

Chapter 21

Cultural Landscape Preservation and Ecotourism Development in Blambangan Biosphere Reserve, East Java

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Abstract Cultural landscapes in the Blambangan Biosphere Reserve, East Java, represent important resources for sustainable development. The reserve has rich bio-cultural resources, including wildlife, flora, landscapes, and human ethnicity and traditions. For years, tourism has been implemented in the core areas of the reserve, namely Alas Purwo National Park, Baluran National Park, Meru Betiri National Park, and the Ijen crater (Ijen Nature Reserve). So far, tourism has not been encouraged in the cultural landscape areas, but there is strong evidence that tourist interest in visiting these sites will increase significantly. Within the biosphere reserve, paddy terraces, agroforestry farming systems, and local settlements comprise the cultural landscapes with potential for development as tourist attractions within a model of local sustainable development; however, plans to exploit these opportunities should be guided by proper management to ensure the sustainability of the cultural landscapes. Plans to meet tourist needs often involve tourism product availability. The effectiveness of the management of cultural landscapes as a tourism destination is related to the availability of comprehensive environmental management planning documents. For tourism product construction and development to be attractive, scientific information on local knowledge, biodiversity level, and physical characteristic of cultural landscapes are essential.

1 Introduction

Cultural landscape is home and habitat for millions of people. Throughout the Indonesia archipelago, cultural landscapes provide valuable social, economic, and environmental resources; however, in many areas and for many complex reasons, they are at high risk of degradation. With increased development and unsustainable

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usage of natural resources, cultural landscape disturbances have arisen, indicating the urgent need for a proper and creative approach to managing them (Whitten et al. 1996; Hakim 2011; Nagaoka 2016).

Attention to cultural landscape conservation is growing rapidly; it is, therefore, important to identify and assess the value of these types of natural-cultural resources, especially in the context of tourism (Farina 2000; Agnoletti 2006; Aplin 2007). Involving cultural resources in tourism requires the comprehensive assessment of the physical, spiritual, and cultural value of the object; assessment of the cultural landscape cannot be performed from a single perspective (McKercher and Du Cros 2002; Agnoletti 2006).

Ecotourism provides an essential alternative to the empowering of local economic growth. Ecotourism promotes local community development and environmental conservation (Wood 2002; Beeton 2006). In Indonesia, a number of cultures and nature-based tourism destination have grown over the years, and many cultural landscapes have become famous tourism destination (Nagaoka 2016). Indonesian cultural landscape has a number of feature and characteristics that pose challenges to tourism planners as tourism attractions. There is numerous example of the use of cultural landscape in the tourism industry. In Indonesia, it includes Tana Toraja (South Sulawesi) (Crystal 1989), Borobudur (Central Java) (Nagaoka 2016), Tengger Highland (East Java) (Hakim 2011), and Ubud (Bali) (Picard 1995). Bali Island, one of the hot spot of cultural landscapes, is a successful international tourism destination. The value of cultural landscape, however, has been less received attentions. Little emphasis has been discussed on exploring and studying cultural landscapes in relation to tourism development. In many areas with the potential cultural landscape as a tourist attraction, people still largely rely on subsistence agriculture.

This study was conducted at Blambangan Biosphere Reserve, East Java Indonesia, with the main objectives of (1) describing the cultural landscapes within the biosphere reserve area and evaluating their importance for tourism development and (2) establishing and providing recommendations for cultural landscape management to achieve sustainable tourism. It is expected that this discussion will contribute to the sustainable development of the biosphere reserve.

2 The Cultural Landscape in East Java with Special Reference to the Blambangan Biosphere Reserve

2.1 Blambangan Biosphere Reserve

The Blambangan Biosphere Reserve (BBR) lies on the eastern part of Java Island and was officially listed as a biosphere reserve by UNESCO in 2016 to protect the biodiversity and cultural resources of East Java. The reserve was created to promote sustainable development and to encourage the use of sustainable resources to

