 8).

Natural values, and the interrelationship between nature and culture, have been neglected in defining the OUV of this site, even though the majority of cultural heritage sites within the property have been nested with rich natural values. In addition, the Buddhist monastic architecture in Sri Lanka always demonstrates a rich interplay between nature and culture. For instance, the higher elevated rock shelters, associated to inselbergs, were enhanced to construct dwelling places for monks (Wagalawatta et al. 2017). The entire landscape, surrounding Anuradhapura, could be understood as a cultural landscape that is of high value in regards to nature-culture interlinkages.

The hydraulic irrigation landscape, in the area of Anuradhapura, illustrates an early adaptation to the local environmental conditions. It can be understood as a result of a complex technical, socio-economic, and political interplay occurring in the last two millennia. Consequently, the hinterland of Anuradhapura can be understood as part of the sensitive cultural heritage of ancient Anuradhapura. In terms of a cultural landscape, it developed as a co-evolutionary product of reciprocal human–environmental interactions during the last 2,000 years. Therefore, it is crucial to identify the entire landscape as a cultural landscape, demonstrating the interrelationship between nature and culture, for sustainable management in the future.

3. Current management arrangements of Anuradhapura and the challenges for the continuity of the agricultural landscape

The management of the heritage site is focused on its cultural assets. The Governmental Department of Archaeology, established in 1890, is the apex institution for the protection and management of archaeological heritage

in Sri Lanka (Government of Sri Lanka 1940). Besides that, the Central Cultural Fund, founded in 1980 under an Act of Parliament as a semi-government institution, carries out archaeological research, conservation, presentation, and management of principal heritage sites, including Anuradhapura (Government of Sri Lanka 1980). Further, the temple's religious authorities are directly involved with the maintenance and management activities of the living heritage sites.

Laws and regulations control the protection and management of the country's natural and cultural heritage. The base legislation, for the protection of the archaeological heritage of Sri Lanka, is the Antiquities Ordinance, which was enacted in 1940, followed by a major Amendment (No. 24) in 1998. This legislation protects the island's archaeological sites and monuments, focusing on two scales: the site and monument-specific protection and the protection of the setting or landscape in which a site is embedded. The ordinance categorized sites and monuments in the following three categories: archaeological reserves, ancient monuments, and protected monuments. Management of archaeological reserves is exclusively the obligation of the Archaeological Department, by order of the Commissioner of the Department of Lands, on the request of the Director-General of Archaeology. These archaeological reserves are strictly protected against theft, destruction, encroachments, construction of unauthorized buildings, and other interventions, such as the cutting of trees. A site or monument that is over 100 years-old, which is located on property of the State, which is not vested in the Archaeological Department, may be declared an ancient monument. This is announced by the Hon'ble Minister for Cultural Affairs and National Heritage in a gazette notification, thus affording protection from destruction, encroachment, unauthorized alterations, and additions etc. The procedures, and the resulting protections pertaining to ancient monuments, applies similarly to privately owned sites and monuments, that are over 100 years-old, once declared as protected monuments by the Hon'ble Minister for Cultural Affairs and National Heritage.

In general, human resources for the conservation and management activities are provided by the Department of Archaeology, with financial support from the government. Additional funds are obtained from the temple collections and used in the maintenance of the major monastic sites. Very recently, the Central Cultural Fund has taken over conservation and maintenance work, under the supervision of the Department of Archaeology, in Colombo. The Urban Development Authority, in Colombo, supervises infrastructure development projects around the site.

The Department of Archaeology is responsible for the planning of conservation activities, on an annual basis, and for their implementation. Very recently, integrated planning approaches have gained in importance; for instance, the Mahamevnawa development plan consolidates the perspectives for the

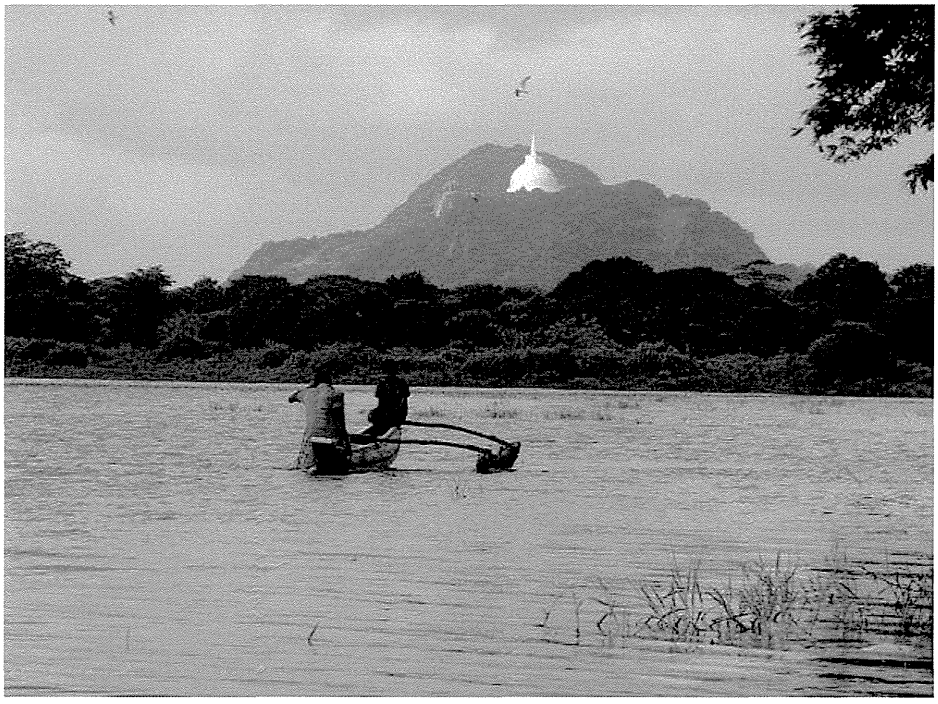

Figure 5. *Minor tank close to the town of Mihintale as an example the Sri Lankan dry zone hydraulic agricultural landscape (photograph taken by Nuwan Abeywardana, December 2008)*

Mahavihara monastery site (Figure 2) from the Department of Archaeology, the Central Cultural Fund, the Urban Development Authority, temple authorities, and numerous other stakeholders.

However, the surrounding agricultural landscape, in which most of the archaeological properties are embedded, has been neglected in the previously illustrated management processes. This is especially deplorable for areas where ancient monuments can only be understood through their interplay with the environment. In the dry zone of Sri Lanka, to this day, c. 10,000 small village tanks, built during ancient times, are still in use (Panabokke 2002; Tennakoon 2001). These systems are jointly managed by different stakeholders, such as the Departments of Agriculture and Irrigation, and on a local scale, by community-based farmer organizations, which are responsible for the management of the agricultural landscape linked with the tank cascade systems.

In the coming decades, it is expected that the Sri Lankan society will face rapid socio-economic and environmental transitions. Corresponding to the IPCC climate change scenarios, Sri Lanka will be affected by rising temperatures and can expect a higher variability of monsoonal rainfall coinciding with an increase in floods and droughts (Ministry of Environment 2013). This will affect the functionality and management of the water harvesting systems and the related traditional knowledge. Rapid development processes will also change the traditional land use practices. Loss of the traditional systems, a potential adoption of new systems, and varying interest in agricultural activities are raising issues for the protection of landscape values.

4. Recommendations

Anuradhapura, and its hinterland, are considered as the center of the ancient hydraulic civilization in Sri Lanka. During past decades, the management process of its heritage focused on its archaeological and cultural attributes. The cultural values of the surrounding cultural landscapes, with its multiple reciprocal human–environmental interactions and sophisticated water harvesting systems, being rooted in the ancient Anuradhapura period, is not yet the focus of heritage management.

The development of an integrated management approach, to protect this 2,000-year-old cultural landscape, would be a great challenge for future interdisciplinary research and heritage management. From the perspective of landscape archaeology, the major objectives are: to enhance the understanding of the development of the ancient water harvesting systems and its effects on the landscape and cultural development, to investigate traditional management aspects and traditional knowledge related to these systems, and to adopt the management strategies of these systems to handle the possibly changing socio-economic and environmental changes in the future.

Acknowledgements

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Indigenous and Traditional Landscapes

The Coffee Cultural Landscape of Colombia

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Abstract

The Coffee Cultural Landscape of Colombia (CCLC), inscribed in the UNESCO World Heritage List in 2011, is the largest productive designated cultural landscape in Latin America. The CCLC is a complex territory where cultural, social and productive institutions encounter rich biodiversity, granting the area a national policy for its preservation. The CCLC encompasses six farming landscapes, equating in 340,000 hectares of surface, in a unique, sustainable, and productive landscape that represents the Colombian coffee tradition. The physiography of valleys and steep slopes, with glaciers and volcanoes on the tops of ridges and native forests and biological corridors, are strategic for the conservation of its biodiversity. Nature-culture linkages are represented in a tradition lasting over 100 years and illustrated through the adaptation of small cultivation plots, the smart use of water sources, the development of building materials, the symbolic understanding of the landscape, and coexistence with disasters risks.

KEY WORDS: coffee cultural landscape, World Heritage List, UNESCO

1. Introduction

1.1 Overview of the heritage site

The Coffee Cultural Landscape of Colombia (CCLC) is a unique, sustainable, and productive landscape that represents the Colombian coffee tradition. The exceptional combination of the urban and rural landscapes reflects a centennial tradition of coffee growing on small farms following innovative natural resource management practices challenging geographical conditions. The high biodiversity of the CCLC is the result of the physiography of valleys and steep slopes, with glaciers and volcanoes on the tops of ridges, native forests and biological corridors, which are strategic for its conservation.

Coffee represents a cultural tradition in Colombia. More than 100 years ago it was introduced to the country and the crops were adapted to an environment surrounded by three cordilleras of the Andes. The volcanic soils, altitude, and the temperature of the equatorial zone provided an appropriate environment for the development of coffee production across its territory. This generated a cultural identity related to its cultivation which was sustained by the hard work of Colombian farmers.

1.2 Brief description of the agricultural landscape

For more than a hundred years, Colombian families, surrounded by harsh environmental conditions, have accumulated knowledge to adapt their coffee crops by cultivating them in small plots. Since the second half of the nineteenth century, the tradition expanded to other regions of Colombia, across the area formerly known as the Old Caldas. Coffee farmers have developed models of collective action through time, forging social, cultural, and productive institutions, and generating an innovative natural resource management system.

2. Significance of the heritage place including natural and cultural values

On June 25, 2011, the UNESCO World Heritage

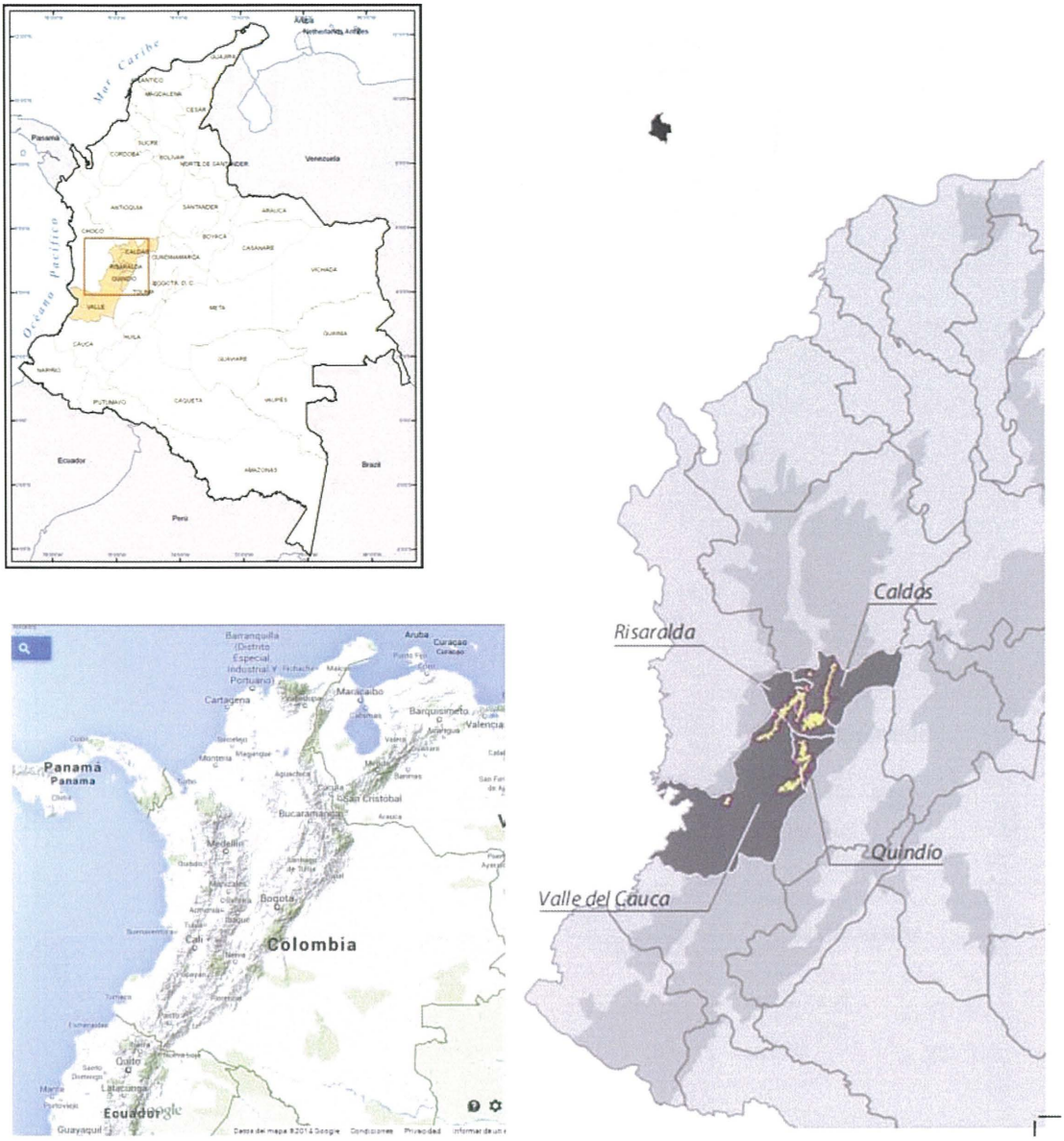

Figure 1. *Location of the CCLC. Source: Google maps, 2015. National Federation of Coffee Growers of Colombia 2016*

Committee, in its 35th session inscribed the CCLC in the World Heritage List based on criteria (v) and (vi). The CCLC was inscribed because of its continuing land-use where farmers generated innovative natural resource management practices producing tangible and intangible cultural manifestations characterizing the region.

Furthermore, the statement of significance defines its integrity and authenticity values on the one hand, based on the singularity and high cohesion level of the social adaptation elements of cultural and social traditions according to a sustainable human development; and on the other hand, represented by the rich tangible and intangible cultural features, and "harmonious integration of the production process and social organization and the coffee farms typology." (UNESCO 2011).

3. Current management arrangements

After being included on the World Heritage List, on August 13, 2011, the Presidential Agreement for Prosperity No. 43 mandated the development of the CONPES[1] document, the inclusion of the CCLC in the Land Management Plans[2], the definition of the zones of mining exclusion and the CCLC's national decree. On October 7, 2011, Resolution 2079, from the Ministry of Culture of Colombia, recognized the

1 The National Council for Economic and Social Policy (CONPES) of the CCLC was signed by the Minister Council on February, 13th, 2014.

2 The Land Use Management Plan is a technical and policy planning instrument of long-term management. It is a set of actions and policies regarding administrative and physical planning, which will guide the development of municipal areas, occupation and transformation of urban and rural physical space. The 1998 Law of Land Management requires mayors to update local plans, and the National Planning Department launched a program on technical guiding: http://kiterritorial.co/

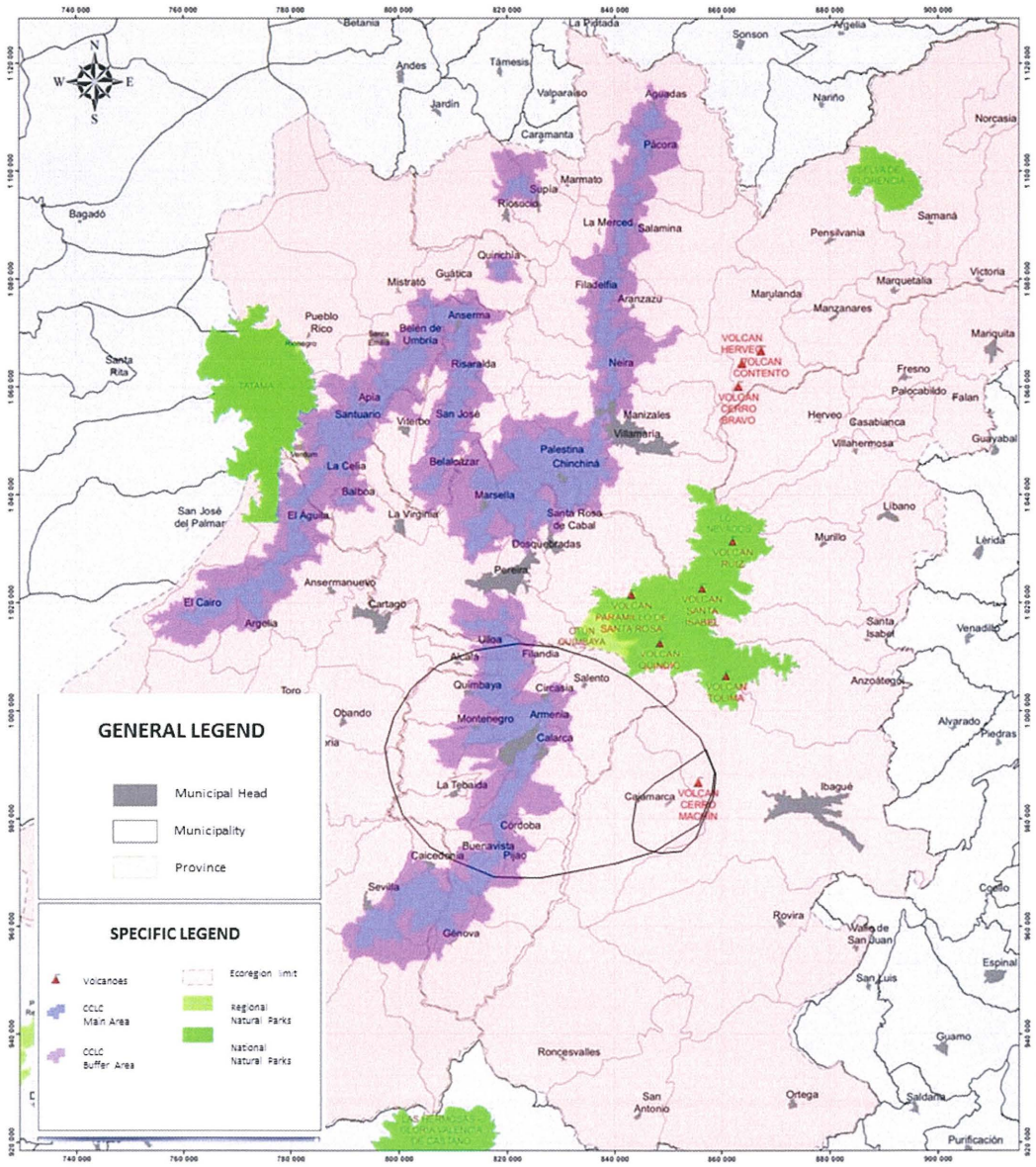

Figure 2. *Area of CCLC and buffer zone with superposed threat area of Cerro Machin Volcano. Drawing: Luis Manuel Reales Maestre (Ministry of Culture of Colombia, 2015)*

CCLC as Cultural Heritage of the Nation and as a property inscribed in the World Heritage List of UNESCO, consisting of a territory composed of areas of special archaeological, historical, and cultural interest.

3.1 The CONPES document

According to the "Policy for the Preservation of the Coffee Cultural Landscape of Colombia" (National Planning Department 2014), the factors threatening the nature-culture linkages of the CCLC are: a low resilience to the effects of climate change and environmental pollution, vulnerability to extractive activities and large infrastructure projects, and the negative effects and losses due to risk and disaster threats. To address the above, the CONPES aims at formulating a policy specific to the CCLC in order to ensure the preservation of its Outstanding Universal Value and improve conditions for the environmental, cultural, and social sustainability, and the economy of the territory. It defines strategies, programs, actions, and the funding required to ensure the sustainability of the landscape as a commitment of the Colombian government. Specific objectives of the policy to strengthen conservation are: first, to design and implement the necessary mechanisms to develop risk management plans so that threats, vulnerabilities, and risks are recognized. Second, to include a strategy for the management of mining activities and third, to strengthen the sustainability action program for coffee production (National Planning Department 2014:48).

Another serious problem in the CCLC is generational change. Coffee farmers, averaging 55 years old, are affected by the influence of modernization and poor local competitiveness of the coffee business in the global market, as the youth does not want to work as coffee farmers.

3.2 Guidelines for Land Management Plans

According to the "Guide to Enactment of the CCLC in the review and adjustment of Land Management Plans" (Ministry of Culture-National Federation of Coffee Growers 2014), environmental and cultural factors need to be included in the municipalities' land use plans, coordinating with the Ministry of Housing, City and Territory, MASD, and the Ministry of Culture. The guide was developed simultaneously with the obligatory process of review and adjustment of 51 municipality land management plans. The development of the guide involved the GIS mapping of land use, preserved areas and infrastructures, and the verification of urban-territorial implications of cultural attributes related to land management. Technical and policy-mapping were required, translating them into landscape standard controls for its conservation, especially in areas experiencing urban development pressure, land use changes, the impact of tourism, and mining activities.[3]

3.3 Guidelines for mining activities

Through coordinated work with the Ministry of Mines and Energy (MME), the National Mining Agency (NMA), MASD, and the local environmental authorities in the region, an action plan was undertaken to identify existing mining areas in the CCLC, identify existing mining titles,[4] characterize the type of mining activities, establish criteria to evaluate new projects, and support the authorization or disallowing of projects.

Resolution 2963 enacted on December 22, 2012, amending Resolution 2079. It delimited, with precision, the CCLC main area and buffer zone (Figure 2). When the area was determined, and declared as restricted by mining cadastre in 2013, the MME concluded that 65% of the mining activity in the CCLC is related to the exploitation of stone used for the production of building materials and roads and the remaining 35% are precious minerals. Currently, a process is being developed to determine the feasibility of issuing new mining titles in the CCLC. It is taking into account the need to review the titles issued before the inscription on the World Heritage List (not included in UNESCO's nomination file) and to evaluate the complex matter of improving mining with respect to the landscape and its values. The World Heritage Committee, in its 35th session in 2011, recommended that Colombia "not authorize any mining activity within the property and its immediate surroundings" (UNESCO 2011).

4. Current State of Conservation and Challenges for Continuity

Despite the CCLC's progressing state of conservation, the challenges for its future are many. The CCLC's sustainable practices of coffee cultivation are being applied to mitigate the effects of climate change, such as wastewater

Figure 3. *Coffee farm. © National Federation of Coffee Growers of Colombia*

3 CONPES document diagnosed some of these impacts. on the impact of mining activities, see Velandia (2015).

4 The mining title granted the right to explore and exploit the soil and subsoil. The Mining Law of Colombia allows the cultural authority to evaluate, authorize or disavow mining projects in restricted areas.

Figure 4. *Coffee landscape © National Federation of Coffee Growers of Colombia*

management, crop renovation, and more controlled planting to capture more sunlight without losing plant density. That is because the National Coffee Growers of Colombia are applying the "Sustainability matters" program[5] with the principles, guidelines, and indicators of the Global Reporting Initiative. The actions of the program are aimed at the renovation of competitiveness by granting credits and financial services, improving environmental management between producers and environmental authorities, strengthening coffee growing through international sustainability protocols, and maintaining connectivity and technology with coffee farmers.

The CCLC was affected by the Armero disaster in 1985 and by the earthquake that originated in the city of Armenia in 1999; these events left deep social and cultural problems. Despite this, the imminent risk of Cerro Machin volcano (VCM) is virtually unknown. Due to its characteristics, the VCM has the potential effect of an explosive building; its map of threats and risks extends to the pyroclastic tide westwards, hypothetically, rampaging the Coffee Cultural Landscape of Quindio and Valle del Cauca provinces completely. INGEOMINAS (2003) forecasted hemispheric, regional, and local impacts of the VCM's imminent eruption and compare them to the 1993 events of Mount Pinatubo in the Philippines.

In order to address the problem of the change of agricultural land use in the CCLC, the conservation of agriculture is being promoted as a national food security policy linked to the CONPES policy. Also, there is a defined capacity of territory for cropping and food security that is improving the articulation with land management. Likewise, tourism activities are being directed to ecotourism, agro-tourism, ethno-tourism practices, and the certification of high-quality services in a quest for the sustainable use of the potential of the natural and cultural landscapes. Despite the strong generational change, early childhood and youth education is promoting awareness about the CCLC values. Moreover, financial and technical training is being directed to young coffee growers in order to attract them to stay on the coffee farms. It has been necessary to diversify economic practices by participating in the production of specialty coffees and promoting coffee with a designation of origin.

Finally, one of the characteristics of the CCLC is the application of advanced scientific research to obtain coffee varieties that are more resistant to diseases and to the humidity generated by climatic variability. Necessarily, the deep scientific study of natural values will contribute to the cultural value also to remain for future generations, like deciphering the coffee genoma by Cenicafé[6] (National Centre for Coffee Research), or obtaining varieties of Colombian coffee better adapted for altitudinal adaptation to climatic variability.