Table 1 Zonation of Blambangan Biosphere Reserve

Reserve zoning	Terrestrial (ha)	Marine (ha)	Total (ha)	Notes
Core area	127,855.62	–	127,855.62	Encompasses Alas Purwo NP, Meru Betiri NP, Baluran NP, Ijen NR
Buffer zone	84,079.89	146,197.54	230,277.43	Plantation and state forest area
Transition area	320,814.34	–	320,814.34	Banyuwangi Regency
Total	532,453.85	146,197.54	778,647.39	

benefit local inhabitants. The reserve has an area of about 778,647.39 ha. The core zones of the reserve cover four conservation areas, namely Alas Purwo National Park, Meru Betiri National Park, Baluran National Park, and the Ijen Nature Reserve. The buffer zones mainly consist of protected forest under state-owned enterprises (PERHUTANI), state plantations (PTPN), and private plantations. The transition zone covers the entire Banyuwangi Regency (Table 1) (Indonesia MAB Program 2015).

Alas Purwo National Park, a lowland tropical forest in southeast BBR, is an area of high biodiversity. Alas Purwo forest was named as *Natuurmonumenten Poerwo en Djatie Ikan* in 1920 and declared by the Indonesian government as a national park in 1992 with a total area of 43,420 ha. The park is an important habitat for a number of endangered species, including *Bos javanicus*, *Cuon alpinus*, *Panthera pardus*, *Trachypithecus auratus*, *Manis javanica*, *Macaca fascicularis*, *Muntiacus muntjak*, *Melogale orientalis*, *Tupaia javanica*, and *Tragulus javanicus*. About 285 species of birds have been identified in the park. Culturally, Alas Purwo has spiritual significance to Javanese and Balinese Hindus; there are sacred sites within the park, including a sacred cave and a Hindu temple (Whitten et al. 1996; Alas Purwo National Park 2014).

Ijen Nature Reserve (2650 ha) in the northwest of the BBR system is a volcanic highland, with the Ijen crater as the main nature-based tourism attraction. The reserve was created in 1920 to preserve mountain biodiversity. The vegetation of the reserve consists of a lower to upper mountain tropical forest. The mountain rain forest of the reserve is home to 107 bird species, 21 of which are endemic to Indonesia and Java Island, including *Ptilinopus porphyreus*, *Halcyon cyanoventris*, *Pericrocotus miniatus*, *Rhipidura euryura*, *Pycnonotus bimaculatus*, *Nisaetus bartelsi*, and *Gallus various* (Whitten et al. 1996).

Baluran National Park, encompassing an area of 25,000 ha of semiarid forest, lies in the northern part of the BBR. The Baluran area was declared a nature reserve by the Dutch colonial government in 1937 and a national park in 1997. In the past, Baluran was known as “Africa van Java”, representing the richness and spectacular wildlife in the Baluran savanna ecosystem. About 234 species of birds have been identified in Baluran National Park; the principal species are *Bos javanicus*, *Bubalus* sp., *Sus scrofa*, *Panthera pardus*, *Trachypithecus auratus*, *Macaca fascicularis*, and *Rusa timorensis*. Baluran National Park is home to 158 butterflies (Whitten et al. 1996; Baluran National Park 2014).

Meru Betiri National Park, established in 1997, is a famous wildlife habitat. The park covers an area of about 58,000 ha of lowland and moist deciduous forest. The principal wildlife species are *Bos javanicus*, *Prionailurus bengalensis*, *Prionailurus viverrinus*, *Manis javanica*, *Tragulus javanicus*, *Trachypithecus auratus*, *Macaca fascicularis*, and *Muntiacus muntjak*. About 166 birds have been identified in Meru Betiri forest. Sukamade beach, in the southern part of the park, is major landing and nesting beach for protected sea turtles such as *Chelonia mydas* (endangered), *Dermochelys coriacea* (vulnerable), *Eretmochelys imbricata* (critically endangered), and *Lepidochelys olivacea* (vulnerable). The endemic plant species includes *Gigantochloa manggong* and *Bambusa cornuta*. Within the park, illegal logging is carried out and is most intensive in its western part (Whitten et al. 1996; Meru Betiri National Park 2014).

In the past, the area of Banyuwangi was known as Blambangan. Banyuwangi Regency has a land area of 5,782.50 km². Administratively, this regency consists of 24 districts (*kecamatan*), namely Pesanggaran, Siliragung, Bangorejo, Purwoharjo, Tegaldimo, Muncar, Cluring, Gambiran, Tegalsari, Glenmore, Kalibaru, Genteng, Srono, Rogojampi, Kabat, Singojuruh, Sempu, Songgon, Glagah, Licin, Banyuwangi, Giri, Kalipuro, and Wongsorejo. The topography of the west to the southwest is mostly hilly with altitude ranging from 600 to 3,282 m asl in Mt. Raung. The south to southeast and eastern area is dominated by flat area. The length of the coastal area is 175.8 km. The monthly rainfall and a temperature range are between 24.8–195.5 mm and 26–29 °C. Humidity is ranging from 78 to 85%. A major part of the regency is covered by forest area (180,937.78 ha) (Banyuwangi Regency 2015).

The human population in Banyuwangi Regency has increased from 1,531,026 in 2003 to 1,627,130 in 2013. Human population density is 265 inhabitants/km² in 2003 and increases about 271 inhabitants/km² in 2013. Most of the population lives in the village. Local community inhabiting the Banyuwangi Regency area belongs to four ethnic groups: Javanese, Balinese, Madurese, and Osingnese. The indigenous community of Banyuwangi area, the Osingnese, lives in the urban and rural area of the regency's western side. Javanese mostly inhabited in the urban and rural area in the southern area. A small number of Balinese inhabited in the southeast area of regency, in which geographically it is close to Bali Islands, the home of Hindus community. In the northern area, Madurese is the dominant group. The main agricultural products were rice, vegetables, and fruit (Banyuwangi Regency 2015).

In the perspectives of BBR management plan, Banyuwangi Regency contributes significantly to biosphere reserve objective, especially as a model of local sustainable development. The abundance fertile lands in this region make it an important agricultural area for production of numerous crops, plantation, and forest product. Recently, Banyuwangi has been identified as one of the new attractive tourism destination. Banyuwangi Regency provides a variety of culture and nature-based tourism attractions and tourism growing faster than another sector in

the regency. The development of tourism provides opportunities to meet the objectives of biosphere (Banyuwangi Regency 2015; Indonesia MAB Program 2015).

2.2 Cultural Landscapes in the Blambangan Biosphere Reserve

Over the years, indigenous populations in East Java have developed a wide variety of approaches and techniques for managing lands and natural resources. There are three important cultural landscapes in the BBR which are sites for potential development as tourism attractions, namely paddy terraces, agroforestry farming systems, and local settlements.

2.2.1 Paddy Terraces

Many paddy terrace ecosystems have been designated as UNESCO World Heritage sites, including the Jatiluwih and Tegalalang rice terraces (Bali), the Honghe Hani rice terraces (China), and the Ifugao and Banaue rice terraces (the Philippines). A paddy terrace is representative of harmonious living cultures; one of its key features is that it demonstrates sustainable land use by local people living in sloping lands. The terrace system contributes to landslide prevention, and there are sophisticated water management systems that have been developed by the local community to enhance crop productivity (Jiao and Li 2011; Chen et al. 2012; Roth 2014; Qiu et al. 2014).

In Banyuwangi, rice is a culturally important crop that is cultivated in paddy fields. The paddy field area is about 66,152 ha or 11.44% of the total area of Banyuwangi territory (Banyuwangi Regency 2015). Following the topography, paddy fields can be classified into flat and terraced fields. Most of the flat paddy fields are located in the southern part of the regency. In the hilly and mountainous area in the west of Banyuwangi, paddy terraces were established to adapt the sloping land topography. Recently, paddy terraces are geographically concentrated in the Kalibaru, Glenmore, Songgon, Giri, Licin, and Glagah districts.

Most of the paddy terraces are situated in the mountainous area. Physical characteristics of lands, climate, and water availability are important in determining paddy terrace existence. Water springs are abundance in the west area and have been channeled into traditional canals to irrigate the rice terrace. With the aid of proper irrigation, paddy field can produce 6 ton/ha each year (Banyuwangi Regency 2015). Among Osingnese, rice and crop rotation have long been used as a strategy to increase food security. The general combination pattern of plant species that illustrate the rotation includes rice—legumes, corn or rice—other crops species.