5. Recommendations

There is a need to strengthen the CONPES policy within the National Development Plan and achieve a comprehensive link with the peace agreement.[7] Also, it is needed:

· To strengthen preservation in the National Land Use Policy and to continue CCLC

5 https://www.federaciondecafeteros.org/static/files/sostenibilidad-2012-eng.pdf

6 http://www.cenicafe.org/

7 With the signing of the Peace Agreement with the Revolutionary Armed Forces of Colombia (FARC) in 2016, one of the main points were the Agreement on "Comprehensive Agricultural Development Policy Towards a New Colombian Field: Integral Rural Reform (RRI)". This agreement establishes the bases for the transformation of the countryside and creates the conditions of well-being and good living for the rural population. It seeks to eradicate extreme rural poverty and reduce rural poverty by 50% over a period of 10 years, promoting equality, closing the gap between the countryside and the city, reactivating the countryside and in particular the development of peasant, family and community agriculture. (http://www.altocomisionadoparalapaz.gov.co/Documents/informes-especiales/abc-del-proceso-de-paz/index.html)

harmonization in the land use - adjustment of Land Management Plans[8] at municipal (POT) and regional (POD) levels;
· To set risk and disaster management municipal and regional plans;
· To improve control and supervision of infrastructure projects;
· To continue work controlling extractive activities;
· To continue with the strategic tourism plan; and overall
· To strengthen the leadership of the Ministry of Culture due to the commitments made to UNESCO, supported by the National Federation of Coffee Growers of Colombia[9] improved by an associative mechanism of collective participation of the representatives and stakeholders of the region.

The strategies and objectives of landscape management instruments (land management and mining guidelines, the management plan of the property, and CONPES national policy) are very relevant, because they are an example of 'maintaining living models of sustainable land use and natural resources.' (Rössler, 2003). Based on sustained work in committees at local level, there is a progressive valuation of the dynamic layers of the landscape as a 'living' model.

This refers to the understanding of the CCLC management as a living expression that must remain exposed for social apprehension and development of the actions for their preservation through time. This is very significant of the agricultural landscape: for an effective integration of heritage and sustainable development, it is necessary to systematically explore nature-culture complexity features to establish a creative dialogue between the past, the present and the future.

Figure 5. *Coffee crops and Guadua woods © National Federation of Coffee Growers of Colombia*

8 Called "Modern POD-POT Program".
https://colaboracion.dnp.gov.co/CDT/Vivienda%20Agua%20y%20Desarrollo%20Urbano/Presentaciones/01-Colombia_planeacion_territorios_modernos.pdf
9 https://www.federaciondecafeteros.org/particulares/en/

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Symbiosis Between Nature & Culture – A Case Study of the Apatani Cultural Landscape, India

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Abstract

The Apatani cultural landscape is well-known all over the world for its unique and traditional practice of paddy-cum-fish cultivation. It is located in the Ziro valley, in the Lower Subansiri district of Arunachal Pradesh, India. This remarkable practice of yielding rice as well as fish, by the Apatani tribe, has been sustained over generations and has not been influenced by any modern techniques. Due to their sustainable usage of natural resources, the fertility of the soil has remained the same over the years, securing the livelihoods of the locals. This landscape also has bamboo and pine plantations in the undulating hills surrounding the valley. The traditional practices of the Apatanis are based on a rational use of natural resources. Hence, this relationship between nature, culture, and humans mutually supporting each other has been recognized and regarded as one of the best examples of nature-culture linkages in the world. Currently it is on India's Tentative list for World Heritage sites.

KEY WORDS: cultural landscape, paddy-cum-fish cultivation

1. Introduction

The Apatani cultural landscape is located in the Ziro Valley (N27°32 - 27°37; E93°48 - 93°52) of the Lower Subansiri District, Arunachal Pradesh, part of one of the three recognized biodiverse hotspots in India (Munilkumar et al. 2007). This landscape is inhabited by the Apatani tribe, considered one of the most advanced among the 26 tribal communities in Arunachal Pradesh (Singh et al. 2008). The Ziro valley is situated at a range of 1,564 meters to 2,900 meters above sea level. Due to its remoteness, it is still untouched by modernization such as accessible roads and supporting infrastructure. This valley is surrounded all around by pine-mantled hills. It is famous for the practice of paddy-cum-fish cultivation (Munilkumar et al., 2007). Irrespective of other tribes of Arunachal Pradesh, who practice slash-and-burn agriculture, the Apatanis practice wet-rice cultivation in a unique manner.

As mentioned by Kaning in his book entitled *The Rising Culture of the Apatanis*, historically, the original place of the Apatanis was Iipyo Lembyan, which may be termed as modern day Mongolia. Later, this group of people migrated to a place called Miido Lembyan (probably Tibet) and further migrated to Nyme Lembyan (probably the area of present Arunachal and China). Finally, they reached a place called Biirii, presently known as Ziro, where they settled permanently. There are several folktales related to the settlement in the Ziro valley. A well-known legend tells that the valley was once a swampy area and was inhabited by large amphibian reptiles known as *buru*. These reptiles used to disturb

the villagers and destroy their agricultural fields by making big holes that water would come out of. It is said that after the elimination of the reptiles, the swamps were drained, the Apatanis established the villages, and they made the entire valley arable (Kaning 2008).

Since 2014, the Apatani cultural landscape has been on India's Tentative list to be nominated, under criteria (iii) and (v), as a World Heritage Cultural Site. In its statement of Outstanding Universal Value, it has been declared that the site is an exceptional example that is linked to the cultural traditions of the Apatani tribe. They are regarded as the guardians of the landscape and are responsible for maintaining the landscape over generations. It is their unique, and highly evolved, settled agricultural practices that the Apatanis are known for. The significance of such immense ecological and cultural value, in an erstwhile high seismic zone, is a peerless specimen of nature and human symbiosis (UNESCO 2016). It has been more than 3 years, however, and the dossier for the Apatani cultural landscape has yet to be submitted. The nodal agency responsible for this site, at the state level, is the Department of Cultural Affairs; at the district level, the District Research Office is responsible. The Department of Cultural Affairs is based in Itanagar, the capital of Arunachal Pradesh, which is 111 km away.

Making a dossier is a technical task that takes expertise in drafting the text, describing, and defining the OUV of the site along with a good repository of images. The officials from Itanagar make visits to the site on a weekly or fortnightly basis. The need of the hour demands a unit from the department that is exclusively engaged in this task.

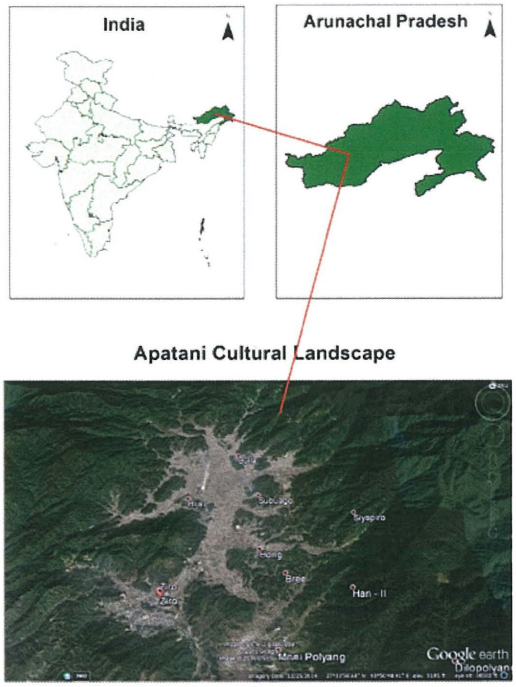

Figure 1. *Location of Apatani Cultural Landscape; Source: Google Maps*

2. The Apatani cultural landscape: natural and cultural values

In the context of exploring the Apatani cultural landscape by the UNESCO Category 2 Centre-India, the author collected information from the Ziro Valley in July 2016, interviewed 40 local people, between the ages of 18 and 60 years old, and observed the practices of the Apatani people during monsoon season. There are seven main villages in the Ziro valley Bula (consisting of Kalung, Reru and Tajang villages), Hari, Hong, Michi-Bamin, Mudang Tage, Duta, and Hija. The total population of these villages

Figure 2. *A view of Apatani Cultural Landscape © Tage Kanno*

is approximately 30,000, out of which 90% belong to the Apatani tribe. The Apatani's traditional houses are built on wooden piles, mainly bamboo, and thatched with paddy-straw on the roof, which are locally available materials.

The findings show that the primary source of livelihood for the Apatanis is paddy-cum-fish and the plantation of bamboo and pine trees. Their cultivation is very labor-intensive. Fish is an important part of the Apatani diet and is consumed daily. During January and February, dykes are made along the permanent terraced fields; there is a provision of inlets and outlets for water irrigation, with bamboo screens to avoid the loss of fish. In each plot, small dams, locally called *Kiile*, are made for irrigation purposes and are located in different areas to manage irrigation water in their respective agriculture fields.

The flow of water, through human-made channels, is regulated by the locals so that no blockage occurs. Common carp (*Cyprinus carpio*), an omnivorous fish, is reared along with rice seedlings in the paddy field in the months of April and May. They feed on water plants and scavenge insects and worms found in the field. After being reared for 3 to 4 months, the fish are sold at the local market. Almost all aquatic animals, including snails, crabs, and frogs are eaten and nothing is allowed to go to waste. During this season, weeds and unwanted grass are removed from the fields. The agricultural fields are well demarcated with elevated boundaries where barley and finger millet are grown. They are used in making a local brew. After harvest, straw is burnt down, or left on the floor of the field to decay, which also helps in the prevention of the growth of weeds. Thus, the fertility of the soil in the Apatani rice fields and gardens is always intact and results in the yielding of abundant harvests.

It was observed by the author that the artificial irrigation channels, built using the available water streams, made wet rice cultivation possible in Ziro. This is possible because of the efficient conservation of the forests surrounding the valley, which form the crucial watershed flowing down into the fields. Water supply is perennial, particularly, during the agricultural season (February to September). The Apatanis are known for their rational utilization of limited land that evolved based on experimentations. There are separate areas for human settlements, wet rice cultivation, dry cultivation, community burial grounds, pine and bamboo gardens, private plantations, and community forests. It is an example of highly successful human adaptations to the rigor and constraints of the upland regions.

The areas of gentle or steep slopes that are not suitable for crops are used to develop the bamboo and pine groves, from which the valuable trees are then used as building material and fuel. Thus, there is no wasteland in the Apatani valley; every inch of land is used for some purpose. Individual families maintain this plantation. Once the grove has been cleared, it is the duty of the respective family to plant new bamboo and pine saplings so the next generation, their children, can use them in the future. This is a practice carried out by the forefathers of the Apatanis. With such efforts, the biodiversity of the landscape has continued to remain intact over the decades.

Figure 3. *Paddy field during monsoon period in Ziro Valley © Tage Kanno*

3. Customary management of the agricultural landscape

All of the villages in the Ziro valley are governed by a traditional village council, called *bulyañ*, which supervises, and has legal oversight of, individual's activities that can affect the community as a whole. They work efficiently by addressing the conscience of the people, rather than instilling fear of the law, and by promoting the prevention of unlawful activities, rather than through punitive actions.

The Apatanis believe in *Donyi Polo*, the ancient form of animistic religion, where the sun and moon are worshiped as gods. They continue to worship nature and are very conscious about environmental hazards, which occur when the environment is disrupted. It is due to their traditional customs and practices that the Apatanis are able to maintain their landscape in a sustainable way. In this era of rapid development, when modern society is struggling with finding strategies to mobilize communities to support sustainable development, the system followed in the Ziro valley has already set an example.

About 70% of the population of the Ziro valley depends on agriculture; whereas the rest of the population is involved in ecotourism, plantation of commercial crops, and timber. Their management of the land and its uses, for various purposes, are based on their age-old practices. As a part of the customary system, the houses are built on land higher than the paddy fields in the villages. The house sites have further advantages to enrich the paddy fields with human waste, animal waste, and other forms of garbage washed down by rainwater. This type of rainwater drainage is called *supyu*, which adds manure to the nearby paddy fields. On the other hand, the villages are quite hygienic places to live and leave no place for stagnant water; hence, there are decreased chances of waterborne disease outbreaks. The irrigation channels also carry loads of loam and silt into the fields, by washing away decayed leaves and trees.

4. Current state of conservation and challenges for the continuity of the landscape

The unique paddy-cum-fish agriculture has been practiced over generations and is able to withstand the adverse effects of development. Modernized techniques have not influenced their agricultural practice in pursuit of higher yield. There is no use of fertilizer, except for organic manure. The entire processes of the agricultural cycle are completed manually by each individual household. It is unlikely that hired labor is engaged to work on the agricultural fields.

There is a fraction of villagers, belonging to a younger generation, that are moving out of this area, in search of better education or employment, but the dedication and importance of their agricultural practices remain close to their hearts. During the harvest season, all of the family members, from youth to elderly, whether residing in Ziro or outside, get together to work in their fields. It is also observed that locals are growing commercial crops instead of laboring in their agricultural field. Though this trend has not overridden

Figure 4. Apatani woman practicing agriculture in Ziro Valley © Tolik Megu

their traditional agricultural practices, there is likelihood that there will be a shift from labor intensive agriculture to less labor intensive sources of livelihood. Also, in the process of nomination of their landscape as a World Heritage site, there is not much involvement from the locals.

5. Recommendations

Traditional practices of harvesting forest resources of the tribal people, well-known for their sustainability, while quickly dwindling in other parts of the world, are still seen among the Apatanis. It is due to the continued existence of strong customary laws and spiritual beliefs that these practices remain alive today. Stringent regulations laid by official authorities have often failed to yield the expected results. However, the Apatani traditions have not only helped in the optimal harvesting of resources from the forest, but also have improved their effective conservation. This is regarded as an example of the sustainable management of natural resources.

Presently, the process of elaborating the nomination file is being handled by the state government under the Department of Cultural Affairs. Villagers are not taking a major part in the process of making their landscape a World Heritage site. Since it represents their traditional practices, the role of the Apatani local communities will need to be greater than it is presently. During the field visit in July 2015, the meeting between stakeholders and the author revealed that there is no clear understanding of the process for nomination. It is mostly being handled by the Department of Cultural Affairs, Government of Arunachal Pradesh. Talking to one of the officials revealed that it might take 5 to 10 years to come up with the final nomination dossier for the Apatani cultural landscape. Currently, the UNESCO Category 2 Centre-India is not playing any role in this nomination.

The footfall of tourists is expected to escalate, once the property attains the designation of World Heritage. Hence, it is important that the appropriate measures are planned before the massive boom of tourism brings negative impacts to the site. The future of this region lies in the hands of the higher authorities – the Cultural Department, the Fisheries Department, the Agricultural Department, the Irrigation Department, and the Education Department. In order to keep the practice of paddy-cum-fish cultivation lucrative and profitable, different state departments should collate and plan strategies to ensure this practice. Initiatives taken will assist in decreasing the shift away from their traditional practices of paddy-cum-fish cultivation, leading to its viable and sustainable future. In order to retain the youthful population, better infrastructures, like colleges and employment opportunities, will be needed. At the village level, committees can be formed that will link these departments, and their policies, to the locals. Also, an exclusive committee for the nomination of the Apatani cultural landscape should be formed. It should be an inclusive committee of government officials, local stakeholders, researchers, experts in the field of World Heritage, and NGOs. They should hold meetings regularly and make the drafting of the dossier, for this landscape, their first priority. With all of these tiny efforts of conservation, the viability of the Apatani cultural landscape can be seen in the future. In India, there is no other place like this landscape; therefore, the importance of the Apatani cultural landscape should be preserved.

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The Kanchendzonga Sacred Landscape: Nature-Culture Linkages and Local Associations with Place

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Abstract

This paper looks at cultural landscapes, including settlements and agro-ecological systems, which lie beyond the domain of the protected natural core of the Kanchenjunga National Park (a World Heritage site and Biosphere Reserve). These landscapes have evolved, over time, through a long history of interactions between culture and nature, with the assimilation and coexistence of diverse traditions, belief systems, and rituals related to land. This makes them a repository of biological and cultural diversity. Dominant discourses about the environment and heritage often tend to commodify nature or culture, undermining the multiplicity of values, meanings, and practices in these multi-layered, multi ethnic and contested terrains. There is a need for a paradigm shift, towards an alternative conservation praxis, that acknowledges and explores nature-culture linkages in landscapes and the local perception of heritage while affirming the stewardship role of communities and their engagement in decisions concerning their land, forests, and waters.

KEY WORDS: sacred landscape, nature-culture, intangible heritage, indigenous rights

1. Introduction

Over the years, the global conservation discourse has experienced a gradual, but significant, shift from monument-centric and expert-oriented to community-based and people-centric approaches. Yet in practice, conservation continues to be a top-down process, as typical conventional approaches lead to the isolation of nature from culture.

For instance, the natural area that immediately surrounds Mount Kanchendzonga is designated as a National Park and was recently inscribed as a World Heritage site under the Mixed Cultural and Natural Heritage category; but, the human inhabited agricultural landscapes and settlements, which constitute a part of the larger sacred geography, have been excluded from the core area of the designated heritage site. The Kanchendzonga sacred landscape, a notional landscape, can be described as a confluence of place and mythology. There are multiple interpretations of this mythical landscape, which broadly encompasses Mount Kanchendzonga and its adjacencies, but does not have any definitive boundaries. This paper attempts to understand nature-culture

Figure 1. *The sacred landscape: a confluence of place and mythology; Prayer Flags at Dzongri in West Sikkim (image courtesy: Hussain Indorewala)*

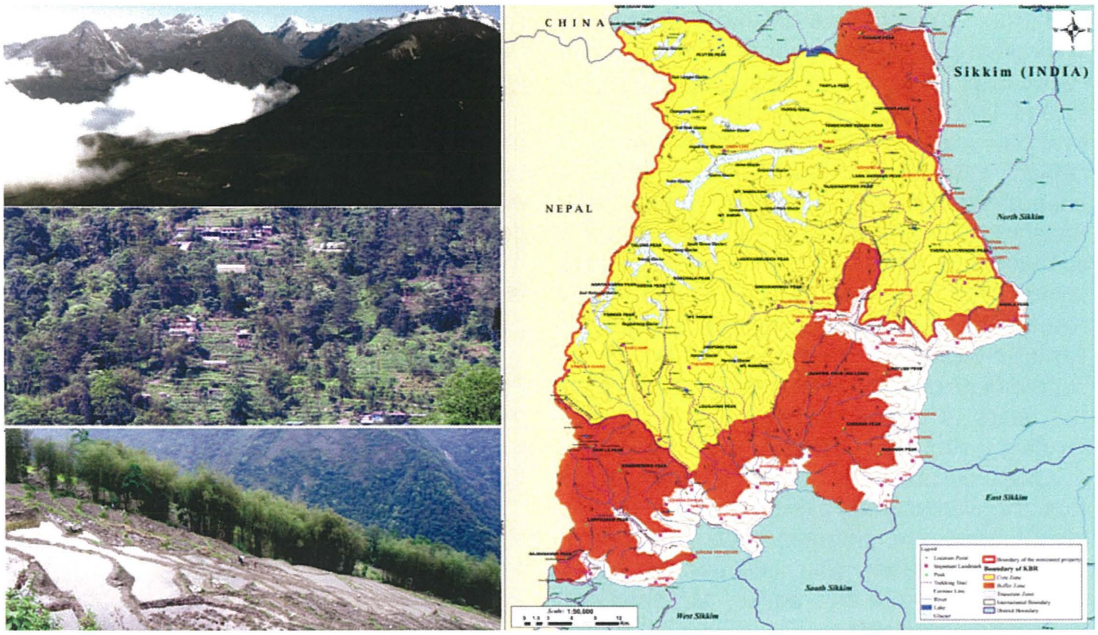

Figure 2. *Natural and Human Inhabited landscapes belonging to the Kanchenjunga Biosphere reserve (pictures in the left); the map in the right shows the core (yellow), buffer(red) and transition zones (white) of the Biosphere reserve and World Heritage site (boundaries shown with a red line); images: Shweta Wagh, Map sourced from the Dossier for the Nomination of Khangchendzonga National Park for Inscription on the World Heritage List*

linkages and local perceptions of nature in semi-natural and human inhabited landscapes that lie beyond the domain of the protected natural core, broadly coinciding with the buffer and transition zones of the inscribed World Heritage site or the Kanchenjunga[1] Biosphere Reserve (Figure 2).

1.1 Overview of the heritage site

Mount Kanchendzonga, the sacred summit, is revered by local communities as their guardian deity. Shamanic worldviews persist among the indigenous inhabitants, such as the Lepchas, who have a cosmology intricately interwoven with the land. They trace their lineage to sacred mountains and peaks, believed to be places where life originates and where the souls of their ancestors reside. Their conception of Máyel Lyáng is as a hidden paradise, inhabited by immortal beings that cater to their needs and well-being. With the establishment of the Buddhist Kingdom in the seventeenth century, indigenous conceptions of the landscape were assimilated into a "Buddhist rendition of Sikkim's sacred geography as a beyul (sbas yul) or sacred hidden land" (Balikci 2008). The mythical geography of the landscape thus seems to have emerged out of these two distinct hidden land narrative constructs. Over the years, there is evidence of an interchange between these diverse cultures and, today, the region has a mixture of religious and ethnic identities.

The physical landscape of the Biosphere Reserve spans across four altitudinal regions, including the trans-himalayan, alpine, temperate, and subtropical. It consists of a diversity of habitats ranging from snowfields, glacial lakes, alpine forests, and meadows to temperate broadleaved, evergreen, and sub-tropical valley forests. Deep gorges and steep, densely vegetated, valleys contain the tributaries and basins of the Rangit and Teesta rivers, fed by melting glacial snows and torrential monsoon rains. At lower elevations, agrarian and pastoral landscapes are interspersed with natural habitats. The landscape, dotted with settlements, monasteries, and symbolic relics, contains a multitude of sacred natural sites (Figure 3).

Figure 3. *The landscape is dotted with settlements, symbolic relics and sacred natural sites: The sacred river Rongyong (left), Buddhist Chortens (centre), a village in Dzongu-the Indigenous Lepcha reserve in West Sikkim (right) ©Shweta Wagh*

1.2 Description of the agricultural landscape

A wide range of landscape types are sustained through the practices of the local communities

1 The site is referred to by various names as per local or regional dialects, for e.g. Kanchendzonga, Kanchenjunga or Khangchendzonga. In this paper I have used these names interchangeably, as applicable or according to how the site has been referred to as part of various national/international frameworks or designations.

and their intimate relationship with nature. The buffer and transition zones of the National Park consist of agro-ecological systems (Figure 4) and land use practices that have evolved over 600 years, in response to the terrain and climate, through a series of innovations and adaptations (Ramakrishan 2008; Subba 2008; Bhasin 2011). The landscape is the result of a cumulative process of accretion of successive layers and the continuous shaping and reshaping of nature by the region's inhabitants. Earlier systems of shifting cultivation were supplemented with sedentary farming. Over the years, a mixed mountain garden-based farming system has emerged, which consists of a range of practices including agroforestry, forestry, livestock, and agricultural land (Subba 2008). There are different kinds of fields at different elevations, which include dry fields, orchards, agroforestry, house gardens, and terraced paddy fields.

The upper slopes of the hills and lands, where irrigation is not possible, are used for the temporary dry cultivation of grain such as millet, buckwheat, and dry rice. At lower elevations, there are terraced rice fields, irrigated by bamboo channels. The bunds of the fields are often planted with legumes, fruit and fodder trees, and bamboo. Hill slopes are planted with tapioca, grain, vegetables, cardamom based agro-forests, or orange plantations intercropped with legumes. The house gardens use intensive multi-cropping with cereals, legumes, vegetables, tubers, medicinal herbs, spices, and aromatic plants (Subba 2008; Bhasin 2011). Fields are interspersed with forests, natural or semi-natural landscapes, and are often governed by customary rights. Agriculture is supplemented with livestock farming, fishing, and foraging for non-timber forest resources. The local communities collect bamboo, firewood, fodder, medicinal and edible plants, such as mushrooms, ferns, and tubers, from the forests and groves in the settlements vicinity. These practices constitute the traditional ecological knowledge of the local communities which makes the region a repository of bio-cultural diversity (Ramakrishnan 2008).

2. Intangible values and linkages between culture and nature.

Buddhist and shamanic worldviews, deeply ingrained in the local belief systems, have their basis in a mystical reverence for nature and they place several restrictions, and taboos, on the inhabitants of the landscape. Natural sites, such as hills, peaks, glaciers, rivers, forests, trees, groves, rocks, caves, lakes, and springs, are believed to be sacred and inhabited by malevolent or benevolent supernatural beings (Figure 5). It is feared that any kind of pollution or defilement of these areas would release the destructive entities that the land had subdued or invoke the wrath of local deities, manifesting as epidemics, famines, disputes, and natural calamities (Scheid 2014). The Lepchas believe that ritual appeasement and pacification is required to ensure the deities' benevolence, which will guarantee their fertility, health, prosperity, and security (Bentley 2014). Similarly, rituals of the land, common among the Lhopos [Bhutias], are an expression of a well rooted relationship with the sacred land and its harvests (Balikci 2008). The Lepcha tribe believes that the loss of their traditional way of life, language, and ritual practices will sever their connection with Mayel Lyang. Similarly, the Lhopos people believe that only those who can purify their own minds can experience the secret beyul, which also implies an inner state

Figure 4. Agro-ecological systems in the region of Dzongu include farmlands interspersed with forests, bamboo plantations (left), orchards and house gardens (centre), and natural forests (right) ©Shweta Wagh

Figure 5. *Sacred relics and natural sites: The sacred river Rongyong in Dzongu (left), Sacred stones in Dzongu- the indigenous Lepcha reserve (centre) and a sacred grove attached to a monastery (right) ©Shweta Wagh*

of transcendence (Scheid 2014). Customary practices, that involve the dedication of sacred groves and landscapes to ancestral spirits, embody their culture and indigenous identities (Arora 2006).

3.Current state of conservation and challenges for continuity

State policies and development schemes in the region are geared towards sustainable development; however, they tend to adopt conventional approaches which isolate nature from culture. In recent years, agrarian and pastoral landscapes, which lie beyond protected area networks, have experienced cultural and demographic changes and an onslaught of development pressures. With scientific or biodiversity values prioritized over cultural values, the role of the local communities as custodians of the sacred sites and landscapes has been undermined.