Cultivation of rice was followed by a leguminous crop able to improve the fertility of soil (Watson et al. 2002).

In BBR, there are threats to the future of paddy terrace sustainability. First, many paddy terraces are being altered because of rapid land use change. The increase of population in the rural area has led to a decrease of paddy field area and an increase of settlement area. Second, the paddy terrace recently threatened intensive chemical fertilizer and pesticides which decrease soil fertility and rice grain productivity. Scholar points out that massive chemical fertilizer and pesticides application have a major impact on soil biodiversity. Intensive rice cultivation is a universal problem and able to damage soil quality (Giller et al. 1997; Gomiero et al. 2011). Third, there is a potential problem caused by *Albizia chinensis* (sengon wood) introduction in paddy terrace system. The introduced sengon tree may also damage the irrigation system. Sengon is fast-growing woody trees species and, as many fast-growing tree species, it has been recognized to affect groundwater, changes in nutrient cycling, and changes in ecosystem biodiversity. Sengon is now a major wood sourced timber and is an important source of medium-term income for many farmers in Banyuwangi. Recently, sengon plantation is wide spreading on paddy terrace. There are, however, potential ecological costs from the establishment of sengon plantation (Otsamo 2002). Fourth, the young generation is no longer interested and involved in farming, especially young generation with a high education level. Farming is strenuous and does not provide high income. Therefore, many young people leave the villages and seek employment in other. There is a trend that young generation seeks other sources of income in urbanized area. The decrease of farmer potentially leads to the change in the social and economic condition in many rural areas in Banyuwangi. Fifth, recent phenomena of climate changes influence the crop yield and productivity, plant phenology, and potentially spread pest and pathogens. These factors contribute to the future sustainability of paddy terrace are a loss of traditional and cultural value, especially in the farming system.

The preservation and maintenance of paddy terraces are important for future tourism development. In such a case, promoting traditional ecological knowledge becomes one of the important aspects of paddy terrace conservation. This knowledge links ecological and sociocultural aspect and provides a value for paddy terrace as a sustainable land management system. It is also important to enhance the authenticity of landscapes as a tourism attraction (Fig. 1).

2.2.2 Agroforestry Farming System

An agroforestry garden is a form of cultural landscape that represents the “combined works of nature and man” (Article I, Operational Guidelines for the Implementation of the World Heritage Convention—ICOMOS 2007). Agroforestry is often considered to be a form of sustainable farming (Jose 2009); its contribution to biodiversity conservation and the provision of sustainable economic income to rural dwellers distinguishes it from other farming systems. In Banyuwangi, the link



Fig. 1 Paddy terrace landscape of Banyuwangi

between local people, culture, tradition, and biophysical characteristics is explicit in the agroforestry garden of Osingnese.

In Banyuwangi, the agroforestry system is practiced more extensively in dry land, or land with little water irrigation input. Dry land farming now covers 230,094.78 ha, and coffee is the main commodity. There are two important cultivated coffee species, namely *Coffea canephora* (robusta coffee) and *Coffea liberica* var. *dewevrei* (excelsa coffee), both grown under the shade of trees which have economic value. The most common tree species used for shade in agroforestry gardens are *Swietenia mahagoni*, *Garcinia mangostana*, *Durio zibethinus*, *Cocos nucifera*, and various bamboo species. Tree spices include *Myristica fragrans*, *Cinnamomum burmanni*, and *Syzygium aromaticum*. The agroforestry system can be considered as a complex biosystem. Incorporating woody tree species and coffee into an agroforestry farming system has the potential to increase the economic value and profitability of local gardens. Recent centers of coffee plantations within an agroforestry system include the Glenmore, Kalibaru, Sempu, Songgon, Glagah, Licin, Giri, and Kalipuro districts.

In agroforestry farming system, there is an intimate connection between farmer household's tradition, economic perception, culture, and local belief. Local culture often prescribes rituals and ceremony that require the use of specific plants, including *Musa paradisiaca*, *Cocos nucifera*, *Magnolia champaca*, and *Cananga odorata*. Local belief involves the decision of planting tree species. In such a case, the moment of planting differs per species, per crop, and per month. Some plant has been viewed medically important and has special meaning, including *Alpinia galanga*, *Sauropus androgynus*, and *Morinda citrifolia*. Planting numerous trees

has been viewed as a good practice. These aspects contribute to the variety of agroforestry models.