Archaeological sites and monuments are protected but agricultural landscapes with vernacular heritage are rarely acknowledged. The processes for heritage identification is driven by dominant discourses, with little consideration, or emphasis, on the intangible or local values. For instance, the Sacred Spaces Special Provisions Act recognizes sacred natural sites of Buddhist worship and includes peaks, caves, rocks, lakes, chortens, and hot springs, but intangible values, associated with sacred rivers and other sites of local significance, are not protected under this act. Nature and culture are also packaged, or commodified, for the growing tourism industry. These development programs are often in conflict with local needs or priorities. For example, in the region of Dzongu, as part of an ecotourism initiative, an ancient grove of trees, which sheltered a sacred spring, was cut down in order to construct public bathhouses for tourists. Another example of insensitive development is the Chief Minister's Rural Housing Mission, which aimed to achieve a Kutcha House Free State in the year 2013; it proposed to replace all traditional houses with model prototypes in reinforced concrete. There were serious concerns that the scheme would erase the diversity of the vernacular heritage of Sikkim.

No culture is static or devoid of contemporary realities; academics have critiqued tendencies to idealize or romanticize indigenous or traditional associations with nature (Arora 2006). On one hand, modernization, education, and external influences have led to an erosion of culture; conversely, the threat of destruction, the commodification of nature brought on by these development forces, and the increasing marginalization faced by these communities, has resulted in the revival of the notion of the sacred landscape, its reification acts as a form of resistance to unsustainable development. This revival of beliefs was evident when the residents attributed cases of sickness and death in the community to the destruction of trees and rocks during a road construction project in Tashiding, which was considered to be one of the most sacred sites in the region (Scheid 2014). Similarly, a hydroelectric project proposed on the Sacred Rathong Chu River, in west Sikkim, and several other such projects across Sikkim were opposed as they threatened to divert the course of rivers, considered sacred by the local communities, by channelizing them underground.

An increasing awareness of the contemporary significance of traditional values has made local inhabitants assume

simultaneous roles as "keepers of their tradition and culture" while also being promoters of change and modernity (Bentley 2011). In this context, intangible associations with the landscape, in the forms of ancient religious beliefs, stories, and myths, carry a renewed ecological relevance. The inhabitants of the contested and precarious landscape resort to a reassertion of their mythical association with the landscape, and their identities as the original inhabitants of the region, in order to establish territorial claims over natural resources and ecological commons, such as mountains, rivers, and forests that they revere as sacred. Even today, the notion of the sacred landscape is alive and continues to be reinforced in public memory through a constant juxtaposition and interplay of local and regional narratives.

4. Bridging the nature-culture divide: a paradigm shift in conservation praxis

In recent years, there is an increasing awareness that "areas in which people live, work, forage, and worship... play an important role in biodiversity conservation" (Sharma 2008). This has resulted in a move away from "protectionist" exclusionary approaches to "livelihood-linked" inclusive landscape approaches (Ibid). A few initiatives in this direction include the State Biodiversity Strategy and Action Plan, Joint Forest Management (JFM), and the Kanchenjunga Landscape Conservation Initiative, which advocates an integrated trans-boundary landscape approach with the identification of potential conservation corridors that provides landscape connectivity between Protected Areas (ICIMOD 2008). The limitation, however, is a lack of adequate institutional and legislative support. The presence of categories such as "Cultural Landscapes" and "Mixed Cultural and Natural Heritage Sites" in the World Heritage Convention can be seen as significant attempts in bridging the nature-culture divide; however, there are gaps in their application. This was apparent in recent studies, which showed that these typological categories had been under-represented in previous Tentative lists for World Heritage sites in India. In response to this, in 2012 an extensive participatory stakeholder consultation process was initiated by the Advisory Committee on World Heritage Matters (ACWHM) for the revision of the Tentative list.

The Kanchendzonga National Park had earlier been nominated, under the Natural Heritage category, a proposal which undermined its tangible and intangible cultural values. Local communities collectively decided to influence the revision of the nomination by presenting a more comprehensive alternative and argued for the inclusion of the buffer and transition zones as part of the core zone. Upon reviewing their suggestion, the ACWHM recommended that the site be renamed as the "Kanchendzonga Sacred Landscape" and nominated under the Mixed Cultural and Natural Heritage category, with an extension of boundaries to include its buffer and transition zones. Although the final nomination did not incorporate these suggestions, the category was changed from a Natural to a Mixed Site. Human inhabited, agricultural landscapes and settlements thus remain excluded from the core area of the World Heritage site.

This raises some critical questions regarding current conservation praxis that necessitate a paradigm shift. Conservation needs to be re-conceptualized with an emphasis on landscape frameworks, the incorporation of nature-culture linkages, and an understanding of local perceptions and values in the documentation or identification of heritage. The recent inscription of their sacred landscape as a World Heritage site has raised both hopes and apprehensions amongst the local communities. While their future lies uncertain, they would like to see an inclusive approach aimed towards a participatory management of change. A pluralistic view of heritage with an emphasis on people-centred approaches, biocultural rights, community stewardship, and democratic control could be a few significant steps in that direction.

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Nature and Agriculture

Heritage of the Sundarban: Connecting Nature to Culture

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Abstract

The Sundarban is the largest mangrove forest on earth, jointly shared by two countries: India and Bangladesh. The Bangladesh part of the Sundarban was enlisted as a UNESCO World Heritage site. The Sundarban, as a mangrove ecosystem, is home for a large variety of flora and fauna, providing a number of ecosystem services for this region. Besides natural resources, Sundarban has significant cultural and economic values connected to indigenous communities. During the past few years, Sundarban has been facing rapid biodiversity loss due to growing anthropogenic pressures. Hence, there is the need for effective conservation efforts. This study is an attempt to identify a framework for adapting a nature-culture approach for the conservation and management of the Sundarban by rethinking the traditional sectorial conservation initiatives.

KEY WORDS: Sundarban, conservation, nature-culture linkages, sustainable heritage management

1. Introduction

The Sundarban, literary meaning 'beautiful forest,' is considered the largest mangrove forest on Earth and one of the major agricultural landscapes of Bangladesh. Conservation efforts have been carried out in Sundarban for the last 150 years. In 1997, UNESCO declared Sundarban as a World Heritage site. Besides agricultural and natural biodiversity, Sundarban is substantially rich in ecosystem services which made it one of the foremost agricultural landscapes of Bangladesh. Due to numerous anthropogenic pressures and the effects of climate change, Sundarban's biodiversity is under threat of extinction. There is a need of a paradigm shift in current conservation efforts to rethink traditional sectorial conservation in order to propose holistic approaches that consider both natural and cultural values together. This study tries to develop a framework for a comprehensive approach to preserving Sundarban by linking nature and culture in a holistic manner.

1.1 Overview of the heritage site

Bangladesh, a low lying deltaic plain, was constituted by the combined river systems of the Ganges, Brahmaputra, and Meghna rivers. The river system in Bangladesh is carrying an enormous amount of sediments every year and emptying them into the Bay of Bengal (Iqbal 2010). This process of land making, between the Bay of Bengal and the Bengal delta, generated the growth of vegetable and plants that evolved into the largest mangrove ecosystem on Earth, known as the Sundarban (Iqbal 2010).

The Sundarban is situated in the south-west districts of Bangladesh, lying between latitudes 21°39′ and 22°30′ N and longitudes 89° 01′ and 89°52′E (IUCN 1997). The total area that the Sundarban covers is 10,000 km^2, from which 60% of it lies in Bangladesh, covering 6000 km^2. The land area of the Sundarban occupies 414,259 ha (70%) with water bodies covering the remaining 187,413 ha (30%).

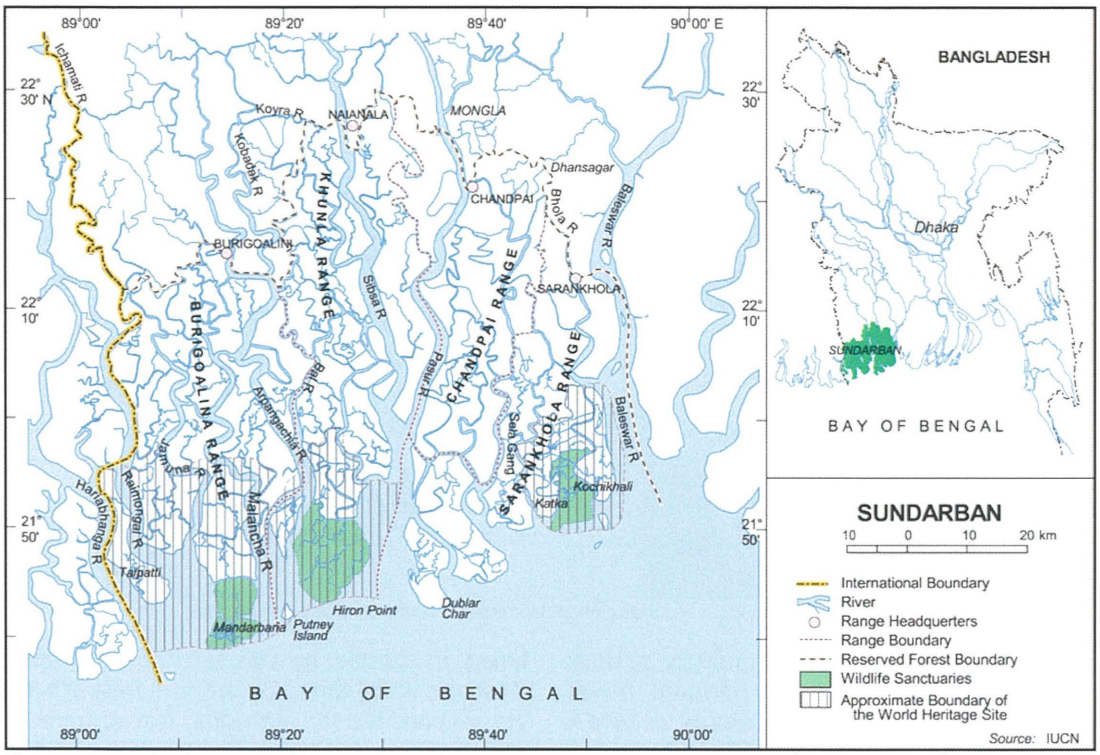

Figure 1. *Map showing the distribution of the mangrove forest of Sundarban in Bangladesh (Banglapedia 2011)*

1.2 Brief description of the agricultural landscape of Sundarban:

The Sundarban is a highly productive agricultural landscape and it has an enormous economic impact on the micro-economy of Bangladesh. This ecosystem produces more than 50 percent of the revenue for the forestry sector (Ali 1994). The Sundarban is connected with intensively cultivated agricultural land on the north and with the Bay of Bengal on the South. At present, four major types of livelihood activities are practiced: agriculture, fishery, wood collection, and honey collection. Paddy, potato, green chili, and pumpkins are the major crops cultivated here. Other resources of Sundarban's ecosystem include timber, fuel wood, honey, Neepa palm tree, wildlife, and aquatic fauna.

2. Significance of the Sundarban: Natural and Cultural Values

2.1 Natural values of Sundarban

The Sundarban mangrove ecosystem is a landscape with enormous natural values and with a great diversity of flora and fauna. The floristic composition of Sundarban is highly rich compared to many other mangrove ecosystems in the world. The Sundarban supports 25 mangrove species that are confined to land with salt or brackish water flow (Gopal B. and Chauhan M. 2006). Heining (1892) recorded 69 species, under 34 families, in the whole of the Sundarban (Bangladesh and India) territory. Karim (1994) reported 123 plant species, belonging to 22 families, representing 30 genera in the Sundarban mangrove forest.

Figure 2. *The Sundarban: Flora and Fauna, photographs by Sarangib (2016, retrieved under Creative Common License)*

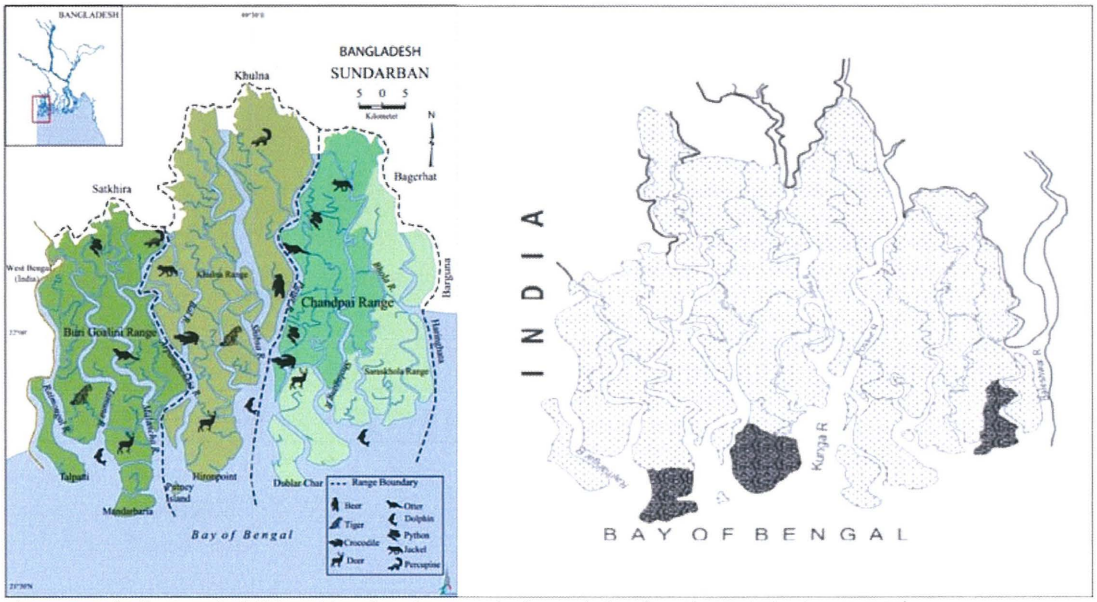

Figure 3. *Distribution of wildlife and location of sanctuaries in Sundarban (Gopal B. and Chauhan M. 2006)*

The Sundarban is dominated mostly by three major tree species, namely *Heritiera fomes*, *Excoecaria agallocha*, and *Ceriops decandra* covering 21%, 29% and 14.46% of the total area respectively.

The faunal composition of the Sundarban is also very rich and varied. About 50 species of mammals are reportedly found within Sundarban. Some of the important animals are the tiger (*Panthera tigris*), spotted deer (*Axis axis*), wild boar (*Sus scrofa*), and rhesus macaque (*Macaca Mulatta*). Sundarban is the biggest reserve of the royal Bengal tiger, which is considered the most precious animal of this region. The Sundarban is also home to 300 species of birds, around 50 species of reptiles, and eight species of amphibians.

2.2 Cultural values of Sundarban

The Sundarban is a landmark of ancient heritage of mythological and historical events. Interactions of humans, nature, and wildlife have given rise to a new dimension of cultural landscape in Sundarban, including both tangible and intangible heritage (for example honey collection, religious festivals, myths, music and dance, and traditional mask making). Nearly 3.5 million people directly depend on the provisional and cultural services of Sundarban for their livelihood.

3. Managing Sundarban: Current Management Arrangements

Historically, the Sundarban has been managed for a period of 150 years based on recommendations by a number of foresters. The Sundarban is currently managed by the Forest Department (FD) under the Ministry of Environment and Forests. Management measures are sectorial, including forest resource management, fisheries resource management, and wildlife management. The forest is divided by two territorial divisions (East and West) where Divisional Forest Officers are responsible for managing forest, tourism, and fishery resources in their respective territory. Moreover, the Divisional Forest Officer of the Wildlife Management section is responsible for wildlife and natural conservation activities (IUCN 1997).

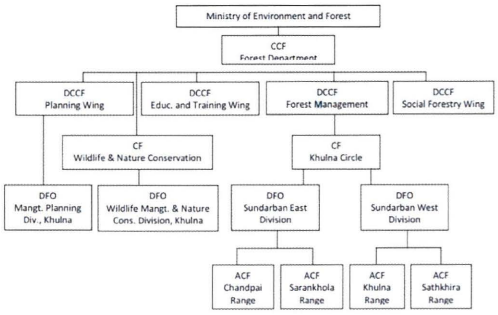

Figure 4. *Administrative structure of FD for the Sundarban Reserve Forest (IUCN 1997)*

In 1977, three wildlife sanctuaries, known as 'hot-spots' (the Sundarban West, Sundarban East, and Sundarban South), were formed by Bangladesh, protecting about 23.5 % of the remaining area under the Bangladesh Wildlife Act of 1974 (Gopal and Chauhan 2006). Under this Act, various activities are forbidden within the wildlife sanctuaries, including building residence, cultivation of land, damage to vegetation, hunting, and setting of fires (IUCN 1997). Through this approach, core habitat areas are surrounded by restricted-use buffer zones to ensure the survival of communities and species, which depend upon the area's resources, such as food or nesting, and breeding sites (Gopal et al. 2006).

Table 1. Human-Environment-Culture relation in Sundarban

Human-Environment-Culture Relationship in Sundarban		
Intangible	Tangible	Mixed
Spiritual connection	Small scale Fishing	Cultural Heritage
Values and Identity	Farming	Music and Dance
Community family	Honey collection	Local Myth
Sacred practice	Wood collection	Food preparation
Sense of ownership	Community gathering	Medical Plants
Traditional Knowledge System	Place and Architecture	
	Religious Festivals	

4. Significances of Nature-Culture Interactions in the Sundarban

In recent years, there has been a growing interest of connecting practices, both in management and conceptual terms, by linking nature and culture for better conservation of World Heritage sites (Trzyna 2017). Hence, understanding human-environment interactions plays a crucial role to narrow the gap between natural and cultural dynamics (Peter and Wijesuriya 2015). Nearly 3.5 million people living around Sundarban depend on ecosystem services for their livelihood. This interaction has given birth to a unique cultural landscape, with both tangible and intangible heritage (Table 1), whereas the effective linkage between natural and cultural values depends on how these values (tangible and intangible) can be incorporated with the ongoing conservation management. Moreover, action measures and management tools need to be developed by incorporating local community and traditional knowledge systems.

5. Threats and Conservation Challenges for the Sundarban

Even though the mangrove ecosystem has immense ecological value in terms of biodiversity, the Sundarban is under continuous threats of destruction. All these threats include both anthropogenic and natural factors. Major problems are associated with issues like climate change, oil spill, deforestation, marine traffic, wildlife conflict, invasive species, unregulated tourism and lack of involvement from locals. The most threatening concern for Sundarban is climate change induced sea level rise. It has been predicted that the most biodiverse areas in the Sundarban will be reduced from 60% to 30% by the year 2100 (Uddin et al. 2013). Additionally, coastal disasters like cyclones and storms cause serious damage to both flora and fauna, which is a key reason for the mortality of the spotted deer (Rahman et al. 2010).

Table 2. Prospective measures for reducing threats by linking nature and culture

Threats & Conflicts	Prospective action measures and management tools for nature-culture linkage
Man-wildlife conflict	• Community based precautionary measures need to be adopted to reduce tiger straying. For example, forming community groups, training watch dogs for better monitoring. • Training young villagers with nylon net fencing production technique to protect livestock. • Creating a community-based solar electricity production and distribution method to protect households from Tigers' attacks. Women can be empowered with proper training and financial support.
Sea Level Rise	• At the local level, a place-based adaptation and mitigation plan needs to be developed and linked with regional planning. Mitigation should be adaptive to local inhabitants with minimal risk factor. • Villagers should be trained with new technologies like floating farming system, rain water harvesting, etc.
Cyclone and tides	• Integration of the Traditional Knowledge System(TKS) with early warning methods for upcoming disasters to reduce potential risk. • It is very crucial to implement local knowledge for designing the adaptation and mitigation strategies.
Oil Spill Control	• A framework for emergency oil spills should be developed by involving local people. Villagers need to be trained to implement spill response planning. • Environmental Stewardship should be promoted, ensuring quick removal of oil from the land and water in oil spill incidents. • Traditional wooden boat buildings and water routing systems should be encouraged to reduce water based pollution.
Deforestation	• Community Forest Management (CFM) could be implemented in the Sundarban conservation strategies as an effective tool to reduce deforestation in Sundarban. • Within CFM, a local forest management group should be created, by local inhabitants, that will be in charge of the forestation process and maintenance.
Invasive Species	• Need to develop a simple tool for monitoring invasive species growth by the local community. • Engaging local honey collectors with a regular monitoring process to report invasive species.
Adverse effect of tourism	• Traditional tourism should be replaced by Ecotourism or Green Tourism, involving local community as the key operator. • Designed places to sell agricultural products and handicrafts among tourists can boost the local economy.
Poor Conservation management	• There is need of better coordination among sectors and stakeholders. A multi-stakeholder resource management coordination team should be formulated. • Top-down institutional management should be replaced by a bottom-up approach. This approach should be holistic and based on practical processes.
Governance Gap in Land Management	• Involving community people with integrated resource management is crucial for sustainable conservation. • There is need of a strong regulatory and institutional network, including participatory approaches, and implementation of a sound property rights structure. • Multi-scale stakeholders should be integrated in one common framework for better communication.
Environmental Justice	• Ensure environmental justice principles in conservation areas by providing more access for local inhabitants to the resources management. Inequities of distribution of eco-cultural goods should be erased by equal participation. • Keeping balance, in terms of gender involvement, needs to be assured.

Unfortunately, disaster mitigation measures are too slow to have an effective impact on habitat and biotic reconstruction in Sundarban. Man-wildlife conflict is another major threat towards the integrity of Sundarban. Scarcity of food often drives tigers towards nearby human settlements, causing damage to available livestock. Moreover, increasing number of oil spill incidents due to the port associated marine traffic are severely damaging mangrove ecosystem every year. Frequent moving traffics are causing underwater noises which have an adverse impact on sweet water mammals, like river dolphins, who also suffer from collision injuries. In recent years, the increasing number of tourists and the unsustainable tourist management is one of the major growing concerns for Sundarban. A top-down approach to tourism activities causes a lack of integration with the local people.

Deforestation is considered as the oldest threat acting on Sundarban. Making room for agricultural land and the exploitation of Sundari trees for commercial industrial use are the key reasons for deforestation. However, local people mostly collect timber and leaves for making boats, fuel, and house making.

Attack of invasive species, is one of the biodiversity problems which has not been explored yet. Invasive species include both invasive plants and aquatic fauna, causing damage to ecosystem integrity. In every harvesting monsoon, villagers collect a huge amount of baby shrimps from the rivers. This intake of baby shrimp has a negative impact on the ecosystem by breaking the food chain cycle.

From the governance perspective, the existing conservation management of Sundarban is mostly forestry-based, lacking integration with other sectors like wildlife conservation and water management. The lack of involvement of local people with the conservation management is also a big flaw in the current conservation efforts. Economic, political, and institutional frameworks in the Sundarban are weak in terms of property rights and land governance. This gap in the governance system is influencing illegal activities and corruption in land management, forcing disparities in resource distribution.

6. Concluding Remarks

From the above discussion, it is obvious that a nature-culture approach can be useful to identify conservation problems and conflict management in Sundarban. Major conservation challenges for Sundarban mostly depend on the sustainable management of resources by reducing conflicts. This can only be achieved by an integrated conservation approach, by connecting both cultural and natural elements of the Sundarban landscape. In summary, by addressing the overall issues, which have been identified in this paper, a few generic concepts can be formulated that would be useful methods for connecting nature and culture for Sundarban's conservation:

i. Adopting a community-based governance system, with the current management practices of Sundarban, can ensure community participation in conservation efforts. Community Forestry Management (CFM) can help forest-dependent inhabitants, living near Sundarban, raise their voice and concerns for sustainable forest resource management and conservation.

ii. Engaging the Traditional Knowledge System (TKS) as a tool for natural conservation is a way to integrate culture and nature.

iii. An Environmental Stewardship Programs (ESP) can be used to create trained volunteers who can do small-scale planning, implementation, and monitoring of conservation areas focusing both on natural and cultural heritage.

iv. Replacing the sectorial conservation approach of Sundarban with cross-scale, cross-sectoral, ecosystem-based management can make a linkage between nature and culture. An integrated spatial planning approach for land, coast, and marine areas will make the bridge between socio-cultural wellbeing, economic needs, and environmental conservation.

v. Adopting alternative conservation approaches, such as a bio cultural approach, and a cultural landscape approache could be more useful than traditional approaches to establish a more integrated framework for sustainable conservation by connecting nature and culture.

7. Acknowledgments

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Ghana's Bia Conservation Landscape: A Convergence of Biological and Cultural Diversity

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Abstract

Most rural communities in Ghana have protected places because they are considered sacred, unique, or were recognized as aesthetically beautiful. The Bia Conservation Landscape is made up of both reserved and off-reserve lands. While the ownership of the reserved areas is vested in the President of Ghana, the Sefwi Traditional Stool exercises jurisdiction over the off-reserve areas. The Sefwi landscape is one of the few where Western and traditional religious practices are given equal prominence. Taboos, customs, and other traditional norms purported to regulate the use of natural resources are observed to show reverence to the forests. The landscape is considered the cocoa production hub of Ghana, accounting for about 40% of the national cocoa output. This landscape is the meeting point for rich biological diversity and a traditional ecological knowledge system, passed on through language and practices by the indigenous communities. The unique natural, cultural, and historical features constitute enormous potential for ecotourism development and justify the investment into the continued protection of the landscape.

KEY WORDS: biodiversity, culture, heritage, natural resources

1. Introduction

During the past decade, progress has been made in understanding the complementarity of cultural diversity and biodiversity. A significant number of areas with high cultural diversity are also areas of high biodiversity; the convergence of biological and cultural diversity extends far beyond the so called 'biodiversity hotspot' areas. It is not only the quantity, but also the quality of biodiversity, that depends on the presence of cultural diversity and vice versa (Poker and MacDicken 2016). Maffi and Woodley (2010) confirmed that age-old traditional ecological knowledge has been of significant importance in the management of the rich biological resources of landscapes. Cultural practices therefore draw on a defined suite of resources within a local environment in a manner that is both efficient and sustainable.

Ghana is endowed with rich biological and cultural heritage. The country's forest zone is part of the Guinean forests of West Africa, one of the world's 34 biodiversity hotspots. It harbors rich floral and faunal species, including over 2,974 indigenous plant species, 504 fishes, 728 birds, 225 mammals, and 221 species of amphibians and reptiles. Three species of frogs, 1 lizard, and 23 species of butterflies have been reported to be endemic (CI-Ghana 2002).

The interpretation of nature by the various ethnic groups not only determined local interactions with the environment but also fashioned the practices for the management of natural resources (Sarfo-Mensah and Oduro 2007). Ghana has about three score ethnic groups, each characterized by peculiar cultural values and traditions that give each a specific identity. The strong sense of identification with the environment provides

the communities with the tools to define their culture. Recognizing the value of integrating biodiversity and culture, Ghana established systems such as the Community Resource Management Area (CREMA), Community Forest Committee (CFCs), and the National Community Water and Sanitation Program to enhance the use of traditional knowledge and practices in natural resource management at the local level (World Bank 2016; Wildlife Division 2000).

1.1 Overview of the heritage site

The Bia Conservation Landscape[1] consists of a network of forest reserves and off-reserve lands (Figure 1). The landscape has a total area of 7,745.5 km^2 and lies between longitude 3° 02' and 3° 10' West and latitudes 6° 32' and 6° 40' North in the Juaboso and Bia districts of the Western region of Ghana (Forestry Commission 2007). Bia was created in 1935 and named after the Bia River which drains the area. As a move towards conserving one of Ghana's last remaining remnants of relatively untouched forest, with its full diversity of wildlife, the Bia forest, covering an area of 77.7 km^2, became a National Park in 1974 (Forestry Commission 2007). The park was later designated as a Biosphere Reserve in 1995, by UNESCO, to further secure the forest's rich biological resources and the culture of the neighboring communities, expressed in the reverence for the forest (Forestry Commission 2007). This forest ecosystem hosts significant populations of unique floral and faunal species, including exceptionally high emergent trees, over 62 species of mammals, and 160 bird species (CI-Ghana 2002). The integration of some of the elements of the rich cultural practices of the fringe communities, including adherence to taboos and norms, into the management of the forest largely account for its continued protection.

1.2 The agricultural landscape

Agriculture is currently the dominant economic activity, which engages about 72.4% of the population (MOFA 2012). In recent times, however, the service and commerce sectors have assumed considerable importance, due to the number of people moving to the area. There are about 380 towns and villages, with an estimated population of 573,020 persons, fringing the forest (MTDP 2001) and these people hold a stake in the continued existence of the forest.

The ecosystem services from the forest, the bimodal rainfall pattern, and the fertile soils largely account for the high agricultural production within the landscape (Asare 2016; Aju 2014; Asare 2005). As a result, the area is considered the cocoa production hub of Ghana, accounting for about 40% of the national cocoa output (GoG 2010). There are an estimated 300,000 smallholder farmers, who cultivate about 1-2 hectares of land using traditional practices to cultivate cocoa and food crops (MTDP 2001).

Traditionally, cocoa is planted inside forest areas where logging previously occurred. The remaining trees provide shade to the cocoa trees, composing a generally biodiversity-rich agroforestry system. Food crops are often intercropped with cocoa until the canopy is formed. In addition to improving the soil and water conservation, agroforestry systems have the potential to maintain higher levels of biodiversity and greater biomass than lower diversity crop or pasture systems (Sistla et al. 2016). The age-old cocoa agroforestry practice, that is common among the Sefwi people, an ethnic group that is part of the Akan, one of the major ethnic groups in Ghana, largely accounts for the sustainability of the cocoa sector in the area.

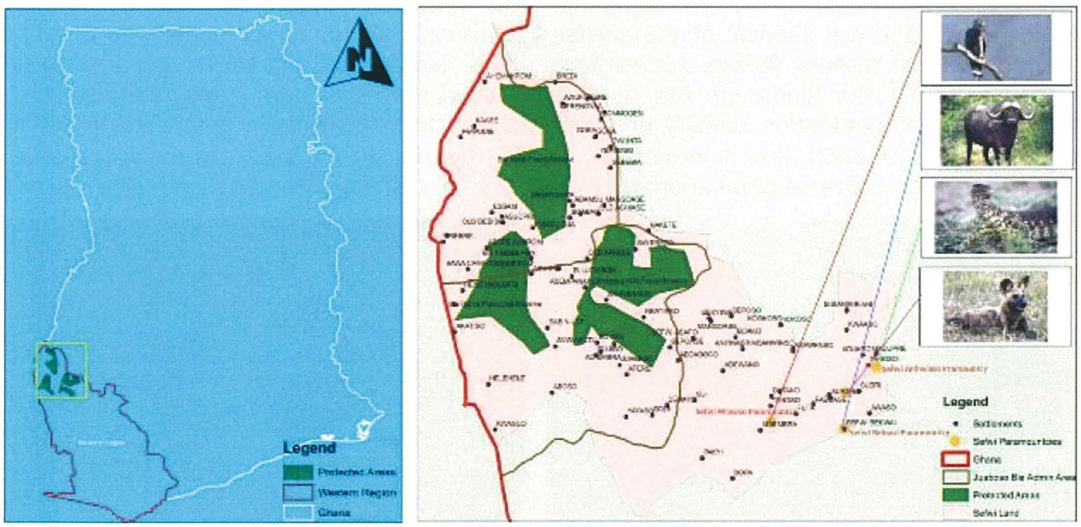

Figure 1. *Location of the Bia Conservation Landscape (Conservation Alliance, 2015)*

1 This includes the Bia Conservation Area (made up of the Bia National Park and the Resource Reserve), the Bia North Reserve, the Krokosue Hills Forest Reserve and the neighbouring off-reserve areas.

Figure 2. *Thatched roof housing (left Conservation Alliance 2002 and right Kick off Ghana 2012)*

2. Significance of the heritage place, including natural and cultural values

Today, protected landscapes are increasingly expected to deliver a wide range of cultural, social, ecological, and economic benefits in addition to maintaining ecological processes and providing space for natural evolution (CBD 2008). While the importance of the Bia landscape has been acknowledged, the agreed upon extent of its significance differs widely. At the national level, the forest is recognized for its high biodiversity and the unique species it harbors, while at the local level, the fringe communities depend on the forest for water supply, food, medicines, firewood, household equipment, and building materials. Although the extent of the forest's resource values varies, there is a general agreement on the ecological, cultural, and spiritual significance of the forest (CA 2013). The diverse, but critical, services delivered by Bia justifies its continued protection.

2.1 Ecological significance of the landscape

A closer look at the Bia National Park reveals a thick, green, closed canopy consisting of the three strata of a pristine forest. All of the stories provide the habitat and conditions that ensures the continual survival of the diverse life forms in the reserve. Recent studies have established that the landscape has a fairly stable elephant population density of about 130 elephants (CA 2013). This is in addition to the presence of a diverse population of other faunal and floral species, that have contributed to making the landscape a favorable site for research and a nature loving destination. The range of non-timber forest products (NTFPs), which provides an important source of livelihood to the rural communities, includes mushrooms and snails. The physiology of the forest enhances the environmental resilience of the surrounding areas, in terms of its ability to withstand environmental stresses, such as droughts and unfavorable temperatures (Cowling 2008; FC 2007).

2.2 Cultural and spiritual significance of the landscape

Physically and mystically, forests have defined the environment of communities in this region throughout time (Tabush 2010). Tangible and intangible, forests feature in all aspects of culture, such as language, history, art, religion, medicine, politics, and even social structure, it actually defines the Sefwi people's sense of identity.

The Sefwi state is one of the few landscapes within Ghana where Western and their traditional religious practices are given equal prominence (Kwekudee 2013). The people of Sefwi Wiawso traced a call for a "return" to normative Judaism by Aaron Ahomtre Toakyirafa, a community leader who is said to have had a vision in 1976. In response to this 'vision', the Sefwi state strictly adhered to the Jewish form of worship, where Saturdays are considered sacred (Sabbath) and set aside as a day of rest from farming and other human

Figure 3. *A Cocoa farm and harvested cocoa (Conservation Alliance, 2012)*

activities. This was their religious practice before the arrival of the missionaries to the Gold Coast in the 15th century. Community members who violated this practice were often sanctioned. The significance of this religious practice was to allow the natural recuperation of the environment.

Additionally, the forest has traditionally been regarded as the home of their ancestral spirits and gods, who provide protection to the area. The people, therefore, worship the tutelary deity, Sobore, and celebrate the annual yam festival, Alluolie (Eluo) to express their gratitude for the good harvest (Roberts 1983). Some wild animals[2] are regarded as totems (CI-Ghana 2002). The 'Tree of God', reckoned to be over 150 years old, is regarded as the home of the god of the forest. The 'Abombirim Sacred Tortoise Forest' is preserved because of their belief of the existence of a giant tortoise, which is supposed to be a god. It is said that anyone who picks up the tortoise may not find his/her way back home because the entire forest will be engulfed in total darkness. Additionally, the royal family of Bosomoiso is believed to have originated from a bottomless hole, called the 'Ancestral Hole.[3]'

The imposing highlands present a unique landscape of scenic beauty. The Nsesereso plateau is dominated with short trees and beautiful flowers. These flowers are likely to have been introduced into this natural ecosystem by a Briton, Mr. Reynolds, who was nicknamed by the locals as Kwaku Ti because he had a very big head (FC, 2007).

The reverence for these cultural sites and features accounts for the taboos and norms that prohibit activities, such as hunting sacred animals, pollution of the rivers, and the destruction of vegetation. The landscape also provides a range of products for traditional ceremonies, from food and beverages to costume and musical instruments (CA 2013).

3. Nature-Culture Linkages in Management and Governance

There are specific management regimes for various sections of these reserved lands, even though generally management follows the IUCN Protected Areas management framework, which has, over the years, influenced the ecological health of these forests. Under the IUCN classification, the Bia National Park[4] and its adjourning Game Production Reserve are managed as Category II[5] protected areas, where the management objective is to protect the natural biodiversity, along with its underlying ecological structure and supporting environmental processes.

A number of key statutory and customary institutions play various roles in the management of the landscape. These arrangements are all rooted in a number of legislations, including the 1994/2012 Forest and Wildlife Policy of Ghana.

Under Act 571, enacted in 1999, the Forestry Commission is charged with the responsibility of protection, development, management, and regulation of the forest and wildlife resources of Ghana. The Bia National Park and the Game Production Reserve are managed by the Wildlife Division whilst the Bia North and Krokosua Hills Forest Reserves are managed by the Forest Services Division.

Even though the jurisdiction of the Forestry Commission is restricted to on-reserve areas, the law allows for the commission to collaborate with local communities[6] and authorities to manage the off-reserves areas that bring value to local communities and lessens the pressure on protected areas.

As a way of deepening the convergence of biodiversity and culture, the 1992 constitution of Ghana made provision for the state to endeavor to preserve and protect places of historical interest and artefacts, including forests. Through the 2012 Forest and Wildlife Policy, the government incorporated some traditional practices into the national resource management system (Wildlife Division 2000). One of the key objectives of the 2004 Cultural Policy was the need to enhance the cultural heritage through the preservation and the conservation of natural resources. Additionally, traditional leaders have been given the opportunity to participate in the governance of the country (GoG 1992). The President of the National House of Chiefs is a member of the Council of State, a body of prominent citizens which advises the President on important national issues.

Most rural communities in Ghana have protected places because they were considered sacred, unique, or were recognized as aesthetically beautiful. While the ownership

2 Animals regarded as totems include the crowned eagle, dog, Nile monitor and buffalo.

3 The hole is surrounded by a dense vegetation that is believed to have some healing powers.

4 Bia National Park is a habitat for over 130 elephants, 62 species of other mammals including 10 primates and over 160 species of birds.

5 Category II refers to National Parks, namely "large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities" (IUCN website, https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-ii-national-park)

6 This collaborative effort has been institutionalized in the form of a Community Resource Management Areas (CREMAs), four of which are fully functional within the landscape.

of the Bia landscape is vested in the President of the Republic of Ghana, the Sefwi Traditional Stool exercises jurisdiction over the entire area.

The Sefwi Traditional Area has a sophisticated traditional system of governance structure, made up of the Paramount chief, and councils of elected chiefs, sub-chiefs, councilors, and elders. The Stool is made up of three mutually independent paramounts, Anhwiaso, Bekwai, and Wiawso, and their common dialect is Sefwi. It originated from the withering of the Twi (dialect of Akans) phrase, "Asa awie" which translates to "War is over", by immigrants who settled on the territories of Aowin (modern-day Sefwi) escaping the century wars. The chiefs exercise executive, legislative, and judicial functions over the area, including the management of the forests (CI-Ghana 2002).

The forests have, traditionally, been regarded as the home of their ancestral spirits, who provide protection, success, and progress to the Sefwi people. It, thus, represents a source of spiritual value and cultural identity to the Sefwi Traditional Area. Traditional festivals, rituals, and ceremonies which draw on forest symbols serve to link the people with their cultural heritage, as well as their ancestral past (Calame-Griaule 1970). The forest provides diverse goods and services to the fringe communities and therefore a number of taboos, customs, and other traditional norms are observed by the state to show reverence to the forests through the regulation of the use of the forest's resources. The forest is thus a source of stories, myths, and local traditions which provide a strong justification for its continued protection.

4. Current State of Conservation and Challenges for Continuity.

While the Sefwi Traditional Council has upheld the cultural heritage of the state to date, manifestations of modernism displayed by the majority of the young generations pose a great threat to the continued protection of the traditional system. For instance, the increasing preferences for foreign foods, especially by the youth, is leading to the loss of a number of traditional dishes of the different ethnic groups. Due to changes in education, politics, technology, and economic development, as well as the ever-growing international tourism market, the Sefwi state is facing a variety of cultural challenges.

5. Recommendation

The Sefwi Traditional Council must come to terms with the fact that cultures are ever-evolving and that change in cultures is a natural phenomenon. In view of this, the state must adopt innovative ways of insulating the rich cultural heritage of the Sefwi people from undue external influences. Byng (2017) indicated that "the appeal of the Western way of life, coupled with the demand for technology and travel, are on track to render traditional cultures unsustainable". This state must, therefore, sustain community education, especially for the young, drawing lessons from the positive values of the traditional practices that define the cultural identity of the people and the ecological health of the landscape. Additionally, the state must sustain the communities' interest in the traditional practices by transforming the landscape, with its unique natural, cultural, and historical features, into a world class ecotourism destination. This has the potential to enhance the economic and touristic value of the landscape.

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Lord Howe Island, Australia- Managing the Cultural Values of a World Heritage Island Ecosystem

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Abstract

Lord Howe Island is listed on the World Heritage List in recognition of its natural landscapes and scenery and as an outstanding example of an island ecosystem developed from submarine volcanic activity. The island is also listed on the State Heritage Register (SHR) for its cultural heritage significance to New South Wales, Australia, a large part of which relates to the island's earliest people and their agricultural practice.
The role of the Senior Heritage Assessment Officer is to assist the managers with the island's protection, conservation, and promotion of the island's cultural heritage. However, the island's globally recognized natural values currently greatly outweigh the recognition and protection of its cultural values. I aim to improve interlinkages between the management of its cultural and natural heritage values through inter-governmental collaboration between state, national, and World Heritage agencies.

KEY WORDS: Lord Howe Island, Australia, volcanic, State, World Heritage

1. Introduction

1.1 The heritage site

The Lord House Island Group consists of a grouping of small islands in the Tasman Sea, 600 kilometers (370 miles) directly east of Australia, between Australia and New Zealand. Although they lie outside of the normal bounds of state territorial waters, the islands are classified as part of the state of New South Wales (NSW), Australia.

The main island of the Lord Howe Island Group is an irregularly crescent-shaped volcanic island with two spectacular sheer-sided mountains on the northern side, a flat sandy center, and a coral reef on the western side. The settled part of the island, which is located in the center, has a population of 360 residents. The other islands in the group: Admiralty Island, Mutton Bird Island, Gower Island, and Blackburn Island, are all smaller and uninhabited.

The first known discovery of the island was by Europeans in 1788, during their colonization of Australia. It remained an untouched natural landscape until 1833 when it was settled as a provisioning station for whalers; there is no evidence of indigenous occupation or Polynesian visitation prior to this, possibly due to its location outside of the typical Polynesian voyaging routes.

The island has become a popular tourist destination due to its unique and relatively untouched natural beauty, with about 14,000 tourists visiting each year. The main economic activity on the island is currently associated with tourism, although agricultural industries also make a significant contribution.

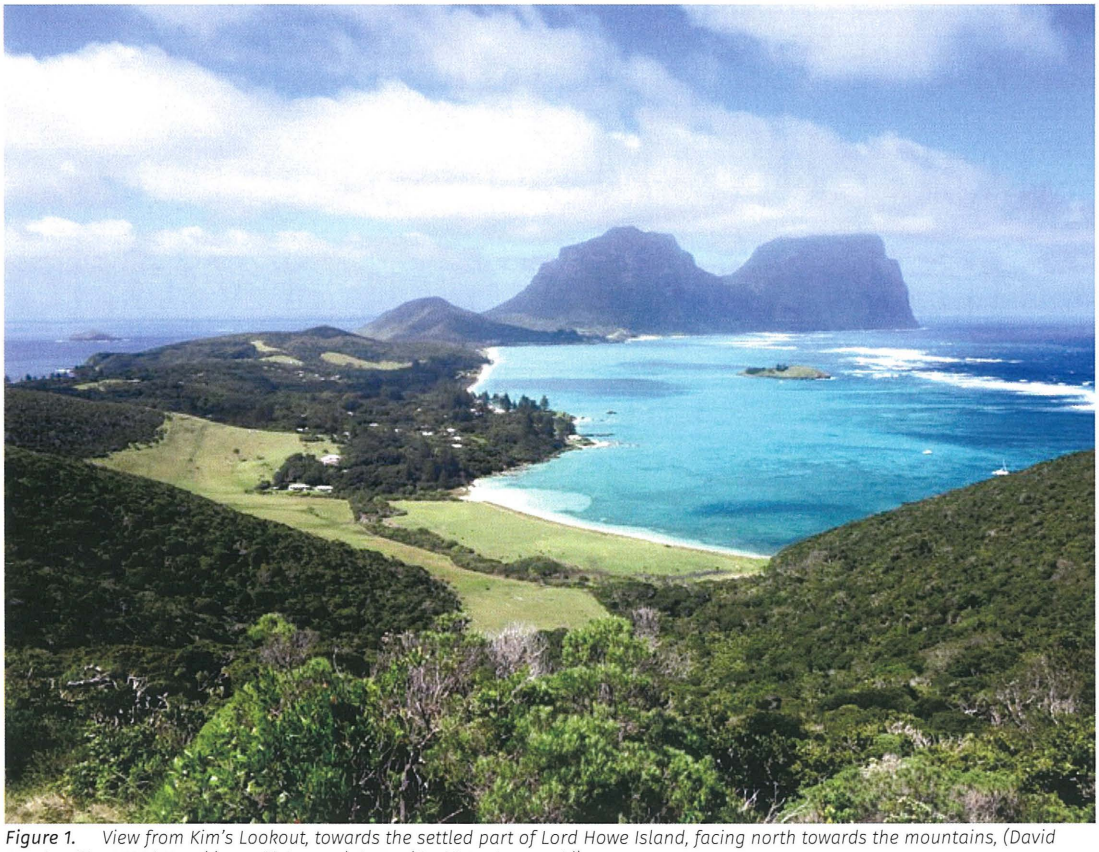

Figure 1. *View from Kim's Lookout, towards the settled part of Lord Howe Island, facing north towards the mountains, (David Stanley, flkr, 2016 https://www.flickr.com/photos/davidstanleytravel/)*

1.2 The agricultural landscape

The soil, water, and climate of the island provides favorable conditions for market gardening and agriculture on the island. The first settlers were able to sustain themselves with their own resources using a unique combination of Polynesian and European farming techniques. The island, which was first used as a stopover for boats to collect water and fresh provisions, began to produce and export an abundance of resources, including: mangoes, ginger, apples, onions, potatoes, cedar, tobacco, poultry, and pork to passing whaling ships (Betteridge 2012).

The island also contains a unique species of native palm trees, including the Kentia Palm (*Howea forsteriana*), which grows in abundance on the island due to its remarkable tolerance to the cool, temperate, climate of the island. The Kentia Palm was known to the early islanders as the 'Thatch Palm' because the tough leaves could be used for thatching the roofs and walls of their houses. When the whaling industry declined in the 1870s, Lord Howe Island's main industry became the exportation of Kentia Palm seeds.

Kentia Palms are grown on plantations. Traditionally, once they reached maturity, the seeds were collected by a "seeder" using a circular hessian strap to climb the trunk and wrench the spikes from underneath the crown of palm leaves, they would then be shelled from their spikes, and packed for exportation. During the 1970's and 1980's, the Lord Howe Island Board established their own onsite Kentia Palm nursery, and by 1981, palm seed exports had ceased entirely, with only live plants being shipped from the island. A group of islanders also formed an island palm growers co-operative, to which the Board agreed to sell an annual quota of its seed. Kentia palms are now one of the most popular indoor plants world-wide. International producers have emerged, which has reduced the local income from this source, although the Lord Howe Island Board and co-operative remains the largest supplier of Kentia Palm seeds in the world (Lord Howe Island Board 1988).

Figure 2. *Kentia farm plantation at Lord Howe Island 1948 (Farmstead – Lord Howe Island [1948], from https://recordsearch.naa.gov.au/SearchNRetrieve/Interface/DetailsReports/ItemDetail.aspx?Barcode=11842607&isAv=N)*

Most islanders can trace their ancestry back to the first settlers and continue to produce resources using their traditional agricultural methods. However, the recent increases in importation and tourism have resulted in the introduction of foreign pests, including

the fruit-fly, which has affected the ability to continually farm the island. Knowledge of these traditional farming practices continues to pass down through the small community, although there is some risk that over time the knowledge and practice will be lost.

2. Significance of the heritage place including natural and cultural values

World Heritage Values - Natural

The heritage significance of Lord Howe Island Group is rich and diverse. It includes places of natural and scientific value as well as cultural values.

The Lord Howe Island Group was inscribed on the World Heritage List in 1982 for its Outstanding Universal Values under criteria (vii) and (x) as "*an outstanding example of oceanic islands of volcanic origin containing a unique biota of plants and animals, as well as the world's most southerly true coral reef. It is an area of spectacular and scenic landscapes encapsulated within a small land area, and provides important breeding grounds for colonies of seabirds as well as significant natural habitat for the conservation of threatened species.*" (UNESCO 2017).

The assessment of the island's Outstanding Universal Value also acknowledges that it is of some cultural value as "*an interesting example of a restricted island settlement pattern;*" however, it also specifically states that the island's cultural heritage values are not considered to merit a World Heritage listing (Biosis 1998).

State Heritage Values –Natural and Cultural

Places that are considered of heritage value to the state of NSW are listed on the SHR and are administered under the NSW Heritage Act 1977. The Act defines state heritage significance as "*significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.*"

The Lord Howe Island Group was listed on the SHR in 1999 and was the first World Heritage listed place located in NSW. It was included on the SHR primarily for its outstanding natural values, although the state listing merely acknowledges that the island possesses cultural heritage value to the state of NSW (NSW Office of Environment and Heritage 2017).

Cultural Heritage Values

While the natural values of the island are recognized and protected via its World Heritage status, the highest level of protection of its cultural heritage value is at a state level, where the broader cultural landscape values have not been sufficiently explored.

The island's cultural significance may not possess Outstanding Universal Value, however, it provides a cultural landscape that presents a unique example of the successful modern human settlement of a natural landscape as well as a rare insight into the development of an island community in isolation. The island also demonstrates strong community esteem in the conservation of its natural and cultural values, traditions, and lifestyle. These values should be further assessed, formalized, and protected at a state level.

3. Current management arrangements (Legislations, institutions, resources)

3.1 Management of the Natural Environment

The administrative arrangements for the island are unique in Australia. The islands are administered by the Lord Howe Island Board, responsible to the NSW Minister for Environment under the Lord Howe Island Act 1953. The Board administers civic issues and is the main authority with a permanent presence on the island, although UNESCO, the Australian Department of Environment, the NSW Heritage Division, and National Parks and Wildlife Service also play roles in its management.

Tourism is currently the main economic driver on the island; however, whilst this is acknowledged by the community, there is also strong concern for the protection of the environment.

Development on the main island is strictly controlled by a Development Control Plan (DCP) and there are restrictions on who can hold leases for residential or other purposes on the island, resulting in zero population growth. The total population is strictly limited to a maximum of 360 residents, with limits on the amount of tourist accommodations capped to 400 visitors on the island at any one time. The DCP sets out appropriate building heights, styles, and setbacks as well as specifications regarding the landscaping around buildings to ensure that they recede into the landscape. These controls, which are directed towards the conservation of the natural environment, inadvertently act to also protect the island's cultural values.

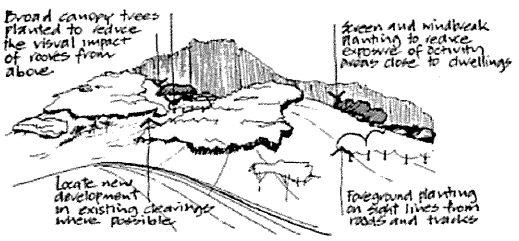

Figure 3. Development guideline diagrams from the Development Control Plan (Lord Howe Island DCP 2005, Lord Howe Island Board)

Figure 4. *View of Lord Howe Island in 1910 (Hurley, Frank. 1910). [Lord Howe Island, 7] Retrieved April 10, 2017, from http://nla.gov.au/nla.obj-157818947)*

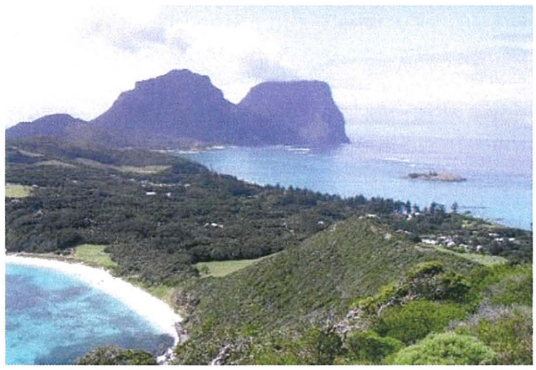

Figure 5. *View of Lord Howe Island in 2016, (Roger Wong, 2016 [http://www.flickr.com/rogertwong]*

3.2 Management of the Cultural Environment

Under the usual provisions of the NSW Heritage Act 1977, state government approval is required for any changes to a place listed on the NSW SHR. Given that the listing includes the entire group of islands, this would typically mean that any change would require state government approval. However, given that the area of cultural value is limited to the small settled area within the broader group of islands, a special provision was enacted to allow development to occur without state government approval, unless the site has been identified as an item of cultural value by the Lord Howe Island Board.