In Banyuwangi, factors threat to agroforestry farming system has been identified numerous. As the number of population in rural area increases, the need for space and wood for house contractions increases. Recently, intensive contact with the outside and increase of consumerism among the young generation in villages have transformed agroforestry techniques into monoculture plantation. The decrease and disappearance of agroforestry are caused by the erosion of local farming culture appreciation and disappearance of the associated culture. It is shown by the rapid increase of sengon plantation area. An important of climate changes in the agroforestry farming system is likely to be changed in coffee and fruit productivity. The long drought in 2015 led some mangosteen trees died, while the long rainy season in 2016 lead durians and mangosteen fail to produce flower and fruit.

The cost of reducing the agroforestry farming system will vary considerably; the impact could include ecological, economic, and sociocultural aspects. A decrease in agroforestry could alter the microclimates of the Banyuwangi Regency and potentially affect the sustainability of the paddy fields. The key to the design of sustainable agroforestry farming systems is maintaining biodiversity. Scholars point out that enhancing the diversity of plant species is one of the crucial strategies for protecting a sustainable agroforestry system. The introduction of new species into the agroecosystem may allow, but consideration should be implemented comprehensively (Schroth 2004; McNeely and Schroth 2006).

2.2.3 Settlements and Home Gardens

The Osingnese, traditionally farmers, are considered to be indigenous inhabitants of the Banyuwangi area. One of their additional sources of employment is laboring in coffee plantations. There are also a small number of Osingnese sulfur miners in the Ijen crater. Local settlements with traditional houses lie around the village of Osingnese in the slope of Mt. Ijen; most settlements are concentrated along the main road and rural roads. Local settlements in the villages' area are scattered and are often surrounded by home gardens. In many settlement areas, houses built using the traditional architectural style and materials are easily found. There are three architectural types of Osingnese house: *crocokan*, *tikel*, or *baresan*, *tikel balung*, and *serangan*. These traditional architecture buildings provide unique cultural landscapes for tourists.

Home gardens are a component of the traditional settlement system. Home gardens plant species hold economic, ornamental, medical value and culturally significant for the local community. The staple food cultivated in home garden area is yams, cassava, and banana. Home garden trees are mostly fruit trees (*Nephelium lappaceum*, *Lansium domesticum*, *Persea Americana*, *Annona muricata*, and *Chrysophyllum cainito*). Ornamental plant species includes *Bougainvillea spectabilis*, *Duranta repens*, *Codiaeum variegatum*, and *Cordyline fruticosa*.

Ecologically, abundant and diverse plant species in a home garden ecosystem has a beneficial effect on runoff, infiltration and reduced erosion rate.

Associated with the preservation of local settlement and home gardens is the issue of modernization. The use of block stone, ceramics, and metal fences is an indication of local house modernization in Osingnese settlements. Changes in house architecture are strongly influenced by people's access to various information regarding modern building design and technology.

3 Recent Tourism Development

3.1 National Policy in Tourism

Governments of Indonesia recognize the power of tourism to generate both local and national economic growth. According to statistical data, annual international tourist arrival increased from 9.4 million in 2014 to 10.4 million in 2015. In 2015, the tourism sector generated Rp. 461.36 trillion, contributing to 4.23% of GDP. Tourism is estimated to employ 12.16 million people. Tourism also contributes to nature conservation and community development. According to the National Tourism Master Plan, the number of international tourists in 2019 is expected to reach 20 million. Recently, ten sites beyond Bali Island—the most famous tourism destination in the world—have been developed intensively, including Toba Lake (North Sumatra), Tanjung Lesung (Banten), Tanjung Kelayang (Bangka-Belitung), Borobudur Temple (Central Java), Kepulauan Seribu (Jakarta), Bromo Tengger Semeru (East Java), Mandalika (Lombok), Komodo-Labuan Bajo (East Nusa Tenggara), Wakatobi Island, and Morotai Island. Nature-based tourism is expected to contribute 19% and cultural tourism 7% to the total national tourism growth. By 2019, these areas are expected to be the most popular destinations (Ratman 2016).