This approach is beneficial in that it reduces the various levels of regulatory authority required, especially in the unsettled areas, however it is problematic in that only a small number of historic buildings are identified and protected. Any impacts to the heritage values of these places are therefore assessed in isolation rather than in the context of the broader tangible and intangible values of their surrounding cultural landscape, which has not been clearly defined.

4. Current State of Conservation and Challenges for Continuity

With an early population growth from just 9 residents to over 100 residents in 1911, the island has currently reached its allowable maximum of 360 residents. As a result it has maintained extremely slow population growth over time with no further growth expected.

The strict controls surrounding tourism have led to the island being regarded as an exclusive, luxury destination. Tourist amenities, such as the airport and golf course, have removed some physical evidence of the former, predominantly agricultural, landscape but there is pressure for the ongoing development of luxury resorts as well as an increased demand for imported food and products.

However, the development of resorts has generally been comprised of high quality, low scale, architecture that is sensitive to its environment and, today, the broader physical appearance of the island remains substantially the same as before the growth in tourism. This is largely a result of the effective restrictions and controls resulting from its World Heritage listing. Additionally, the popularity of the island generally provides a viable economy which further funds and supports conservation incentives. It also provides a lucrative market for local farmers, which benefits the continuation of traditional farming practices. However, other changes to the landscape, such as substantial new power facilities and small scale additions such as shops and offices, are generally being constructed with less regard for the aesthetic and cultural values of the island. Whilst the need to protect the natural environment is broadly recognized and respected by the community, the state heritage regulations are regarded as another layer of "red tape" that slows down the economic progress of the island.

One main concern is that the cultural heritage values of the island are only recognized and protected at a state level through its listing on the SHR. My role as a State Heritage Officer is to administer approval of development on the island that maintains its cultural heritage values. However, the current method of listing locations on the State Heritage Register is a tangible, site-based, process that only provides for the protection of individual sites. The current provisions only protect tangible links to historical occupations, such as individual historic buildings. There is a risk that important agricultural practices as well as the relationship between places, the cultural values associated with broader settings, and historic views will not be sufficiently protected unless the management of cultural heritage is strengthened to meet the rigor of the management of its natural heritage.

5. Recommendations

Further research is required to understand all of the aspects of cultural heritage values associated with the island, including any

intangible and archaeological values, to ensure that the impact can be appropriately considered in light of any change. The SHR statement of significance and listed curtilage (or boundary) should be revised to acknowledge the importance of the cultural landscape, particularly in the development of human settlements and farming of the island, as well as its natural landscape.

Once established, these cultural heritage values should be integrated into one consolidated Management Plan, providing guidelines for the protection of its varying levels of cultural and natural values, and adopted by all relevant government agencies. This would ensure a consistent and linked understanding of natural and cultural values, improve cross-governmental collaboration, and provide a framework to resolve situations where there may be conflicting values.

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Part Two:

Report on the Capacity Building Workshop on Nature-Culture Linkages in Heritage Conservation, Asia and the Pacific (CBWNCL 2016)

AGRICULTURAL LANDSCAPES

Executive Summary

The **First Capacity Building Workshop on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific** (CBWNCL) took place in Tsukuba, Japan, from September 17 to 30, 2016. The workshop was organized by the World Heritage Studies and the Certificate Programme on Nature Conservation (CPNC) at the University of Tsukuba, with the collaboration of the UNESCO World Heritage Centre, the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), the International Union for the Conservation of Nature and Natural Resources (IUCN) and the International Council on Monuments and Sites (ICOMOS).

This workshop, with the theme "Agricultural Landscapes", was the first of a series programmed for four years (2016-2019). The aim is to contribute to the World Heritage Capacity Building Programme in promoting and developing skills of heritage practitioners of the Asia and the Pacific region to deal with the interlinkages between nature and culture in the conservation and management of heritage sites.

The CBWNCL 2016 was inaugurated with an International Symposium held on September 18 and 19 at the Tsukuba International Congress Centre in the framework of the Tsukuba Global Science Week 2016 organized by the University of Tsukuba. The symposium gathered five international experts, representative of the partner organizations – the UNESCO World Heritage Centre, IUCN, ICCROM and ICOMOS - one academic specialist on agricultural landscapes from the Gadjah Mada University, Indonesia, and representatives of the Japanese governmental agencies in charge of heritage conservation – the Ministry of Environment and the Agency for Cultural Affairs. The fourteen participants of the CBWNCL 2016, heritage practitioners from the culture and nature sectors coming from Australia, Bangladesh, China, Hong Kong, India, Indonesia, the Philippines, Taiwan, Turkey, Sri Lanka, Ghana and Colombia, presented their case studies, giving a general panorama of the region and beyond.

During the general panel discussion and closing remarks, several key points were raised, such as the need to develop more synergies between the nature and culture sectors, both at the World Heritage level and at national levels, especially in terms of legal systems. Furthermore, international guest speakers pointed out the importance of governance for the sustainability of heritage agricultural landscapes.

The main challenges noted were the depopulation of rural areas and the urgency to commit the youth to the continuity of these traditional agricultural landscapes, the need for guaranteeing the intergenerational transmission of indigenous and local agricultural practices, the development of strategies for resilience and adaptation to climate change and disaster risk management, and the importance of safeguarding the intangible cultural heritage and traditional knowledge involved in the maintenance of agricultural landscapes.

The workshop was divided in four modules:

- **Module 1:** Symposium
- **Module 2:** Understanding Nature-Culture Linkages in the Context of the Agricultural Landscape Conservation
- **Module 3:** Management, Implementation and Governance in Agricultural Landscapes
- **Module 4:** Reflection on Theory and Practice

Module 2 consisted of three days of intensive lectures and roundtable discussions about the international context regarding nature-culture linkages and landscape conservation, the Japanese experience on agricultural landscapes' conservation, and community-based conservation and traditional knowledge systems.

Module 3 lasted five days during which the participants visited selected rural areas of Japan and its agricultural landscapes protected or managed under different international, national and local programs. The visits included the Historical Villages of Shirakawa-go and Gokayama, a World Cultural Heritage property since 1995; one site under national designation (Shiroyone Senmaida) and two projects (Maruyama Gumi and Shunran no Sato) in the Noto Peninsula, an area designated as GIAHS (Globally Important Agricultural Heritage Systems) since 2011 by the Food and Agriculture Organization of the United Nations (FAO). In these visits, participants discussed and shared information with local communities and local managers at the sites.

Finally, **Module 4** comprised two days of reflection on the theory and practice gained during the workshop. Participants were divided into groups to work on statements of significance, identifying both natural and cultural values of the agricultural landscapes visited during the field trip.

Participants recognized that the workshop made them aware about the need of thinking beyond their disciplines and heritage sectors. They agreed that nature-culture linkages were necessary for improving the conservation and management of agricultural landscapes in their sites. Moreover, they acknowledged the importance of local communities and their traditional knowledge systems, while recognizing similar challenges in the different countries of the region: economic sustainability of rural areas and intergenerational transmission of indigenous and local agricultural practices that are fundamental for the continuity of heritage agricultural landscapes.

The Symposium

The symposium was held in the context of the Tsukuba Global Science Week (TGSW) in which the theme was "Innovation and Collaboration among Industry, Government and University". The World Heritage Studies program was celebrating 10 years from the inauguration of the Ph.D. Programme (2006), and together with the Certificate Programme on Nature Conservation (CPNC), inaugurating the series of Capacity Building Workshops on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific, initially planned for four years (2016-2019).

The President of the University of Tsukuba, Professor Kyosuke Nagata, and Mr. Takamasa Saito, Councillor for Cultural Properties of the Agency for Cultural Affairs, gave opening addresses emphasizing the relevance of the topic to be discussed during the Symposium: Nature-Culture Linkages in Heritage Conservation and Agricultural Landscapes.

Guest speakers and participants in the Symposium at the TGSW, September 18

The organizing team presented the objective of the CBWNCLs: to collaborate with the World Heritage Capacity Building Programme by forming and training young and mid-career heritage practitioners from Asia and the Pacific in the Nature-Culture Linkages approach to heritage conservation. The core of the first CBWNCL was a field trip to Japanese rural areas, Satoyama and Satoumi, in the Noto Peninsula, designated as a GIAHS area since 2011, and the Historical Villages of Shirakawa-go and Gokayama, a World Heritage property since 1995, part of the buffer zone of the Hakusan Biosphere Reserve since its extension in the last session of the International Coordinating Council on Biosphere Reserves in March 2016.

The first day was composed of three thematic panels and a General Panel Discussion. The second day was composed of four panels where the fourteen participants of the workshop presented their case studies.[1]

1 The case studies have been peer-reviewed and compiled in the part one of this special issue 2017 of the Journal of World Heritage Studies, University of Tsukuba.

Panel 1: International Development

This panel was chaired by Professor Nobuko Inaba, from the World Heritage Studies programme and CPNC. She introduced Dr. Mechtild Rössler, Director of the UNESCO World Heritage Centre and Division for Heritage, promoter of the cultural landscapes concept in the World Heritage context where she has been working for more than 25 years. The title of her presentation was "Nature-Culture Linkages in the World Heritage Convention" and she focused on the development of the Convention and its implementation, as the only international legal instrument that includes the protection of both natural and cultural heritage. She reviewed all of the initiatives in the heritage field to protect landscapes, and how these evolved into the inclusion of the concept of cultural landscapes in the inscriptions to the World Heritage List. The Nara Document on Authenticity (1994), the adoption of the Global Strategy policies (1994), and the Recommendation on Historic Urban Landscapes (2011) are some examples of the developments towards a more inclusive World Heritage List and World Heritage system. She pointed out the importance of the Convention as an example for the development of other regional and local initiatives (e.g. the European Landscape Convention), and she stressed that whether sites have Outstanding Universal Value (OUV) or not, there is the need to consider nature-culture linkages in their daily management. She mentioned that even though many advances have been made towards nature-culture interlinkages and cultural landscapes conservation, there is still much improvement to be done, for example, with Mixed Cultural and Natural Heritage sites. Finally, she emphasized that agricultural landscapes play a key role in the 2030 Agenda for Sustainable Development and that their maintenance must be ensured for the benefit of future generations, which is the fundamental mandate of the World Heritage Convention.

Dr. Mechtild Rössler, Director of the UNESCO World Heritage Centre and the Division of Heritage

The second presentation entitled "Connecting Practice, Linking Culture and Nature" was delivered by Tim Badman, Director of the IUCN World Heritage Programme, who introduced the work being done by IUCN in terms of nature-culture linkages. He explained how the work of nature conservation has intended to integrate culture already for decades, giving space for the concept of cultural diversity to evolve. According to him, culture is very important in protected areas and IUCN has been doing research on these issues, especially in terms of languages, threatened languages and spiritual matters related to natural environments. He presented the Connecting Practice Project, a joint effort of IUCN and ICOMOS that addresses the challenge of the separation between natural and cultural criteria in the World Heritage context. He recalled how difficult it is to separate cultural from natural criteria and that the project intends to bring culture and nature practitioners together to reflect on the World Heritage assessment process. The idea is that these reflections could also be transmitted to local managers in order to improve the understanding of nature-culture interactions in heritage sites. He mentioned that in cultural landscapes the interaction between humans and nature represents the OUV, but that every place has these interactions, so every site is mixed Culture-Nature in a way. He emphasized that this understanding is fundamental for effective management. He finally pointed out the importance of the CBWNCL being done in the Asia and the Pacific region, which is underrepresented in the World Heritage List.

In their presentations and later discussions, both speakers mentioned the importance

of the recent World Conservation Congress held in Hawaii (September 1-10, 2016), where for the first time the nature-culture linkages in conservation were discussed, with professionals from the culture sector joining an event from the nature sector. Of special note is the fact that it was the first time for members of ICOMOS to join such a Congress where they discussed issues like the relevance of the use of the concept of authenticity for natural sites. Moreover, Dr. Rössler pointed out how the Congress in Hawaii was instrumental in the discussion with site managers and practitioners, NGOs, indigenous peoples and human rights advocates, who were expressing fundamental issues for conserving landscapes. Mr. Badman later added that the main challenge is to move forward toward further change and implementation, linking the nature-culture approach to the new policies of the Sustainable Development Goals and adapting the World Heritage Convention to these new developments.

Panel 2: Theoretical Development

This panel was chaired by Professor Masahito Yoshida, Chair of the World Heritage Studies and CPNC. He introduced Dr. Gamini Wijesuriya, Project Manager at the Sites Unit of ICCROM, whose presentation title was "People-Centered Approaches to Conservation of Nature and Culture". He explained the work of ICCROM in the World Heritage Capacity Building Strategy as part of the 5 Cs (Credibility, Conservation, Capacity Building, Communication and Communities) adopted by the World Heritage Committee (Budapest Declaration, 2002, with the last "C" of Communities added later in Christchurch in 2007) where two main paradigm shifts have been triggered: a single strategy for culture and nature sectors, and moving from training to capacity building. He said that this is generating a transformation in the heritage field, and he pointed out the importance of the concept of cultural landscapes in this change since it has made evident the need for a more integrated system for assessment, management and conservation. He added that ICCROM has developed a curriculum in Nature-Culture Linkages that has been tested in 2014, using the Vesuvius volcano as the site of analysis. He mentioned that the University of Tsukuba has agreed to continue this activity with the CBWNCL.

Dr. Wijesuriya stated that ICCROM is developing the People-Centered Approach (PCA), because culture, nature and people are indivisible. He noted that the course on PCA was implemented with practitioners from both sectors, under the topic "Engaging Communities" as one of the 5Cs, referring also to human rights and traditional knowledge systems, acknowledging that some sites cannot be managed without considering traditional knowledge.

Dr. Gamini Wijesuriya, ICCROM Sites Unit Project Manager

The presentation that followed was given by Ms. Kristal Buckley, lecturer at Deakin University and a distinguished member of ICOMOS Australia. Her talk was entitled "Applying biocultural concepts to practices for natural and cultural heritage", and she discussed the problems of the division between nature and culture from a conceptual/philosophical perspective, showing how this affects the implementation of the World Heritage Convention, especially in places where such a divide is not appropriate to the cultural background of the communities inhabiting the sites. She stressed that this separation is not only limited to culture and nature but also to tangible and intangible issues, and she pointed out how the concept of cultural landscapes tried to bridge these divides but that still much work needs to be done.

She explained that, firstly, biodiversity has been used as a concept to explore new ways inside the World Heritage context, and the biocultural approach stresses the ideas of diversity and coevolution. She said that even though both culture and nature are included in the Convention, it is still divided in the text and in the practice by the separated evaluations and work of IUCN and ICOMOS. She expressed that agricultural landscapes have become a priority of the work of these two advisory bodies. Moreover, she added that addressing the diverse cultural worldviews that do not present the culture/nature divide which includes working with indigenous peoples, the rights-based approach, and the prior and informed consent have become an important focus of the advisory bodies' work.

Dr. Gamini Wijesuriya, Ms. Kristal Buckley and Professor Yoshida in the Panel Discussion on Theoretical Development

She also manifested that these remarks are valid for urban areas, and that the Habitat III Congress in Quito that year (October 17-20, 2016) would be a turning point by adopting the New Urban Agenda, following the Sustainable Development Goal 11: "Make cities inclusive, safe, resilient and sustainable" (http://www.un.org/sustainabledevelopment/cities/) where heritage practitioners need to collaborate.

She summarized the work of ICOMOS in four areas on this debate: first, the rethinking approach, where culture-nature should be rethought all together; second, the integration approach, recognizing the divide; third, the synergy approach, taking them as two separate entities; and fourth, the critical approach, using elements of the previous three but also exploring how heritage is institutionalized and how power relations are in play. She remarked the initiative of ICOMOS US that has established the Nature-Culture Journey which will be continued in India next year, the discussions on authenticity in nature, and the importance of including sustainability as a major framework.

The discussion following these presentations revolved around the concept of OUV and the importance of local and regional values, as well as national values. Both speakers stated that management is the key for including all values and not limiting discussion to the OUV. Moreover, they insisted that the involvement of local communities is critical. Professor Yoshida asked the speakers about how to engage local managers in linking nature and culture, following the ideas of the people-centered and biocultural approaches. Ms. Buckley pointed out that local communities are not one single group, and that these communities have knowledge about their sites and can teach the government about them. She expressed the point that experts' values are important, but

that the local situation should guide them. Dr. Wijesuriya asserted that agricultural landscapes are the best examples of interactions between local communities and nature. He pointed out that the management of agricultural landscapes, especially landscapes surrounding heritage sites, impact the sites through activities outside the core areas. In this context, he stated that the people's livelihoods need to be considered so that heritage protection can work. Moreover, he affirmed that different designations, international and local, bring different stakeholders that need to join the dialogue according to the reality of the site.

Panel 3: Local Development

This panel was chaired by Dr. Maya Ishizawa, researcher at the World Heritage Studies/CPNC and Programme Coordinator of the CBWNCL. The first panelist was Ms. Jessica Brown, Executive Director of New England Biolabs Foundation and Chair of the IUCN WCPA Protected Landscapes Specialist Group. Her presentation was entitled "Stewardship of protected landscapes by communities: Diverse landscapes, diverse governance models" and she talked about the protected landscape approach to conservation as an important tool for understanding and managing linkages between nature and culture.

She said that protected landscapes and seascapes represent one type of protected areas in the IUCN guidelines. She pointed out that even though National Parks such as Yellowstone and Yosemite are understood as the first protected areas, we do not know how long ago indigenous peoples started protecting certain landscapes and natural environments through customary laws and taboos. Moreover, she stressed that there are different terminologies used in different contexts and countries, and therefore there is a need for standardization. She affirmed that the IUCN categories intend to fill this gap by giving a key framework for protected areas around the world.

Ms. Jessica Brown, Executive Director of New England Biolabs Foundation and Chair of IUCN Specialist Group on Protected Landscapes

She pointed out the importance of differentiating management and governance and presented four types of governance that can be cross-cutting: governance by the government, by private entities, by communities and shared governance. After giving some examples of diverse governance systems in diverse protected areas, she presented the challenges of an inclusive approach. The opportunities that she finds are the growing understanding and use of the governance framework, the progress in bridging the nature-culture divide, the partnerships and participatory approaches to conservation and connectivity conservation. She also noticed the progress in the recognition of indigenous communities, traditional knowledge and practices, and the continuous intergenerational transmission of these values, especially for agricultural landscapes. She pointed out that the participation of youth is very important, and she gave the

example of the Potato Park in Peru, where young people are recording the knowledge of their elders.

Following this presentation, Dr. Yoyok Subroto, Professor at Gadjah Mada University, introduced "The Subak System: The Indigenous Symbiotic Harmony of Culture, Human and Nature in Bali, Indonesia". This example of an agricultural landscape on the World Heritage List presents some of the issues being confronted for agricultural landscapes' conservation and the importance of the nature-culture linkages. He explained the situation in Indonesia, where the land conversion is increasing very fast, and where the number of farmers is decreasing. He said that the Subak system in Bali has also a symbolic meaning: Subak is a concept and philosophy and also an agricultural planning unit, with an autonomous legal status. He described how three spirits compose the Hita Karana: 1. The cultural spirit, Parahyangan, represented by Pura Bedugal, the temple in the rice fields, that shows the relationships between the community and ritual activities related to gods, water, spirit, and the relationship of the community to nature; 2. The community spirit, Pawongan, related to social justice, in charge of establishing the distribution of water and the conflict resolution strategies; 3. The nature spirit, representing the harmonious relation between the community and nature through the assistance system for irrigation and support for agriculture. He said that this traditional system has 1,000 years of continuity and that it is maintained through traditions and rituals. He explained that social and cultural resilience have developed, and that the Subak system involves a complex system of culture, nature and community, as well as tangible and intangible values.

During the discussion, it was clarified that the Subak System follows a shared governance between the government and the communities reflected in the concept of public partnership. Professor Subroto clarified that the initiative to become a World Heritage site came from the government but that the community supported it. Ms. Brown pointed out the similarities between the Subak System and the Potato Park in Peru, where intricate norms are rooted in spirituality. She said that in Peru as well there are different spirits responsible and that these are different in each community. She stressed that progress in including communities and their traditional knowledge will be made at the local level. Professor Subroto stressed that the government needs to know the problems in the lives of the communities, otherwise it is difficult to implement a conservation program. In the case of the Subak System, he said that the government and the community are working together in a common effort. Dr. Ishizawa asked about what would be the role of heritage practitioners at the local level and in what way they could help the governance of culture and nature. Ms. Brown expressed that heritage practitioners could already be present in the community, being among its members. She added that sometimes the definitions used at international or governmental levels are not appropriate for applying at local levels where communities are very diverse. Basically, she recommends that heritage practitioners listen to community members so that they can better understand the local systems; to be flexible to understand the spectrum of issues; and to understand that one solution does not fit all places. She stressed that capacity building with local institutions may also be important and that workshops like the CBWNCL will be useful as well.

General Panel Discussion

During the general panel discussion, the questions to be addressed referred to how the capacity building of heritage practitioners should be done in order to acquire the expertise of nature-culture linkages: what are the skills required and how should these be applied in the protection, management and conservation of natural and cultural heritage sites? How can a didactic curriculum for the training of heritage practitioners in this new approach be developed? The panel was composed of all guest speakers,[2] the panels' chairs and two representatives of the Japanese agencies in charge of heritage conservation: Mr. Naohisa Okuda, Director of the Conservation Planning Division of the Nature Conservation Bureau of the Ministry of Environment and Mr. Fujio Ichihara, Senior Specialist for Cultural Properties, Monuments and Sites Division, Agency for Cultural Affairs.

General Panel Disucssion, September 18

The panel started with the intervention of Mr. Ichihara, who presented the situation in Japan, from the side of the culture sector, in relation to the interlinkages of nature-culture in conservation. He explained that there are different perceptions of the landscape in Japan, and that the case of rural landscapes is special because these are living landscapes, but that these are also observed as scenery. He mentioned that the category of cultural landscapes was added to the Law for the Protection of Cultural Properties only ten years ago, and currently there are 50 cultural landscapes designated. He explained that in the case of the World Heritage sites, such as the case of the Kii Mountains Range, there is cooperation between the Ministry of the Environment and other ministries in terms of evaluation, information sharing and the promotion of conservation.

Subsequently, Mr. Okuda talked from the side of the nature sector about the conservation of World Heritage in Japan, as well as about the National Park System. He mentioned that the main struggle is for park rangers to build consensus and to communicate the significance of National Parks to the people of the region. Since many national parks cover private land and not only the primeval landscape but also the rural landscape, management is highly complex.

2 Except of Mr. Tim Badman who had joined the symposium remotely via Skype.

He mentioned that ideas are now changing from seeing agriculture and other local uses of resources (fishing and forestry) in natural areas as negative, to seeing them more as beneficial for conservation, especially as promoted by the Convention on Biological Diversity, and the Aichi Targets established in 2010. He noticed that this trend is also found in the development of the World Heritage Convention, especially with the recognition of cultural landscapes in 1992.

Following these interventions, participants of the CBWNCL were invited by Professor Inaba to submit questions and offer comments. Some referred to the lack of a divide between nature-culture understanding at the local level in agricultural landscapes (the Philippines), and to the similarities between their case studies and the Subak System or the Potato Park, and that the main challenge is to involve young people in continuing these practices (Ghana). Another issue mentioned was the change implied in agricultural systems where communities adapt to these changes, and the question of how the World Heritage Convention looks at these adaptations. Moreover, regarding the governance systems, the questions referred to how conflicts arising from the diversity in local communities are managed and how the perceptions of the state towards the sites are reconciled with the local perceptions (India).

Dr. Rössler replied that the case of the Rice Terraces in the Philippines Cordilleras was exemplary for the World Heritage System in regards to the continuity of agricultural landscapes. She explained how the problem of involving the youth surfaced after the inscription of the site because young people find more comfortable life living in the cities or working in tourism rather than farming the terraces. She expressed that there is a need to consider adaptation to change in the management system for the nomination to the World Heritage List. On the other hand, regarding the different agencies in charge of the conservation of nature and culture, she mentioned that what happens is that agricultural landscapes are not nominated to the List because of the added complexity of dealing with the Ministry of Agriculture. However, she stated that the work does not start in the listing, but rather much earlier. Currently, some nominations have required twenty years of preparation which, as she considers it, is not long. She asserted that governments need to inform communities so that there are no problems after the listing of a site and that this implies work that takes time.

Ms. Brown clarified that the World Heritage process is moving away from only informing communities. She explained that in some cases, communities are taking initiatives which lead to less conflict. However, she noticed that communities are composed of many layers of representations. For instance, she mentioned the case of the Potato Park where there is a bottom-up approach, and where the pursuit of upstream involvement is necessary.

Dr. Wijesuriya explained that the work with traditional knowledge systems is just starting in the World Heritage system, so there is much work to be done. Moreover, he said that the system is still being ruled by old documents such as the Venice Charter, so in order to understand the dynamism of cultural landscapes and the need for adaptation to change, these documents still have to be amended.

Ms. Buckley stated that the World Heritage system is not static and has been a learning context that has been progressing slowly. She also agreed that the involvement of younger generations is important and that the solutions are not clear. She agreed that Intangible Cultural Heritage and Biodiversity Conservation are programs that give space for innovation and that they bring with them the discussion about the transmission of culture. However, she said that young people cannot be told to continue doing what their parents do, and that change is unavoidable in cultural landscapes. She considers that what need to be identified are the attributes that carry the values, since often tangible qualities are not the ones to be preserved and cultural landscapes cannot be frozen.

Mr. Okuda pointed out the importance of the evaluation of ecosystem services and the economic efficiency. He gave the example of Ishikawa Prefecture in Japan, where they are focusing on the diversity of food and the food culture of the region. He thinks that now we need to think about the socio-ecological sphere which includes nature and culture, and which is supported by local ecosystems and socio-ecosystems.

A question received from the audience touched on the topic of the OUV and other values, how traditional knowledge is connected to OUV, and if OUV is inclusive or exclusive of other values. Dr. Rössler replied that OUV and other values go together. However, she said that, for example, OUV is present in the 1972 Convention but not in the 2003 Convention, because the OUV is related to a site. She pointed out that even though the concept is mentioned thirteen times in

the Convention, it is not defined in the text and that it was only defined in 2005. She explained that what is nominated is a physical space and in order to define the OUV, it needs to transcend local, regional and national importance, something that has to be defined in the global context. She mentioned that communities may see their own values in a different way and therefore it is a complex relationship.

Dr. Wijesuriya differentiated the technical aspect, where attributes can be tangible and intangible, and where processes such as the agricultural process can be part of those attributes. Also, he said that OUV is constructed not just of values but that it also has aspects of integrity and authenticity. He thinks that traditional management can be included in the framework of authenticity. Ms. Brown added that people living in the sites should be involved in the governance and management because it is necessary to look at what people value on the sites. Professor Yoshida suggested that all government officials who would like to nominate a site should check the special value to the nation or to local communities, before considering the OUV, and then pick up some important values that can meet the OUV. He pointed out that most domestic processes do not reflect on the special value to the nation or local community, and that once the site is inscribed, the local values are forgotten.

Mr. Cesar Velandia, participant from Colombia, raised the question regarding disaster risk management that affects agricultural landscapes, as well as the social-economic view of sustainability. He mentioned that the economy of coffee (the case of the Coffee Cultural Landscape, Colombia), the price is defined by international stock markets affecting the local production. Moreover, he mentioned the problem of climate change, which can result in the displacement of crops, therefore changing the landscapes. To this, Dr. Rössler replied that these are two issues that affect cultural landscapes the most: the stock market / global market, and climate change. She said that the first affects cultural landscapes making them dependent on the global economy, and the latter is already being mentioned in some nominations which explain how the sites will have to move in the future due to climate change impacts -- and therefore they will need to extend their boundaries. Ms. Brown mentioned the importance of agro-biodiversity, and explained how this creates resilience in the context of climate change. She asserted that maintaining genetic varieties through seed banks is part of the answer, being used in some communities, for example in the Andes. Furthermore, Professor Subroto added that in the case of the Subak system local people improved the quality of their rice, bringing economic benefits.

Questions from participants during the General Panel Discussion

From the audience, Mr. Kazuyuki Yano (cultural heritage expert / ICOMOS Japan) expressed how

cultural heritage is an integration of nature and culture everywhere, and how the governance and management systems are divided. He said that they used to be integrated, but now they are divided. He thinks that there is a need for collaboration between ministries, local governments, the public sector and the communities. He said that modern society tends to separate but we need collaboration. To this, Professor Inaba indicated that it is clear to the managers that culture and nature are divided. However, she mentioned that the current system follows a top-down approach. She clarified that in Japan there are separate agencies for agriculture, culture and nature. Dr. Rössler stated that this depends on the willingness of the governments, and gave the example of Bhutan, which has declared the whole country as a cultural landscape. She added that Bhutan does not have World Heritage sites but that they are using this integrated approach. Moreover, she added that there are examples of integration in countries like Norway where there is one single law for natural and cultural heritage. Dr. Wijesuriya mentioned the case of New Zealand where the department of conservation looks at 90% of the natural heritage, and there is one umbrella: Heritage New Zealand. Another example mentioned was the Parks system of the United States that looks at nature and culture, as well as the system in Canada. Ms. Brown added the case of Australia. She explained that in the United States there was the idea of partnership parks, but now all parks work with partnerships, and they work with mapping network partnerships and network governance, but mostly at the site level. Mr. Okuda said that in Japan natural heritage is in charge of the Ministry of Environment and the Forestry Agency, and that the Agency for Cultural Affairs is partly engaged. He mentioned that in the cases of the Kii Mountains and the Ryukyu Islands, these agencies have worked together. But he pointed out that what is more important is to start at the local level by building consensus on the ground, determining what is important for the community.

Ms. Buckley expressed that it is encouraging that in some places they are breaking the institutional divisions, but that in many places that ICOMOS site-visits, this is not the case. She observed that it is necessary to work on good governance models, connecting the practice from nature and culture sectors. She said that we cannot change the Convention or the government structures, but we can change ourselves as heritage practitioners and advisors. She stressed that after 40 years, having less than 40 mixed sites shows very little representation on the World Heritage List. But she clarified that governments have already decided whether the site is nominated as natural or cultural before they get the assistance of ICOMOS or IUCN. She asserted that time is a constraint since preparing a nomination is a long process, and this is the reason why the decisions by the people in charge at national levels are very important for working on the linkages of nature and culture.

Mr. Nuwan Abeywardana, participant from Sri Lanka, questioned the use of the term "cultural landscape", and asked why it is not simply referred to as "landscape". He said that communities do not use the concept of landscape, and that this is not a static environment but a dynamic process. So he wondered how we can identify a dynamic process as a property. He stated that Sri Lanka does not have a declared category of cultural landscape, but 2/3 of the country could be identified as cultural landscape; however, the values of the agricultural landscapes are starting to decay. He considers that we need to think about landscape processes. Instead, he recalled that when inscribing a heritage landscape, we artificially try to stop it and define regulations. Yuxin Li, participant from China, pointed out that in the Hani Terraces without the landscape, Hani people would stop being Hani people. She confirmed that the landscape is evolving and dynamic, but she asked what to do if the culture is changed or affected by strong external cultural influences.

Professor Inaba reminded the audience that during the workshop these questions would be worked on in depth for the next ten days. She mentioned that this is the first experimental group. and a very important one, for the three next years to come. She pointed out that participants are bringing fourteen case studies that are all different and that there is no one single solution for all. She said that mutual learning is an important process, and in the next several days discussions will revolve around the concept of landscape, how to deal with communities and also about the meaning of OUV and the issues arising from this. She indicated that World Heritage is not the only instrument to protect heritage, but that it is a powerful instrument, and that just being on the list is not the end of the process. Then she invited the guests to give their final comments.

Dr. Rössler expressed how much she learns every time she meets students. Referring to the question about the use of the term "landscape" or "cultural landscape", she considers that when one works in the framework of the Convention, it is not possible to use only "landscape", and that the inclusion of "cultural landscapes" was already a major change. She mentioned that there are also places where there is no distinction between nature and culture, and that there are languages where the word landscape does not exist (e.g. Farsi), or where there are many words

that could be used to translate landscape (China). In relation to the question from China, she said that if the traditions disappear, then the landscape becomes relict, and this is also a category considered in the World Heritage List (e.g. St. Kilda in the UK).

Dr. Wijesuriya promoted the People-Centered Approach, and in order to expand the knowledge he recommended keeping an open-minded attitude and exploring issues while sticking to the Operational Guidelines. He said that agricultural landscapes are the best example for discussing nature-culture interlinkages, because they imply also traditional knowledge systems, people and their identity. He recalled that the World Heritage system adds requirements and another layer of stakeholders for the conservation process, and if the country keeps the divide at the governmental level, policy-makers are essential for making changes. At the local level, he stressed that people and their livelihoods define the conservation.

Ms. Brown came back to the theme of language. She said that language overlaps greatly as a proxy of cultural and biological diversity. She mentioned that there is a dual extinction of languages and species. After exploration with the Board of Terralingua, she explained that they defined the concept of biocultural diversity. Moreover, she indicated that with the project of Connecting Practice, "the road is being made while walking".

Professor Subroto suggested that if we want to understand the community and culture, as heritage practitioners, we should listen and pay attention to the social and spatial terminology. He shared that in Bali he learned the community terminology, where there are three names for community in the Balinese language. So he recommended not to instruct but to learn about and from the community itself.

Mr. Ichihara alluded to the variety of agricultural landscapes in Japan, but he mentioned that the value is not seen as something to be examined in order to have it become universal value. Mr. Okuda recommended thinking about cultural landscapes as a context for linking nature and culture, and also thinking about how to use the World Heritage Convention, and at the same time, other instruments and tools, such as GIAHS. He stressed that it is important to clarify definitions and confirming approaches regarding how to make a site sustainable. However, he noted that we need to look at all issues case by case.

Professor Yoshida closed the session highlighting that even though many questions remained unanswered, participants of the CBWNCL would have the chance to visit sites in Japan, meet local people and exchange ideas with them. He mentioned that some of them have innovative ways of communicating the concepts of landscapes. Finally, he hoped that participants will have the chance to learn more during the workshop.

Panel 1: Terraces

This panel was chaired by Dr. Gamini Wijesuriya, Project Manager at the Sites Unit of ICCROM.

The first speaker was Marlon Martin from the Philippines, Chief of Operations at the NGO Save the Ifugao Terraces Movement, and native to Ifugao, whose presentation was entitled "The Rice Terraces of Ifugao Province". He explained that even though the entire province is covered with rice terraces, only five sites are inscribed as part of the World Heritage property. He said that there are archaeological records of rice harvesting in the area since the 16th century, a practice based on a social system that follows agro-forestry. He mentioned that the main crop is rice and that communities follow a traditional forest system based on the lunar cycle. However, he pointed out that since the Green Revolution, rituals have been disappearing, and the rice variety is changing. Consequently, terraces, that he considers the soul of the landscape, are disappearing. He mentioned that they were recognized as national cultural treasure in 1976, and they were inscribed in the World Heritage under criteria (ii) and (v) in 1995, because these are historical structures that promote ecological balance and that are also part of a continuous tradition. Nevertheless, he suggested that these values may not exist any more due to all the development projects in the region where the OUV is not being considered. He pointed out that the government changes, and that the local governmental office is not permanent, and that therefore, officers need to be re-educated constantly about the value of this property. In 2004, the terraces received the GIAHS recognition, which he said gave a stronger emphasis on the nature-culture linkages of the terraces.

Marlon Martin from the Philippines presenting the Ifugao Terraces case study

He asserted that currently, the conservation of the terraces is menaced by infrastructure development, mainly, by the construction of roads because there are not conservation guidelines for public works. He described how the Agriculture Department gave machinery for the rice terraces but that it is not possible to use these machines in the rice terraces because of their shape, sizes and slopes. Hence, he suggested that the management should be based on the indigenous traditions since Ifugao people are the main stakeholders. Moreover, he argued that there need to be more education at schools so younger generations can be involved in the maintenance of the terraces.

The second presenter was Yuxin Li from China who introduced the topic "Thinking of Traditional Rice Culture Conservation in the Management Practice of the Hani Terraces". Native to this area, she explained that the area of the World Heritage property is smaller than that of the rice terraces containing cultural and biological diversity, where Hani people are main cultivators. She said that there is a cultural spirit of the rice terraces where the three important components are the ancestors, nature and culture. She mentioned that the main values are encountered in the agricultural heritage system: the abundance of rice species, especially red rice, and cultural diversity. Most of the culture focuses on how to cultivate and how to celebrate gods and how to harvest. She explained that the conservation is in the hands of the prefecture and the counties, that are the main bodies in charge of managing this landscape, as well as the farmers who cultivate it. She stated that the main problems confronted by this site are cultural and ecological. On the one hand, she mentioned the influence of the modern lifestyle and on the other hand, climate change that is turning the weather very dry. Moreover, she said that tourism, construction, and pollution are gradually changing the landscape. She asserted that the red rice is an important element of the culture but there is no regulation to protect or promote its production and consumption. She suggested that ecological tourism should be implemented in the area, also connecting traditional culture and development.

The third presentation was entitled "Promotion of East Taiwan Organic Agriculture" given by Cheng Hua Sun from Taiwan, assistant researcher at the Huanlien District Agricultural Research and Extension Station (HDARES). She explained that in Taiwan, 160,000 people are farmers who own less than 1 hectare. Among these, there is a diversity of groups: Minan people, Haga people and more than ten indigenous groups. 25% of the production is organic, especially organic rice, which is 50% of Taiwan's production. Her working station is dedicated to recover the traditional knowledge of farmers and to promote organic farming, organic research, ways to create biologically rich vegetation, and to teach farmers to practice ecological balance. She explained that the station started a research on aboriginal farming, recovering indigenous farming technology. She argued that the problem is that the price of the rice is low, not adequate to maintain livelihoods, and farmers feel obliged to give up agriculture and sell their land. Moreover, she said that many people do not want to be farmers, and that they just build houses on their plots to enjoy the view of the landscape. She described how the population is aging and that the elderly cannot farm by themselves. She explained that the team of HDARES assists them in growing organic rice, making them conscious of the importance of ecosystem services and that organic products can have better prices, making it possible for people to stay on their land. She suggested re-establishing the tribal industries to bring young people back to the rural areas.

Panel Discussion: Katie Chick, Hong Kong; Cheng Hua Sun, Taiwan; Yuxin Li, China; Marlon Martin, Philippines, moderated by Dr. Gamini Wijesuriya

The fourth presentation was entitled "The significance, conservation potential and management challenges of traditional farming terrace landscape in an Asian metropolis: a case study of Lai Chi Wo, Hong Kong, China" given by Hiu Lai Chick, Project Manager at the University of Hong Kong. Trained as an ecologist and conservationist, she said she has ten years of experience on the farmland. She presented the case of Hong Kong, the famous metropolis whose financial center affects 7.3 billion people, and receives over 40 million visitors per year. But she explained that the city also houses 450 species of wild birds, dragonflies, fish and mammals - over 600 rural villages, that most visitors are not aware of. She recalled that Hong Kong has a colonial history, and that the park system was created under the British Government. However, she stated that the history of metropolitan Hong Kong is recent. She argued that before the 1980s most of the land was paddy fields, managed by villagers, usually using the same family name. Villagers used to manage natural resources together. She explained that the Chinese belief system - Feng Shui is practiced even today, and it gives guidance to people about the appropriate location of their villages and the orientation of their houses. She said it is an important theory that guides the rural life.

She asserted that Lai Chi Wo village corresponds to the Feng Shui system, and that it has existed since 1970, but that all the farmlands were abandoned in 2010. She considers that it is a very unique site for conservation, with a large number of species. But she explained that it has been abandoned due to the park system and now over 90% of its population is living in the UK. So, she explained how a group of local scholars conceived a revitalization project following an interdisciplinary collaboration in order to help the farmers to move back to the village to work together. She mentioned that currently, there are twenty people working on a conservation plan, and that they look at innovative farming. Moreover, she said that they are trying to develop the site as an education hub, for developing the local economy.

Regarding nature-culture linkages, she argued that the site is useful for learning from the community about how to utilize the surrounding resources. But she said that there are many problems: the private ownership of the land, the fact that the land is not very productive, the loss of traditional knowledge, and the very high price of the land, - and even though the local community is rich, they do not want external intervention and do not support conservation, even though it is a very good site for the wider society to learn about sustainable management. She mentioned how different experts recognize that the site could be a World Heritage site because the resources are very high, but she thinks that integrating all expertise together is a challenge.

Discussion

Dr. Wijesuriya opened the floor for questions. Firstly, the audience asked about the transformation of the land use by construction of energy facilities. Mr. Martin explained that in the case of the Ifugao Terraces, the use of electricity has brought about the construction of mega-dams, but that the Secretary of Environment is against this plan. He clarified that now the local government intends to fund and implement solar energy. In the case of the Hani Terraces, Ms. Li explained that construction problems arise when villagers want to build on their agricultural land, but that the most serious problem of the area is the lack of water.

Secondly, the audience asked about the engagement of younger generations. Ms. Chick explained that in the case of Hong Kong, the BBC is trying to promote among the community in the UK, the idea of learning about their origins by interacting with the elderly in order to relate with their history and tradition. Ms. Sun said that in Taiwan, in order to engage young people, the government helps them to cultivate organic farming. Ms. Li said that in China, one example is a project focused on the creation of traditional farming schools for young generations. Mr. Martin talked about a proposal in the Philippines to include traditional knowledge in the formal education program launched in 2004. He said that just recently, in 2015, the national government finally made it mandatory to include traditional knowledge in the formal curriculum, and they are now working on approppriate textbooks.

Thirdly, the audience asked about the multi-designations in the Hani Terraces: how these work together, and if there is a proactive utilization of biological cultural resources. Ms. Li replied that in China, the prefectural government plays a key role in collaborating with the different sectors. She explained that the different sectors cover different areas of the World Heritage site, and that there is also a program to develop it. Moreover, she mentioned that every year there is a conference bringing together the different institutions in charge of the different aspects of the

site to discuss how to collaborate.

Thereafter, Dr. Rössler made some comments. Firstly, regarding the loss of traditional knowledge, she referred to the example of the Canary Islands, where in one generation the language was lost. She suggested the possibility to use the internet to help in the documentation of traditional knowledge, by compiling information about traditions that young people can access. Then, she referred to the case of Ifugao, and the relationship between agriculture and astronomy, and how much of the knowledge of this connection is missing. Regarding the infrastructure development, as in the case of dams, she explained that every new project needs a heritage impact assessment. Even though these projects may be accepted in the nominations to the World Heritage list, she clarified that there are strict conditions. In terms of organic production, she pointed out that it is important to rely on marketing, and that the models used in Europe should be shared in other regions, such as in Asia. Finally, concerning multiple designations, she mentioned that there is a new publication by IUCN that was launched in the World Conservation Congress (WCC) in Hawaii, where the recommendations are worth looking at (https://portals.iucn.org/library/node/46176).

Panel 2: Agricultural surroundings

This panel was chaired by Ms Kristal Buckley, lecturer at Deakin University and representative of ICOMOS Australia.

The first presenter was Fransiska Dian from Indonesia who introduced "The Landscape of Borobudur Temple Compounds and its Environment". Three temples comprise the compounds surrounded by an agricultural landscape where it is possible to find species of local tropical fruits. She explained that springs are used by local communities that follow Tegalan farming, because the land cannot be irrigated continuously. She mentioned that local communities still follow traditions in farming life, mixing crops together on the same plot of land, and using traditional tools. She said that different institutions manage the area assigned by the Presidential Decree of 1992, and that there is a map indicating the zoning regulations of the whole area. She argued that the problem now is the land use change where many agricultural areas have been urbanized, to become places for residences, hotels, restaurants and sports facilities. Consequently, the agricultural landscape is changing into urban settlements. Her suggestions are to raise awareness of the values of the World Heritage property and its surroundings as well as of the traditional knowledge and the culture of the communities living in these areas.

The second presenter, Funda Solmaz from Turkey, talked about "Nature and Culture Interlinkages in Göreme National Park". She presented herself as a native of the area where the mixed cultural and natural site is located, Anatolia. She explained that the agricultural landscape of the area is not appreciated, although traditional farming techniques are still used. Nevertheless, she affirmed that tourism is becoming the main source of income. She described the agricultural landscape as being composed mainly of vineyards, where the production process carries intangible values. She said that the farming culture gives special characteristics to the architecture and the landscape. She asserted that, currently, tourism is affecting the site: many houses are being transformed into hotels and roads are being constructed. She said that there is still no comprehensive management plan, so her suggestion would be to elaborate a management plan that considers a holistic approach that considers both natural and cultural values.

Nuwan Abhayawardana from Sri Lanka presented "Tanks as an ancient measurement for the nature-culture interlinkages in ancient agricultural landscapes: A Case Study on the Anuradhapura dry zone hydraulic landscape". He explained how the landscape is formed by old irrigation systems, one of them being the tanks, artificial lakes that may be 2,000 years old. He affirmed that this is the landscape where the World Heritage site is located. He said that the system is very sustainable and sophisticated, based on the natural characteristics of the environment, and that it is still functioning. He asserted that the management also deals with components of indigenous knowledge, rituals and performances. He stressed that in order to understand the landscape it is necessary to know its evolution, and for this they use geo-informatics and topographical data. He argued that the problem is that the archaeological site is conserved based on certain regulations and the tanks are under the mandate of the Agricultural Department. Therefore, these elements of the landscape are being managed separately, but he declared that the architecture, the irrigation and the agriculture should not be separated. He stated that a more integrated approach to management and conservation is needed.

Discussion

Ms. Buckley said that it was interesting to hear about these three very famous cultural properties and learn something new about them. She invited the audience to intervene.

The first question from the audience referred to the existence of worship or festivals that could connect modern people to the archaeological sites. In regard to the Sri Lankan case, Mr. Abhayawardana explained that the Stupas are pilgrimage sites and people come to visit them during the Full Moon Festival in June. He said that the property is inscribed under criteria (ii), (v) and (vi) but there are values that relate to the interaction between nature and man, that should also be considered. In the case of Turkey, Ms. Solmaz said that there are no festivals, and there is not an indigenous local population. Ms. Dian, explained that in the case of Indonesia, the site is a Buddhist temple, but now people in the area do not follow the Buddhist religion, - they are Muslim. However, she said that Buddhists pray once a year in Borobudur Temple. Moreover, she clarified that the farming system is traditional but some people do not continue the traditions.

The second question touched on the methodology of the study in Sri Lanka, where the use of GIS improves the understanding of the landscape, and it is more precise. Mr. Abhayawardana answered that it is important to think through time and space and join different parameters, identifying the different layers, and for this GIS is very useful, using elevation data and 3D analysis, quantitative and qualitative descriptions as well as historical sources.

The third question related to the tourism facilities in Göreme, and inquired whether the operators of these facilities were local communities, following development plans for rural tourism. Ms. Solmaz replied that ten years ago, tourist facilities were made available by the locals, who adapted their houses, but that currently, there are famous hotel chains that are taking over the area, with the economic resources to buy the ruins and refurbished them.

Ms. Buckley invited other speakers to also comment on this topic. Ms. Dian said that in Indonesia, the tourism organization is different from the ministry in charge of conservation. She argued that if the management could be under one roof, it would facilitate conservation. In the case of Anuradhapura, Mr. Abhayawardana said that this is the most famous tourist attraction in Sri Lanka. Because of this, four to five million people visit the place every year. He stated that its most important value is religious, and therefore, a people-centered approach should be applied, with an appropriate coordination among stakeholders. Ms. Buckley pointed out that tourism is one of the reasons why national governments are very interested in the World Heritage designation. Dr. Rössler added three points: in the case of Sri Lanka and Turkey, she mentioned that these are cultural landscape cases, and she wonders if a renomination would make sense, and what would be the benefits of it. Regarding management plans, she agreed that integrated management is needed. Regarding tourism, she pointed out that it is a crucial issue because, in many cases, local people do not get the benefits.

Dr. Wijesuriya highlighted the case of Bangladesh where there have been huge conflicting pilgrimage cases, similar to the ones in this discussion. Ms. Brown commented on an ethical point and the importance of vernacular architecture, referring to the case of Göreme in Turkey: the issue of the use of vernacular architecture is important because some people do not want to live in these structures anymore. In the case of the US, she said that vernacular architecture is often not used in its original functional context but is converted to other uses. She agreed that the link between nature and culture is very clear in vernacular architecture. Ms. Solmaz replied that she is working in management systems that connect landscape and vernacular architecture. Finally, Ms. Buckley closed the panel and announced the lunch break.

Panel 3: Indigenous and traditional landscapes

This panel was chaired by Professor Yoyok Subroto from Gadjah Mada University.

The first presentation was given by Persis Farooqy from India about the "Apatani Cultural Landscape", a site on the Tentative list as an organically evolved cultural landscape. She presented a video of the site and explained how the agricultural work is being done with traditional techniques, by hand, by clans and families of the Apatani people who are helping each other. She mentioned that the area is in a biodiversity hotspot, and it is nominated under criteria (iii), due to the continuity of the culture and the settlements, and criteria (v) because of the traditional land use.

Panel Discussion: Shweta Wagh, India; Lameru Kakaw, Taiwan; Cesar Velandia, Colombia; Persis Farooqy, India, moderated by Professor Subroto (right)

The second presentation of this panel was in the charge of César Velandia from Colombia, who explained about the "Foundations for the reconstruction of the coffee Cultural Landscape of Colombia, CCLC", inscribed under criteria (v), five years ago in the World Heritage List. He explained that it is part of a national park and that it contains natural heritage, rural and architectural heritage, as well as urban and archaeological heritage. He said that the challenges in this site are the need to strengthen the policy in national development, the need of funding, and the need for disaster risk management, especially represented by the threat of a volcano eruptions.

The third presenter was Lameru Kacaw from Taiwan who talked about "Working with Indigenous Knowledge and Resilience: A Case Study of Agricultural Landscape Conservation in a Taiwan Indigenous Tribe". He works in an NGO dedicated to the community development of Cihalaay, which is his hometown. The tribe inhabiting this landscape has a history of only 150 years of occupation in this area. He said that their way of life is similar to the Japanese Satoyama, but that the people there do not know this concept. He described the landscape as being composed of the mountain and the traditional hunter culture, nurturing natural resources and rice terraces. He explained that they use a complex system of canals for irrigation, which function as focuses for conserving biodiversity. He indicated that the community was encouraged by academics to create an institution to protect the landscape and its biodiversity, as well as to generate community development. He added that the local government, the association and academics now work with the concept of the cultural landscape, but that this concept does not

exist in the language of the indigenous people, so they need to discuss what this term means. He stated that the community focuses on the conservation of the Hala fish, an indicator of clean water, and therefore they have replaced the use of chemicals with organic rice farming. He mentioned that now the community sells the Hala organic rice, which also promotes agricultural tourism. He added that the funds obtained are used for educating of younger people regarding how to be a farmer, and learn to tell the stories of other farmers. Moreover, he explained that they have created a tourist program to teach how to raise the Hala rice, for which the community prepares workshops about traditional techniques, identification of wild vegetables and traditional fishing. As suggestions, he mentioned the need to create resilience through building social capital, to foster knowledge adaptation, to build shared-knowledge, and to learn to translate the concepts into local languages and worldviews.

The fourth presentation was in the charge of Shweta Wagh from India who introduced "The Kanchendzonga Sacred Landscape". Her focus was on indigenous identities and cultural values. She explained that the landscape lies beyond the protected area, and the idea of the people is that their ancestors reside in the mountains. She added that they follow indigenous shamanic conceptions that relate to a sacred geography. She recalled that the site was designated as national park in 1977 and was inscribed as World Heritage in 2016. She mentioned that the population is located in the buffer and transition zones of the Biosphere Reserve, designated in 2000. She continued by explaining that the Biosphere Reserve covers four eco-climatic regions and a diversity of habitats. She explained that in the lower elevations at the buffer zones there are agrarian and pastoral landscapes and a variety of sacred natural sites. She stressed that currently it is in these areas where there is more pressure for development. She indicated that State regulations isolate nature from culture, and that agricultural landscapes are not acknowledged as part of the heritage. She said that originally, the site was going to be nominated as natural heritage, but that local communities advocated for considering the tangible and intangible cultural values of this landscape, achieving its inscription as a Mixed Cultural and Natural heritage site in the World Heritage List.