The interest to tourism sector has been implemented in National Tourism Development Plan. Recent tourism policy focuses the development and promotion of nature-based tourism and cultural tourism. The challenges of such tourism development are often greater for an area with natural and cultural richness. It is also relevant to the recent tourist demand. Many tourists are interested in the natural object and cultural heritage. Recent tourist is also interested in interacting with the local community (Theobald 2005; Balmford et al. 2009).

3.2 Tourism Development in Banyuwangi Regency

Intensive and systematic tourism planning and development in Banyuwangi began in early 2011. The richness of its cultural–natural resources and geographic position influenced the decision to develop Banyuwangi as a tourism destination.

Banyuwangi's spectacular beach and coastal scenery, diverse flora, underwater life, the wildlife in its national park, mountain area, plantation and rural areas, and its traditional culture are important attractions for tourists. The Ijen crater and blue fire phenomena in Mt. Ijen are also important tourist destinations. In 2016, the number of visitors to Banyuwangi was calculated at about 3 million, with 75,000 international tourists.

In Banyuwangi, both the local government and the community are aware of tourism development. Local government encourages tourism because it creates jobs, generates numerous economic activities, and is able to support environmental conservation. Local communities in some areas in Banyuwangi are well aware of the possibilities of the tourism sector in providing new earning opportunities. Direct benefits to the local community will result from the demand for accommodation, transportation, and qualified guides. Within the villages are numerous potential places for tourism activities, including traditional settlements, home gardens, paddy fields, rivers, waterfalls, and plantations.

The rural area in Banyuwangi is blessed with an abundance of biodiversity and natural resources. The local government of Banyuwangi promotes rural tourism at Osingnese village in Kemiren and the villages surrounding the conservation area (i.e. Rajegwesi). In the Kemiren villages, cultural and natural resources are important elements of the tourism product. Tourists in Kemiren experience local culture and traditions, culinary and village life. Osingnese living in these villages still continue their traditional lifestyle and practice and numerous local wisdom (Indiarti and Munir 2016).

Osingnese in Kemiren Village are actively involved in tourism activity (Indiarti and Munir 2016). In 2000–2015, a series of the program took place in the local government, local community, and organization. The result of this program was the creation of rural tourism and community development. Technical and funds support was increased, and many tourism facilities in a rural area were created. Recently, a number of villages experienced an increase in visitor arrivals, and villages become popular destinations. The government of Banyuwangi has established document for tourism development, but there are few guidelines for tourism resources management. Policy on the state of the cultural landscape resources preservation and management is not available. Globally, recent tourism policy stressing the sustainability practices is an important pillar in tourism development. Sustainable tourism is based on the aspect that maintains economic growth; conserving environment and biodiversity and enhancing the social aspect of local people are both essential and should be integrated into planning and development (Hardy et al. 2002; Buckley 2012).

This implies that the tourism development in Banyuwangi should be developed at the integrative pillars of natural richness, cultural uniqueness, and local economic development. This issue is especially critical in Banyuwangi.

4 Cultural Landscape and Sustainable Tourism in Blambangan Biosphere Reserve

4.1 Trends in Ecotourism

Tourism attractions in the BBR include the biodiversity of the national parks, the Ijen crater, and the Osingnese culture. In the Alas Purwo National Park, the number of visiting tourists grew from 53,135 in 2010 to 121,818 in 2013. In 2015, the Meru Betiri National Park received 57,940 domestic tourists and 2152 international tourists. The main tourist attractions in Meru Betiri are Rajegwesi beach, Green Bay, and Sukamade beach. Visitor numbers at the Ijen crater increased from 16,428 in 2011 to 25,894 in 2013, and to over 35,390 in 2014. The wildlife in Baluran attracted more than 58,000 visitors in 2014. Wildlife tourism is very popular and forms a significant part of nature-based tourism in Baluran, Alas Purwo, and the Meru Betiri National Park. Recent tourist generations are willing to pay high prices to view the luxurious tropical forest, flora-fauna, and coral reefs. There is also interest in exploring the cultural diversity of the indigenous people and visiting cultural landscapes.