Discussion

Professor Subroto invited the audience to intervene. The first question referred to the site in India, where Ms. Wagh mentioned that traditional lifestyles should not be idealized. Ms. Wagh replied that the landscape cannot be described as purely traditional, and that agricultural practices evolve over time, like agro-forestry which has been introduced as a government policy. She asserted that traditions cannot be considered as static. She mentioned that younger generations that get educated do not want to follow traditional practices, and there is a sense of loss of the appreciation of local practices and language. However, she stated that the notions of sacredness continue, in new ways, and that young people have connections to their lands so it is important to reflect on identity interpreted in a modern way. Dr. Rössler mentioned that this is the first mixed site in India, but that it is not inscribed as a cultural landscape. She added that in the case of the Coffee Cultural Landscape in Colombia, there is a lack of attractiveness to draw typical tourists and other types of tourists need to be explored.

Mr. Velandia from Colombia explained that there is an increase in tourism, but that local people expect that the World Heritage status would attract even more visitors and increase their hotel businesses. In the case of Taiwan, Mr. Kacaw said that there are two issues, firstly the cultural landscape facing an open economic system, and secondly, that the tribes do not understand what is local knowledge or local tradition, and that whatever is done is based on instructions from the government. In India, Mr. Wagh said that how Kanchendzonga became a mixed site is not very clear, but there has been an unprecedented stakeholder consultation, by certain departments, academics, community, local people, individuals, and monks who came to the meeting of the UNESCO World Heritage Committee. But she argued that the area has not been extended because it does not have OUV, even if it is a national park. She commented that the landscape has agricultural features but hydroelectric dams are being developed in areas surrounding areas to the core, and people are protesting this development. She criticized that the management currently only considers the core and that instead it should also include the surrounding areas.

Panel 4: Nature and Agriculture

This panel was chaired by Ms. Jessica Brown, Executive Director of the New England Biolabs Foundation and Chair of the IUCN WCPA Protected Landscapes Specialist Group, who welcomed back the speakers and audience to the last panel of the symposium.

The first presentation was given by Kawshik Saha, Assistant Professor at the Shahjalal University of Science and Technology in Bangladesh and it was entitled "Heritage of the Sundarban: Connecting Nature to Culture". He explained that this site was declared World Heritage in 1997, and that it is a biodiversity spot, as well as a Ramsar site. He considers that a spatial approach can help the local approach. He asserted that the site is the largest mangrove forest in the world, and that it contains some of the country's agricultural areas. He later mentioned that the area of mangroves is shared between India and Bangladesh, containing a large biodiversity of fauna and flora. He said that the tiger is a very important species in the site that also influences in the cultural expressions and traditions of the seven million people living in the area. He described the activities as agriculture, fishery and honey collection, and he added that recently eco-tourism is increasing. He indicated that the main threat to the site is climate change and he suggested that these issues and the conservation of the site could be addressed using spatial planning.

The following presentation was entitled "The interplay between culture and nature in the protection of the Kakum and Bia natural heritage in Ghana" and was given by Yaw Osei-Owusu, Country Director of Conservation Alliance International, Ghana, who has a background in agriculture and environmental management. He explained that in precolonial times there were customary laws and cultural practices to conserve and manage the natural resources. After the colonial period, he said that the power was taken from the chiefs and given to national agencies. He explained that Kakum and Bia are two very important reserves: Bia is World Heritage and it is a forest where there are elephants, and Kakum is an iconic place for tourism. He said that cocoa is the main agricultural product in the area. Around these protected areas, he mentioned that 70% of the people are engaged in agricultural activities and 20% of the area is covered by cocoa. He commented that forest land has also been taken over by agriculture and he stressed that currently the challenge is to remove part of the forest to raise crops. He stated that the problem is that the government promotes the use of chemicals for cocoa production and that some of these have negative impacts on the resilience of the forest. He claimed that there is weak law enforcement. Nevertheless, he ensured that work is being done with the communities in order to involve them in heritage management and conservation.

The last presentation was given by Nina Pollock, Senior Heritage Assessment Officer of the Heritage Division at the Office of Environment and Heritage in Australia who introduced "Lord How Island, New South Wales, Australia". She explained that this is a volcanic island and that it was untouched nature until 1788. She said that the first human settlement dates from 1834, and that now the site receives 14,000 tourists a year. She mentioned that it is protected as a national park and that it has agricultural landscapes and settlements. She added that now there is palm industry being developed in the area. She stressed that cultural values exist but that they are not considered for the World Heritage designation. Moreover, she mentioned that the development is strongly controlled, and although there is an act to protect its cultural values, basically connected to the first European settlers, the focus is stronger on the protection of the environment. She stated that the challenge is that even though cultural values are recognized at a national level, the focus is only on monumental structures, and not on the landscape perspective. Her suggestion was to work towards a collaborative conservation approach where both nature and culture could be conserved together.

Discussion

Ms. Brown remarked that the three sites have very strong natural values and invited the audience to come forward with questions.

Dr. Rössler commented on each case. In the case of Bangladesh, she noted that the government said that UNESCO is blocking development, but the IUCN monitoring mission was very clear about the questions concerning conflicts between development and nature conservation. In the case of Ghana, it would be interesting to look at why they would not nominate Kakum National Park to the World Heritage List. And in the Australian case, she noted that it is clear that there is a distance between the World Heritage values and the state level values.

Ms. Chick asked about the owners of the land in the case of Australia, and how the growth of the population is being regulated by the government. Ms. Pollock replied that it is a very complicated process, land ownership is written in Lowe Island Act and it is owned by the Crown.

In the audience, they asked about the case in Bangladesh, about how to apply the integrated approach with spatial planning in a heritage site. Mr. Saha replied that the method is not limited to a heritage site, but to a designated area and the aim is to look at the management of other uses and to try to reduce the conflict between different land use categories. Professor Yoshida asked about how the involvement of communities in the management of the national parks is. Mr. Saha said that in the case of Bangladesh, communities are involved through meetings in all decision-making processes, from planning to implementation, and that these are managed by many NGOs and government departments. Mr. Osei-Owusu replied that in the case of Ghana, community involvement is done at the national level and the community level, through the community forest committee, and that now there is the new concept of community resource management area. In the case of Australia, Ms. Pollock said that nature is the main driver of support for the local economy, so the communities are very keen on nature.

A question regarding the case in Ghana referred to the use of generating income in order to avoid the overexploitation of natural resources. Mr. Osei-Owusu replied that this is the main challenge, since the elephants are being killed for their economic value. He agreed that there is a need to ensure resources for eco-tourism, and that because the revenues are not so high, locals need to receive support from NGOs since adequate support is not coming from the government.

General Discussion and Closing Remarks

Professor Inaba, who chaired the final discussion, invited the audience to reflect on what are the main challenges and problems that all fourteen case studies share. Dr. Wijesuriya said that the key message was that this overview of case studies and discussions set the tasks for the next ten days of the workshop, and invited the chairs of the panels to make comments.

Ms. Buckley highlighted the rich experience of hearing all of these case studies and noted four main points. Firstly, she mentioned that presenters talked about the positive effect of farmers' organizations. She said that there is a tendency to see the community and the government in a dualistic way, but the creation of this type of organization can be creative. Secondly, she recognized that the rights-based approach was not mentioned and she hoped that in the next days it would be possible to discuss more about gender and about women in societies, because in some cases, these have a unique situation. Thirdly, she noticed the impact of World Heritage listing results in some cases in making people surrounding the sites as very poor in a way they were not before. She said that it is necessary to track the flow of benefits from designation. Finally, she suggested that local people should not be put in a box where they cannot change. She stressed that it is necessary to revise what tradition means, that it appears as supporting many of the World Heritage properties, so it is necessary to see how to deal with it and make sure that traditions are recognized.

Dr. Mechtild Rössler commenting in the final discussion, Professor Subroto (left) and Ms. Kristal Buckley (right).

Dr. Wijesuriya added that nobody believes that traditions are static, and everyone agrees that they change and advance. Ms. Brown pointed out that it is important to acknowledge ecosystem services as part of the values in the protected areas, such as ancient irrigation systems protecting water sources, capturing carbon and providing microclimate services and soil stabilization. Also, she noticed the influence of the market affecting the varieties of crops such as rice, and the importance of wild diversity. Dr. Subroto added that most of speakers focused on the problems related to the cultural heritage, and not on the opportunities. He also mentioned that there is a gap in the use of the language between officials, experts and the locals. He stated that time is needed in order to understand the local people, and that it is not easy to see the real value from the perspective of local people. However, he stressed that local values are essential for the maintenance of the cultural landscapes. Dr. Wijesuriya pointed out three cases that reflected the conservation of nature and culture with people at the center: the case of the Hani farmers who are at the center of the management, the terraced landscapes group that are the most vulnerable, and the case of the NGOs, whose role is the most welcomed and which is something

we need to explore further.

Then, Professor Inaba invited people in the audience from other organizations to express their views. An attendee mentioned that landscape is a new concept for the field of development projects. However, she said it is important for communities, and also that it would be important for heritage practitioners to have more positive views toward development activities. Professor Inaba mentioned that landscape is sometimes only understood from a visual perspective but that it should be understood also as a way of life.

Professor Yoshida pointed out that many speakers talked about the involvement of younger generations. He agreed that conservation management needs participation but regarding cultural landscapes, he pointed out that younger generations are encouraged by their parents not to stay in rural areas. He mentioned the experiences of Taiwan and the Philippines in the education of parents and children about traditional knowledge and customs so that people can take pride in their way of life as positive. He added that the World Heritage nomination has given the opportunity for communities to see their traditional customs as an important value for the next generations. Someone in the audience commented that it is a good way to encourage young people to work with communities. He said that it is a good educational experience and it makes a positive impact on youth. He added that it would be important for conservation programs to include international volunteers or educational studies.

Dr. Rössler closed the discussion with some personal remarks about her commitment to protect cultural landscapes. She mentioned that in times of war in South East Europe, one person told her that "we cannot reconstruct a cultural landscape, we can do it differently but we can never get it back". She said that species are being lost, so it is fundamental to raise awareness about agro-biodiversity. Moreover, she stated that volunteers also play an important role. She asserted that listening to local people and using their creativity for conservation is an important task for heritage practitioners. Also in relation to climate change, she mentioned that there are local stories of adaptation. She added that in the process of nomination of cultural landscapes, we need to be careful and to think about how to bring all stakeholders together. She stated that management is very important and that there are different institutional levels and a bottom-up approach is key. She recalled that before, in the guidelines for inscription, local communities were not engaged in order not to give false hope for inscription, but now, this guideline has changed. She said that it is essential to involve the locals. She explained that the beauty of this workshop is that there is a global network, and with all of these case studies, participants can talk to each other and share.

The Workshop

The workshop continued with three modules: the lectures (Module 2), the field visit (Module 3) and the working groups (Module 4). The lectures were given at the University of Tsukuba, Humanities and Social Sciences Building, Seminar Room B218. Students from World Heritage Studies and the Certificate Programme on Nature Conservation could also participate in this part of the workshop.

Lectures

International Context

The first day of lectures (Module 2: Understanding Nature-Culture Linkages in the Context of the Agricultural Landscape Conservation) was composed of three lectures and a roundtable discussion. The first lecture was given by Ms. Kristal Buckley, who talked about the cultural landscape approach, especially in the World Heritage System. She explained the different disciplinary approaches to the concept of landscape and how these influence the understanding and communication of the values of a site. From theory to practice, she said that there is a gap with this interdisciplinary concept that is understood differently not only by different academic disciplines but also by different cultures.

The second lecture was given by Ms. Jessica Brown who explained the IUCN Protected Landscapes approach. She presented the evolution of the use of this concept for protected areas, basically, in the conservation of nature. However, she brought up a point about how the landscape approach brings together a variety of stakeholders, promoting the discussion of governance, and more specifically, "good governance" for protected areas. Furthermore, she referred to the stewardship of indigenous and local communities who bring about the discussions on traditional knowledge and biodiversity conservation, an especially important issue for agricultural landscapes.

The third lecture was given by Dr. Gamini Wijesuriya who introduced participants to the work of ICCROM. Afterwards, he focused on the World Heritage system. He explained the fundamentals of how the system works, what Outstanding Universal Value is and how it is linked to the authenticity and integrity of heritage. Moreover, he explained how the statements of significance should be prepared for a nomination to the World Heritage List. He presented many examples to illustrate the arising management issues.

The discussions in the roundtable dealt with the different understandings of landscapes, where participants realized the need to go beyond their own discipline but at the same time understand how the concepts of landscape and cultural landscape are being used in the context of World Heritage. Moreover, it was clarified that the culture sector and the nature sector manage different concepts and different languages that also contribute to the gap and create difficulties for communication. Furthermore, it was discussed that the language issue also confronts understandings of heritage practitioners, government officials and local communities. The conclusion was that the target is collaboration and synergy among all stakeholders in the heritage sites.

Another important topic discussed was the issue of values, and the confrontation between OUV and local values. It was mentioned that this also relates to the dynamism of landscape and traditional knowledge that are in a constant state of change. It was made clear that landscapes need an approach different from that of the traditional conservation systems of nature and culture.

Ms. Kristal Buckley, Deakin University/ICOMOS lecturing on Cultural Landscapes in the World Heritage

Japanese Experience

The second day of lectures was composed of four lectures focused on the situation of agricultural landscapes in Japan.

The first lecture was given by Professor Inaba who focused on the evolution of the conservation of landscape in Japan from the perspective of the culture sector. She clarified characteristics particular to Japan and also the influences received from European countries in the development of its conservation system. Moreover, she pointed out how elements of nature are also protected under the Law for Cultural Properties, blurring the distinction between the conservation of nature and culture.

Professor Yoshida, in the second lecture, focused on explaining the concept of Satoyama and the protection of agricultural landscapes from the nature perspective. He explained the characteristics of a Satoyama landscape and its importance for its biodiversity and ecosystem balance, as well as its cultural importance. He presented the natural park system in Japan and its evolution, as well as the international influence in its development. Furthermore, he showed community projects that are local initiatives to maintain the Satoyama while educating the younger generations about it.

In the afternoon, Tomoki Homma from the Nara National Institute of Cultural Properties explained the implementation of the protection of cultural landscapes in Japan, and William Dunbar from the UNU-IAS explained the idea and concept of the International Satoyama Initiative.

Local Initiatives

The third day of lectures focused on local initiatives for the conservation of agricultural landscapes and it was composed of three lectures. The first lecture was given by Dr. Wijesuriya who talked about traditional knowledge systems, focusing mostly on the Asian region. He made it clear that much more work needs to be done in order to collect and identify traditional practices that may be useful for the conservation of landscapes and sites in general, but also that it is important to be aware that not all traditions are necessarily positive or useful and therefore there is a need to develop a critical approach.

The second lecture by Dr. Yoshihiko Iida from UNU-IAS/OUIK dealt with the sites visited in the Noto Peninsula designated as GIAHS area and the Sho River historical villages that hold World Heritage status, and belonging to the buffer zone of the Hakusan Biosphere Reserve. He presented the values of the sites and clarified the different roles and objectives of the GIAHS program and the Biosphere Reserve program and how these are being implemented in these regions.

Later, Ms. Brown presented case studies of community-based governance and the processes and results from the COMPACT project. She explained how in this project, World Heritage sites were taken as learning laboratories and the conceptual model was biocentric. She stated that the main audience attendees at the workshops were site managers, working with the idea of supporting community-based stewardship of landscapes and seascapes in diverse regions of America, Africa and Asia.

Ideas for engaging communities were taken from participants such as the use of the internet, the use of schools as repositories of traditional knowledge, the exploration of the economic value and branding of products of protected areas, and the combination of scientific and traditional knowledge in order to advance societies.

Finally Professor Yoshida introduced the participants to the sites of the field visit and explained the logistics of the trip.

The Field Visit

The field visit (Module 3: Management, Implementation and Governance in Agricultural Landscapes) was the field trip to the Historical Villages of Shirakawa-go and Gokayama, World Heritage property since 1995; Shiroyone Senmaida, Place of Scenic Beauty since 2001 in Wajima City, Noto Peninsula; Maruyama Gumi, a project focused on biocultural diversity conservation and Shunran no Sato, a Green Tourism project, both in Oku Noto. The last three case studies are located in the area designated as GIAHS in 2011. The objectives of the field visit were to experience the situation of agricultural landscapes in Japan, to meet the local population living in the heritage sites, and to meet local professionals and managers in charge of their protection and conservation.

Participants visited the World Heritage property "Historical villages of Shirakawa-go and Gokayama", that consists of three main villages, of which the group visited two: Ogimachi village and Ainokura village. Ogimachi village was visited first, and participants could discuss and learn from Mr. Matsumoto, in charge of cultural properties in the Shirakawa village office. This village can be described as a Satoyama landscape, and the linkages between nature and culture are shown in various aspects such as the architecture of the Gassho style, with a distinctive roof form which developed in response to heavy snowfall and to the need for sericulture production space (a traditional industry of this area), constructed of materials used to be taken from the surrounding forests (co-managed between community and private owners). The buildings and the agricultural fields are protected and no new constructions can be erected, but some buildings without protection can be modified. It was explained that now people are mainly living mainly from tourism (B&B and handicrafts). Participants learned that one important aspect of the community management of the village is the Yui, the mutual cooperation system that functions for thatching the roofs that is the basis for other social activities of the community.

Group photo at Ogimachi village

In Gokayama, in the village of Ainokura, participants experience the Autumn festival in a Shinto shrine, while a municipal officer in charge of cultural and natural heritage explained them the tradition, designated as Intangible Cultural Heritage in Japan. Later they met with local leaders in the Sonenji Temple: Mr. Ikehata, Mr. Hiroshi Yamazaki and Mr. Nakatani. They all form part of the "Ainokura Preservation Fund". Participants could ask them questions regarding the process of nomination of the site as World Heritage and the impacts after inscription. The fund is complementary to the resources given by the government. It was clarified that currently the population of Ainokura continue agriculture for self-subsistence, but have diversified their activities with tourism and other professions in companies or schools. Also, they explained the relationship with the surrounding forests that is protected because they function as "snow holding woods" to prevent damages in the settlement, and for taking thatching materials and vegetables.

Moreover, they pointed out that there is an increase of tourism since the World Heritage designation, but even World Heritage sites cannot resist the trends of the society and Japanese population is declining, so from the 24 houses that were there at the designation, only 16 remain.

Another issue is that younger generations leave because houses cannot be altered and ways of living are changing and three generations cannot share a house. Nevertheless, living in rural areas is becoming popular, and the access has improved. They continue the Yui, like in Ogimachi village. Finally, they recommended to think first about preservation, and second about tourism, since tourism is only possible because places are preserved.

The next day, participants visited the village, guided by Professor Inaba and Professor Yoshida.

Participants Yuxin Li from Hani Terraces, China and Marlon Martin from Ifugao Terraces, Philippines, harvesting rice at Shiroyone Senmaida, Noto Peninsula

As an introduction to the GIAHS designation of the Noto Peninsula, participants visited one site and two projects, where they could observe and discuss issues with local managers.

In Shiroyone Senmaida in Wajima city, participants worked as volunteers in the harvesting of the rice terraces, an event organized by the Terrace Conservation Executive Committee of Wajima City. They could experience the tough work of the fields and they realized the difficulties of maintaining this landscape in the context of depopulation of the rural areas. They learned about the work of the volunteers group "Aikoukai", that works together with the Shiroyone Senmaida Landscape Conservation Council, and are responsible for the sponsorship system that

supports the maintenance of the terraces by funding the rice production through memberships.

They visited the Hagino Family, which is responsible for the project Maruyama-Gumi (Maruyama Team) in Oku Noto. Ms. Hagino, who followed the Noto "Satoyama Meister Training Program" at the University of Kanazawa, started monitoring biodiversity in a small village of the region, called Mii. They have invited people of different ages and backgrounds in order to understand the changes in the landscape by relating local knowledge and scientific knowledge. Members of the Team share with villagers and learn the variety of species that are also related to cultural expressions such as the "Aenokoto" festival, or to food preparation in general. Participants listened to presentations from the members of the Maruyama Team, and among them, Professor Ito of Kanazawa University who talked about the biodiversity in the area.

Lecture from the Maruyama Gumi project at Hagino House

In Shunran no Sato, participants stayed in traditional houses and learned about the Green Tourism project to revitalize the depopulated rural villages of the area. The manager, Mr. Tada, explained that in order to attract young people to repopulate the area, cash income is needed, and for this, they have made calculations for receiving visitors during the weekends and have been able to achieve a decent monthly income for the families. He pointed out that revitalizing agriculture is different than revitalizing an agricultural village. For the village, people are needed and that is why they also need visitors. He explained in detail their struggles for the survival of their rural villages and de-idealized the Satoyama landscape. He stressed that there is much work to be done, and that even though the government is supporting them with different funding sources, the main challenge is to find ways to involve young people in these endeavors.

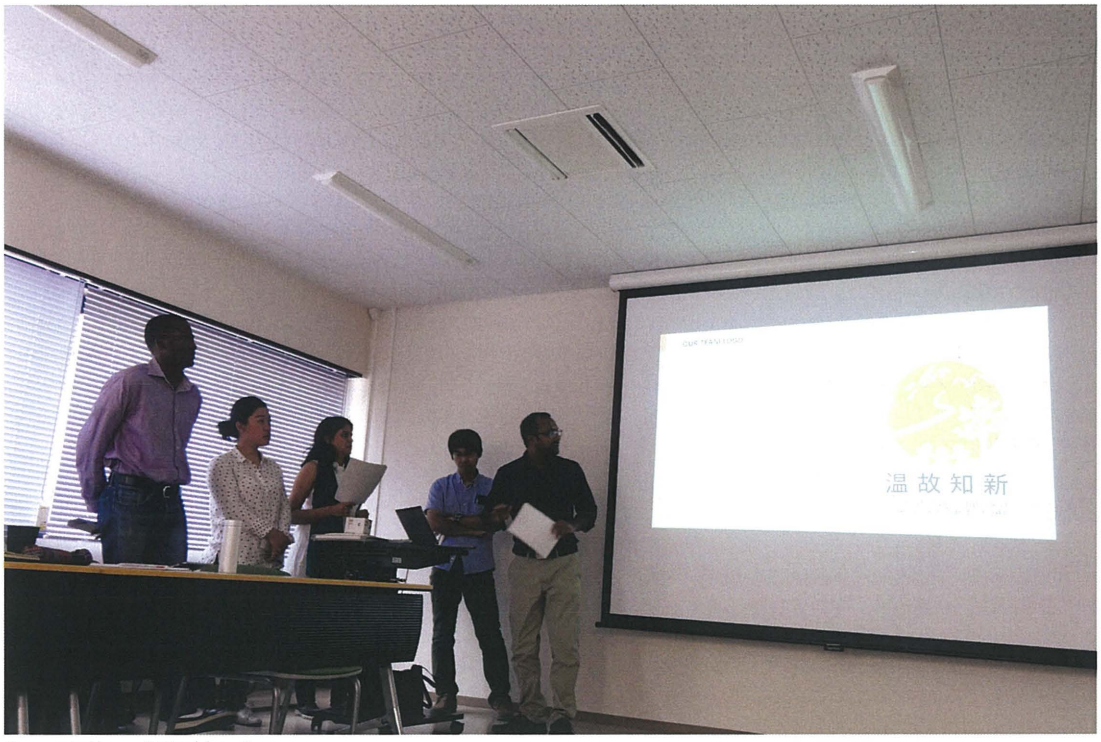
The Working Groups

Participants were assigned a task before leaving for the field visit, which consisted of forming groups of four to five people to create a hybrid (culture-nature) heritage consultancy firm that specializes in providing strategies for heritage conservation and management of large landscapes which contain both natural and cultural values, including agricultural landscapes.

Their assignment was:

1. To undertake four field visits guided by the organizers of the workshop which would include stakeholder meetings, managerial and technical discussions.
2. The development of a draft statement of significance that incorporates nature-culture interlinkages taking into account the variety of heritage present, and the multiplicity of values.
3. Based on the above, develop 5 recommendations for the improved management of nature-culture interlinkages in the respective sites (currently being managed separately) taking into account the current local management contexts.

The final reports were delivered as 20 minutes presentations followed by discussions with other groups and resource persons of the workshop.



Presentation of Working Groups

The groups' composition, the resulting statements of significance and the recommendations for the sites assigned are reported in the following pages.

Members:

- Yaw Osei-Owusu - Ghana
- Nuwan Abhayawardana - Sri Lanka
- Cheng Hua Sun - Taiwan
- Manami Watanabe - Japan
- Daisuke Funaki - Japan

Historical villages of Shirakawa-go and Gokayama

Statement of Significance

Despite the vulnerability to harsh environmental conditions including heavy snowfalls and difficult morphological conditions and developmental pressures such as construction of hydro-electric power dams that led to loss of many Gassho style settlements, the inhabitants of Shirakawa-go and Gokayama have upheld the harmonious lifestyle, maintaining a sustainable resource use pattern which links nature and culture, leading to the preservation of the Satoyama landscape. The sites were noted for ascetic religious practice devoted to Mt. Hakusan, which combined ancient, pre-Buddhist belief with esoteric Buddhism.

The Gassho-style buildings, unique to the area, were developed for accommodating silk production, gunpowder production, and Japanese paper making, which were all essential for the livelihoods of people in the remote mountain settlements. The traditional structures laid out in a Satoyama landscape demonstrate centuries of the history of people's efforts to survive.

Utilization of natural resources for construction materials, the unique fire prevention measures, sophisticated traditional maintenance protocols and forest management, and the social cohesion represented by Yu-i, the mutual cooperation system largely account for the maintenance of the physical and natural environments making the landscape significant.

While the landscape is inscribed as national heritage and as a World Heritage site, the management process is the joint responsibility of the government agencies and the local communities. Although rice cultivation is an important activity mainly to provide food for households, tourism is the major economic activity which is crucial for sustained protection of the Satoyama landscape, and respecting traditional practices, and spiritual wisdom. "Gassho-zukuri" villages are a perfect example of the sustainable nature-culture linkages and the people-centered management approach for the heritage. However, there is a need to adapt to emerging issues or current realities to ensure the continued preservation of values and the well-being of the community.

Recommendations

+ To provide support services and infrastructure to attract more people, especially the young people, to live within the landscape.
+ To identify and train young generations from the villages in providing services to visitors including international visitors, to create more livelihood opportunities.
+ To establish coordinating body to integrate local community associations, and other stakeholders including culture and nature authorities (e.g. the forestry authority) in decision-making processes.
+ To adopt an adaptive and flexible management system that takes on board the needs and aspirations of all stakeholders.
+ To promote private sector participation in the management of the heritage sites including the branding of agricultural commodities.

Members:

- Katie Chick - Hong Kong
- Marlon Martin - Philippines
- Lameru Kacaw - Taiwan
- Nina Pollock - Australia
- Yuki Iizumi - Japan

Shiroyone Senmaida

Statement of Significance

The rice terraces of Shiroyone Senmaida, in the Noto Peninsula, represent an outstanding example of complex human modification of the landscape within a unique natural context. Regarded as the "thousand rice terraces", the terraces comprise an impressive 3.8 hectares formation of over a thousand rice paddies set into the steep, rocky terrain along the foreshore of the Sea of Japan.

The irregular terrace plots of Shiroyone Senmaida are wisely interlinked by a plot-to-plot irrigation system, and their striking appearance as a collection of steep terraces along the coast reflects its historical use for both rice and salt production. The history of human interaction at Shiroyone Senmaida has both shaped, and been shaped by its natural environment, and the site provides a unique prototype of the successful coexistence between humans and nature.

The warm and cold ocean currents around the Noto peninsula provide a rich environment for terrestrial and marine biodiversity, and the rice fields provide habitats for many small water plants, including endangered species Asian marshweed (Limnophila sessiliflora) and duck lettuce (Ottelia alismoides), as well as rare amphibians such as the Hokuriku salamander (Hynobius takedai), Japanese firebellied newt (Cynops pyrrhogaster), and forest green tree frog (Rhacophorus arboreus).

The agricultural system of Shiroyone Senmaida is connected to both the forest and the sea. This process, as well as its rich biodiversity, is reliant on and integrally linked to the surrounding mountains and forest activities, as well as coastal marine activities. It provides a microcosm of a traditional rural Japanese Satoyama and Satoumi landscape.

Shiroyone's people utilized forests, salt fields and rice paddies according to the needs of the times, and the distinctive evolution of the socio-cultural and natural environment created a body of local knowledge in soil conservation, hydraulics, crop science, and forestry combined with the deep understanding of the seascape, that has shaped the landscape into what it is today. The terraces provide a physical demonstration of how several generations have successfully adapted to and modified their landscape to meet the demands of the times, while maintaining a sustainable balance between human activities and the natural environment.

The recognition of the Shiroyone Senmaida as a Special Place of Scenic Beauty may only emphasize its aesthetic features; however, traditional knowledge, community values and historic events present a vast amount of knowledge worth passing down to the new generations. Traditional customs and festival based on indigenous Shinto and Buddhist traditions such as planting and harvesting festivals, and Oku-noto Aenokoto, an agricultural ritual unique to the Noto region, continue the knowledge of traditional agricultural practices and way of life for the Noto people, and successfully educate and promote awareness of these traditional practices to the broader community.

Recommendations

+ To allocate a percentage of the parking fees and merchandise sales towards conservation. Donations are welcome.
+ To introduce eco-farming courses as paid activities to promote knowledge of Satoyama practice

etc. Include traditional agricultural practices, Satoyama and "Aenokoto" in the educational curriculum.
+ To prepare a long-term tourism management strategy, including development controls to ensure that new tourism facilities do not exceed the carrying capacity of the site.
+ To invite the younger generation to the village to run homestays and farming or eco-agricultural educational activities. Ishikawa-wide, or nation-wide online request for expressions of interest in moving into empty houses to install local crafts stores and traditional farming practice mix (forestry, paddy farming, salt making and fisheries).
+ To establish government support for new cultural and creative industries in the region to attract young people.
+ To create a membership system to provide direct financial sponsorship of new farmers – a direct link between these farmers and sponsoring members.
+ To redefine a contemporary concept of "community" for the terraces. Update heritage designation to include community/collaborative values and broader site description – ensure management of community values and conservation of the full extent of the terrace (above the roadway).
+ To reconsider how land ownership structure can be more inclusive of the community.

Group C: 温故知新/ Looking into the Past for a Better Future

Members:

- Yuxin Li - China
- Kawshik Saha - Bangladesh
- Shweta Wagh - India
- Ryohei Shoji - Japan
- Shaka Francis - Antigua & Barbuda

Maruyama Gumi

Statement of Significance

The Maruyama landscape is an agro-ecological landscape located in the Noto Peninsula which has been sustained by the values and practices of the local community. It is characterized by woodland, grassland, paddy fields, farmland, irrigation ponds and canals, and human settlements, which have been maintained in an integrated manner and which comprise of a mosaic of diverse land uses and habitats which have been shaped and managed by people over time. The Maruyama Gumi initiative is an excellent illustration of nature-culture linkages in landscape conservation, of how nature has affected the daily life, culture and spirit of the local people, and how it in turn has been sustained through their continuing practices and beliefs. It is an excellent example of how cultural practices of natural farming and foraging for natural resources, local food cultures and traditional recipes, local crafts and building practices, ceremonies and rituals as well as intangible values and associations of communities with the landscape play an important role in the conservation of the bio-cultural diversity of a region. In this case, landscape can be better understood as a dynamic process which is based on an understanding of traditional practices but which continues to survive through present-day actions and deeds, aimed towards using and passing on nature's gifts and values to future generations. It is a confluence of different ideas and experiences and an attempt to form a bridge between traditional wisdom and modern practice, between local experience and scientific knowledge, between cultural practice and biodiversity conservation. Maruyama Gumi is thus an outstanding illustration or physical manifestation of the concept of the Satoyama, and an ongoing effort to transmit the beauty and biodiversity and the values embedded in the Satoyama to the next generation through a continuing process of sharing, taking action and learning.

Recommendations

1. Link scientific and traditional knowledge
+ Long-term and formal educational program support
+ Comprehensive research, understanding and monitoring
+ Capture traditional knowledge by community involvement
+ Encourage community awareness in heritage conservation
+ Propose biodiversity conservation through species management plan

2. Maximize returns for sustainable development
+ Encourage migration to rural areas
+ Improve farming efficiency through diversification of agriculture and improved technology
+ Community-based farming of common lands

3. Stimulate community's revitalization
+ Identify alternative source of income
+ Agro-tourism, sustainable organic farming and agro-based industry
+ Activities, such as nature trails, foraging for forest foods, community cooking, etc.
+ Amenities, such as multi-functional community center, library, school, etc.

4. Community-based governance
+ National and local protection policies, OECM Conservation Mechanism
+ Improve networking between *Satoyama* management agencies
+ Legal protection through designation as Community Conserved Area
+ Communication with other community sites

Group D: Shunran Experience Corporation Ltd.

Members:

- Persis Farooqy - India
- Funda Solmaz - Turkey
- Fransiska Dian - Indonesia
- Cesar Velandia - Colombia

Site/Project: Shunran no Sato

Statement of Significance

Shunran no Sato, an initiative in the form of a collective cooperation of elderly locals residing in Noto, Ishikawa prefecture, is an excellent example of organized and developed social structure, with deep appropriation of Satoyama and Satoumi practice. Their daily lifestyle is dependent on natural resources found in the area. Use of forest edible vegetables (mushrooms and medicinal) fruits like berries, akebi, and local marine products are part of their everyday diet. The site is surrounded by a rich biodiversity that they maintain with the sustainable management of ecosystem services through their adaptation to diverse climatic conditions. This local wisdom organization shows a close relationship between human culture and nature and a rich manifestation of intangible cultural heritage expressed in lacquer ware, songs, "kiriko" rice harvest celebrations, traditional food, the architecture and the use of space for living, prayer and burial.

Recommendations

Our strategy finds relevance in providing a redirection of the Shunran no Sato initiative, to bring them a true concept of 'Green Tourism'. The aspects for the conservation of the site should emphasize the sustainability of tourism. Sustainability should be achieved not only by using accommodation facilities but also by focusing on nature itself.

Green Tourism can be considered along with the notions of "Agro-tourism/Bio-tourism/Eco-tourism". Activities related to these tourism types should be adequate for the carrying capacity of the place and should consider the effects of climate-change.

Shunran no Sato has a huge potential based on its social values, led by the community's strengths and opportunities. This encourages them to find a continuing process through which a real green development can be achieved in harmony with their cultural and natural features.

Based upon their social network, it can be feasible for them to handle and to face the challenges of the present and the future and to guarantee the conservation of the Satoyama landscape and its implications related to appropriation, tourism management, material and immaterial manifestations, economical benefits and environmental sustainability.

Final Reflections

From the symposium, we could conclude that cultural landscapes are a key for understanding the nature-culture linkages and the evolution of the World Heritage Convention. Even if the document cannot be modifed, there are possibilities and opportunities to adapt it and make it more inclusive and contemporary through the Operational Guidelines and the implementation of programs. Much progress has been achieved, but there is still work to do in regards to the nature-culture divide and the processes of nomination and evaluation. Agricultural landscapes are good examples to explore these challenges.

In terms of the nature-culture linkages, more synergies need to be worked out at the national level in governments agencies, but because it is difficult to influence these structures, heritage practitioners must act at local levels.

Improvements towards a more inclusive and contemporary World Heritage System are being accomplished gradually, and it is in the hands of young professionals to continue these endeavors. Capacity building is therefore fundamental.

An important issue that every speaker agreed on is that the OUV of a World Heritage site must be based on local values, otherwise, the conservation cannot be sustainable.

Finally, disciplinary and cultural language differences need to be understood and overcome in order to approach nature and culture sectors and their practitioners.

In terms of agricultural landscapes, it was evident that heritage sites face common problems and challenges in the different case studies presented by the participants of the workshop. Some of these are:

- Infrastructure development eroding heritage sites' surroundings and menacing the sites themselves
- Complex communication between heritage practitioners, government officials and local communities
- Language barrier between officials, practitioners and local communities
- Sustainable transmission and continuity of the traditional and local practices related to agriculture
- Loss of traditional knowledge
- Loss of biodiversity

During the workshop sessions, field trip and discussions, some strategies were proposed and explored for solving these issues:

- Programs for the involvement of younger generations in the maintenance of agricultural landscapes
- Expansion of the concept of community to wider audiences (visitors, neighbor villages, related urban areas)
- Clear definition of conceptual frameworks
- Governance and not only management
- Promotion of fluid communication between officials and locals

The cases brought by participants and the cases experienced in Japan clarified that agricultural landscapes need a People-Centered Approach (PCA), since an agricultural landscape cannot continue without the people that work it and shape it by living. Any other idea of conservation could not be effective. This can be complemented by the bio-cultural approach by helping identifying the linkages between cultural and natural cycles in the agricultural practices (festivities,

beliefs, rituals, communal organization, etc). Biodiversity is instrumental for the resilience of communities and their landscapes. Moreover, community-based governance empowers identity and community cohesion.

Finally, the sustainability of agricultural landscapes will depend on the continuity of the practices that shaped them, but it is necessary to understand that landscapes are dynamic and the focus should be put in understanding change, adaptation and resilience.

Group photo of participants after they received their Certificate of Completion of the Workshop.

Annexes

Annex 1: List of Participants*

International participants

· **Abhayawardana, Nuwan** (Culture), Lecturer, Rajarata University, Sri Lanka
· **Chick, Hiu Lai** (Culture/Nature), Project Manager, Kadoorie Institute, University of Hong Kong, China
· **Dian Ekarini, Fransiska** (Culture), Staff, Borobudur Conservation Office, Indonesia
· **Farooqy, Persis** (Nature), World Heritage Assistant, Wildlife Institute of India, India
· **Kacaw, Lameru** (Culture), Executive Secretary, Fengnan Community Development Association, Taiwan
· **Li, Yuxin** (Culture), Assistant, Honghe Hani Terraces, China
· **Martin, Marlon** (Culture), Chief Operating Officer, Save the Ifugao Terraces Movement (SITMo), Philippines
· **Osei-Owusu, Yaw** (Nature), Country Director, Conservation Alliance International, Ghana
· **Pollock, Nina** (Culture), Heritage Assets Officer, Heritage Division, New South Wales Office of Environment and Heritage, Australia
· **Saha, Kawshik** (Culture/Nature), Assistant Professor, University of Science & Technology, Bangladesh
· **Solmaz, Funda** (Culture), Research Assistant, Istanbul Technical University, Turkey
· **Sun, Cheng Hua** (Nature), Assistant Researcher, Hualien District Agricultural Research and Extension Council of Agriculture, Taiwan
· **Velandia, César** (Culture), Professor, Technological University of Bolivar, Colombia
· **Wagh, Shweta** (Culture/Nature), Assistant Professor, Kamla Raheja Vidyanidhi, Institute of Architecture, India

Nature Sector: 3 (21.5%) - Culture Sector: 8 (57%) - Culture/Nature: 3 (21.5%)
Total: 14 (100%)

Students from the University of Tsukuba

· **Funaki, Daisuke** (Nature), master student, World Heritage Studies, Japan
· **Francis, Shaka Kaloma** (Nature), doctoral student, Life and Environmental Sciences, Antigua & Barbuda
· **Iizumi, Yuki** (Nature), master student, Life and Environmental Sciences, Japan
· **Shoji, Ryohei** (Culture), doctoral student, World Heritage Studies, Japan
· **Watanabe, Manami** (Culture/Nature), doctoral student, World Heritage Studies, Japan

Nature Sector: 3 (60%) - Culture Sector: 1 (20%) - Nature/Culture: 1 (20%)
Total: 5 (100%)

* By alphabetical order

Guest speakers and resource persons

- **Asano, Tomoya,** Wajima City
- **Badman, Tim,** Director IUCN World Heritage Programme
- **Brown, Jessica,** Executive Director New England Bolas Foundation/IUCN WCPA
- **Buckley, Kristal,** Lecturer Deakin University/ICOMOS
- **Dunbar, William,** Communications Coordinator UNU-IAS
- **Hagino, Kiichiro,** Project Leader Maruyama Gumi
- **Hagino, Yuki,** Project Leader Maruyama Gumi
- **Homma, Tomoki,** Fellow Researcher Nara National Research Institute of Cultural Properties
- **Iida, Yoshihiko,** Associate Researcher UNU-IAS/OUIK
- **Ito, Koji,** Assistant Professor Kanazawa University
- **Konoo, Harukaza,** Nanto City
- **Matsumoto, Keita,** Cultural Properties, Shirakawa village
- **Rössler, Mechtild,** Director of the UNESCO World Heritage Centre and the Division for Heritage
- **Subroto,Yoyok,** Professor at Gadjah Mada University
- **Tada, Kiichiro,** Manager Shunran no Sato
- **Weise, Kai,** World Heritage Advisor/ICOMOS Nepal
- **Wijesuriya, Gamini,** Project Manager, Sites Unit ICCROM
- **Yamauchi, Namiko,** Keisen Jogakuen University

Organizing Team

- **Inaba, Nobuko,** Professor World Heritage Studies and Certificate Programme on Nature Conservation, CBWNCL Programme co-Director
- **Ishizawa, Maya,** Researcher World Heritage Studies and Certificate Programme on Nature Conservation, CBWNCL Programme Coordinator
- **Yoshida, Masahito,** Chair World Heritage Studies and Certificate Programme on Nature Conservation, CBWNCL Programme co-Director

Annex 2: Program of the CBWNCL 2016

MODULE 1: SYMPOSIUM ON NATURE-CULTURE LINKAGES IN HERITAGE CONSERVATION IN ASIA AND THE PACIFIC AGRICULTURAL LANDSCAPES Venue: Tsukuba International Congress Center	
Sunday, 18 September	
9:30-10.00	Open registration desk and doors
10:00-10:05	Opening address by Prof. Kyosuke Nagata, President, University of Tsukuba, Japan
10:05-10:10	Opening address by Mr. Takamasa Saito, Councillor for Cultural Properties, Agency for Cultural Affairs, Japan
10:10-10:20	Opening and presentation of the "Capacity Building Workshops on Nature-Culture Linkages in Heritage Conservation in Asia and the Pacific Region" by Prof. Masahito Yoshida, Chair World Heritage Studies, University of Tsukuba Prof. Nobuko Inaba, World Heritage Studies, University of Tsukuba Dr. Maya Ishizawa, World Heritage Studies, University of Tsukuba
PANEL 1: International development Chair/Discussant: Nobuko Inaba	
10:20-10:45	Nature-Culture Linkages in the World Heritage Convention by Dr. Mechtild Rössler, Director UNESCO World Heritage Centre
10:45-11:10	Connecting Practice, linking Culture and Nature by Mr. Tim Badman, Director IUCN World Heritage Programme
11:10-11:20	**Panel 1 Discussion**
11:20-11:30	Break
PANEL 2: Theoretical development Chair/Discussant: Masahito Yoshida	
11:30-11:55	People-centered approaches to Conservation of Nature and Culture by Dr. Gamini Wijesuriya, Project Manager ICCROM
11:55-12:20	Applying biocultural concepts to practices for natural and cultural heritage by Ms. Kristal Buckley, Deakin University, ICOMOS Australia
12:20-12:30	**Panel 2 Discussion**
12:30-13:30	Lunch break
PANEL 3: Local development Chair/Discussant: Maya Ishizawa	
13:30-13:55	Stewardship of protected landscapes by communities: Diverse landscapes, diverse governance models by Ms. Jessica Brown, Executive Director New England Biolabs Foundation/IUCN WCPA
13:55-14:20	The Subak System: The Indigenous Symbiotic Harmony of Culture, Human and Nature in Bali, Indonesia by Prof. Yoyok Subroto, Gadjah Mada University, Indonesia
14:20-14:30	**Panel 3 Discussion**
14:30-14:50	Break
14:50-17:00	**General Panel Discussion** Chair: Nobuko Inaba, Masahito Yoshida, Maya Ishizawa "Trends and challenges in the conservation of Agricultural Landscapes following the Nature-Culture Approach"

	Monday, 19 September
9:30-9:40	Introduction to the presentations of participants of the First Capacity Building Workshop
	Panel 1: TERRACES Discussant: Gamini Wijesuriya
9:40-9:55	The Rice Terraces of Ifugao Province, by Marlon Martin, Philippines
9:55-10:10	Thinking of Traditional Rice Culture Conservation in Management Practice of Hani Terraces, by Yuxin Li, China
10:10-10:25	Promotion of East Taiwan Organic Agriculture, by Cheng Hua Sun, Taiwan
10:25-10:40	The significance, conservation potential and management challenges of traditional farming terrace landscape in Asian metropolis: a case study of Lai Chi Wo, Hong Kong, China, by Hiu Lai Chick, China
10:40-11:00	**Panel 1 Discussion**
11:00-11:10	Break
	Panel 2: AGRICULTURAL SURROUNDINGS Discussant: Kristal Buckley
11:10-11:25	The Landscape of Borobudur Temple Compound and its Environment, by Fransiska Dian, Indonesia
11:25-11:40	Nature and Culture Interlinkages in Göreme National Park, by Funda Solmaz, Turkey
11:40-11:55	Tanks as an ancient measurement for the nature-culture interlinkages in ancient agricultural landscapes: A Case Study on Anuradhapura dry zone hydraulic landscape, by Nuwan Abhayawardana, Sri Lanka
11:55-12:15	**Panel 2 Discussion**
12:15-13:15	Lunch Break
	Panel 3: INDIGENOUS AND TRADITIONAL LANDSCAPES Discussant: Yoyok Subroto
13:15-13:30	Apatani Cultural Landscape, by Persis Farooqy, India
13:30-13:45	Foundations for the reconstruction of coffee Cultural Landscape of Colombia, CCLC, by César Velandia, Colombia
13:45-14:00	Working with Indigenous Knowledge and Resilience: A Case Study of Agricultural Landscape Conservation in Taiwan Indigenous Tribe, by Lameru Kacaw, Taiwan
14:00-14:15	The Kanchendzonga Sacred Landscape, by Shweta Wagh, India
14:15-14:35	**Panel 3 Discussion**
14:35-14:45	Break
	Panel 4: NATURE AND AGRICULTURE Discussant: Jessica Brown
14:45-15:00	Heritage of the Sundarban: Connecting Nature to Culture, by Kawshik Saha, Bangladesh
15:00-15:15	The interplay between culture and nature in the protection of the Kakum and Bia natural heritage in Ghana, by Yaw Osei-Owusu, Ghana
15:15-15:30	Lord How Island, New South Wales, Australia, by Nina Pollock, Australia
15:30-15:50	**Panel 4 Discussion**
15:50-17:00	**General Discussion and Closing Remarks** Chair: Nobuko Inaba

MODULE 2: UNDERSTANDING NATURE-CULTURE LINKAGES IN THE CONTEXT OF THE AGRICULTURAL LANDSCAPE CONSERVATION **Venue: Humanities and Social Sciences Building Seminar Room B218, University of Tsukuba, Tsukuba**	
Tuesday, 20 September **THEME: INTERNATIONAL CONTEXT**	
10:00-10:30	**The cultural landscape approach in the World Heritage Convention** Lecturer: Kristal Buckley, Deakin University/ICOMOS
10:30-13:00	**Management of cultural and natural values in Cultural and Natural Heritage Sites of the World Heritage List** Lecturer: Gamini Wijesuriya, ICCROM
13:00-14:00	Lunch Break
14:00-15:30	**IUCN Protected Landscapes** Lecturer: Jessica Brown, New England Biolabs Foundation/IUCN WCPA
15:30-17:00	**Roundtable**
Wednesday, 21 September **THEME: JAPANESE EXPERIENCE**	
10:00-10:30	**Landscape conservation in Japan** Lecturer: Nobuko Inaba, University of Tsukuba
10:30-13:00	**Satoyama landscape and its protection in Japan** Lecturer: Masahito Yoshida, University of Tsukuba
13:00-14:00	Lunch Break
14:00-15:30	**Managing the conservation of agricultural landscapes in Japan Part 1 (Culture)** Lecturer: Tomoki Homma, Nara National Research Institute of Cultural Properties
15:30-17:00	**Managing the conservation of agricultural landscapes in Japan Part 2 (Nature)** Lecturer: William Dunbar, UNU-IA
Thursday, 22 September **THEME: LOCAL INITIATIVES**	
10:00-11:30	**Traditional Knowledge Systems** Lecturer: Gamini Wijesuriya, ICCROM
11:30-13:00	**Satoyama and Satoumi in Noto Peninsula** Lecturer: Yoshihiko Iida, UNU-OUIK
13:00-14:00	Lunch Break
14:00-15:30	**Community-based conservation: Examples of the world** Lecturer: Jessica Brown, New England Biolabs Foundation/IUCN WCPA
15:30-17:00	**Introduction to the field trip** Lecturers: Nobuko Inaba, Yoshida Masahito, Maya Ishizawa, University of Tsukuba
MODULE 3: MANAGEMENT, IMPLEMENTATION AND GOVERNANCE IN AGRICULTURAL LANDSCAPES **Venue: Ainokura Village, Gokayama, Toyama Prefecture**	
Friday, 23 September	
9:00	Departure from Tsukuba Station
13:00	Arrival to Ainokura Village, Gokayama, Toyama Prefecture
13:00-14:00	Lunch
14:00-17:00	Site Visit
	Meeting local communities Part 1: World Heritage designation - the case of the community of Ainokura in Gokayama Facilitator: Nobuko Inaba, University of Tsukuba
	Overnight in Ainokura village

	Venue: Ogimachi village, Shirakawa-go, Gifu Prefecture
	Saturday, 24 September
9:00	Departure from Ainokura village
9:30	Arrival to Ogimachi Village, Gifu Prefecture
9:30-13:00	Site Visit
	Meeting local communities Part 2: World Heritage designation - the case of the community of Ogimachi in Shirakawa-go Facilitator: Nobuko Inaba, University of Tsukuba
13:00-14:00	Lunch
14:00	Departure to Noto Peninsula
17:00	Arrival to Shunran no Sato
18:00	Dinner at Tada-san's house
	Overnight in Shunran no Sato
	Venue: Various
	Sunday, 25 September
8:00	Departure from Shunran no Sato
9:00	Arrival to Shiroyone Senmaida, Wajima City
9:00-12:00	Rice harvest with local community **Meeting local professionals and managers Part 1** Mr. Tomoya Asano, Wajima City
12:00-13:00	Lunch
13:00	Departure from Shiroyone Senmaida to Maruyama
13:00-15:00	**Meeting local professionals and managers Part 2** Ms. Yuki Hagino, Maruyama-Gumi Koji Ito, Assistant Professor Kanazawa University Mr. Hiroshi Arai, Organic Farmer Ms. Natsumi Motoguchi, Organic Farmer
15:00-15:30	Tea and local snacks with Maruyama-Gumi
15:30-17:30	**Monitoring biodiversity in agricultural landscapes** Lecturers: Ms. Yuki Hagino and Mr. Koji Ito
17:30	Departure to Shunran no Sato
	Overnight in Shunran no Sato
	Venue: Kobushi House, Shunran no Sato, Noto Peninsula
	Monday, 26 September
9:00-12:00	**Meeting local local professionals and managers Part 3: Green Tourism** Mr. Kiichiro Tada, Shunran no Sato
12:00-13:00	Lunch at Kobushi House
13:00-17:00	Discussions Evaluation of Field trip Formation of working groups
	Overnight in Shunran no Sato
	Tuesday, 27 September
9:00	Departure to Tsukuba
	Free afternoon
	Wednesday, 28 September
	Free day

MODULE 4: REFLECTION ON THEORY AND PRACTICE Venue: Humanities and Social Sciences Building Seminar Room B218, University of Tsukuba, Tsukuba	
Thursday, 29 September	
10:00-13:00	Working groups
13:00-14:00	Lunch break
14:00-17:00	Working groups
Friday, 30 September	
9:00-13:00	Presentation of working groups
13:00-14:00	Lunch break
14:00-15:30	Roundtable
15:30-17:00	Final discussions, wrap-up and closing remarks
18:00-20:00	Farewell

United Nations
Educational, Scientific and
Cultural Organization

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University of Tsukuba, Japan

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