Globally, there has been increasing tourist interest in the use of local settlements and their cultural attributes (Ringer 2013); opportunities have arisen for many villages in Banyuwangi to develop their cultural landscape assets to become tourist attractions. Cultural landscapes, such as paddy terraces and agroforestry, create impressive landscapes and provide spectacular man-made ecosystems that are able to attract tourist interest. The potential tourist activity in cultural landscape sites includes seeing natural environments of the rural landscape that are distinct from urban environments, encountering cultural landscapes and biodiversity, enjoying rural agriculture, meeting friends to appreciate the beauty of the cultural landscape, learning about rural life, photography, interacting with farmers, and bird watching. Consequently, issues related to enhancing the quality of resources become crucial for planners and decision makers in the highly competitive situation of generating income through tourism. Promoting biodiversity conservation in cultural landscape is vital (Strang 1997; Farina 2000; Hakim 2011).

Cultural landscapes appear to be attractive tourism resources for three reasons. First, the unique vegetation structure and composition could play as an interesting object in the development of high-quality tourism product. Second, the outstanding physical feature could provide uniqueness of landscape. The terracing technique applied on the steeper slope is visually spectacular tourism object. Third, especially from a tourism product perspective, is the existence of cultural attributes which is generally required for the culture-based visitor attraction development. The potential cultural attraction includes traditional lifestyle, local customs, festival, and art.

4.2 *Resources Management*

In the BBR area, tourism in cultural landscapes sites is growing, but the scientific bio-cultural resources of most cultural landscape sites are poorly managed. Managing these assets is perhaps relevant to the overall objectives of managing biosphere reserves. While Banyuwangi Regency offers a number of beautiful cultural landscapes, the landscape management fails to realize and transform its value into a tourism attraction. Scholars point out that managing cultural landscape is a complex activity; this complexity is a function of both cultural and natural aspects (Aplin 2007; Plieninger and Bieling 2012). To improve the attractiveness of a cultural landscape, it is crucial to have a conservation and rural tourism management plan. The challenge lies in managing, promoting, and evaluating systematically the successful integration of the cultural landscape with sustainable tourism.

The future prospects for tourism in Banyuwangi's cultural landscape sites are enormous, but the industry is facing problems of environmental management. The management of visitors in cultural landscape sites requires supporting technical tools; however, there are no technical tools documents available. Tourism activity in a cultural landscape site is risky; large numbers of tourists could create cultural-environmental degradation and loss of biodiversity. The success of tourism in these sites will, therefore, depend on whether the authorities are able to manage tourist visits. This requires careful integration of strategies concerning cultural, environmental, and natural resources conservation, and visitor management (Swarbrooke and Page 2012). Techniques designed to minimize visitor impact include limiting group sizes and length of stay and promoting visitors' codes of conduct. Cultural landscapes are especially at risk when they are visited and exploited intensively. In such a case, applying carrying capacity becomes the significant tools (McKercher and Du Cros 2002).

Mapping cultural landscape distribution is important; these maps provide basic information for management and conservation, especially in a spatial context. Land use change is probably the vital determinant of cultural landscape disturbance and needs to be examined within a spatial context in the effort to protect and sustain landscape existence. Mapping can contribute to the database from which their carrying capacities as attractions can be formulated. In the spatial context, the paddy terrace distribution pattern is mostly related to factors such as topography and water availability, as well as culture, which is part of the cultural landscape construction. In Banyuwangi, areas that are dominated by paddy terraces, mostly found in the western part of the Regency, may be the most appropriate area for further cultural landscape-based tourism development.

In the perspective of sustainable and competitive destination, attraction is the core of the tourism success. Sources of attraction may include plants, animals, and landscapes (Swarbrooke and Page 2012). Identifying and understanding the biological and ecological setting of resources are important. The important data include species diversity, population structure, population interaction, species interaction, community dynamic, ecosystem process, and behavioral ecology. As far as the use

of such data and information in attrition management was absent, the attractiveness of cultural landscapes object, however, is subjective. People have numerous perceptions about attractiveness. In such case, research regarding human perspectives in scenic beauty is, therefore, crucial.

The evaluation of resources is crucial. The use of paddy terrace and agroforestry garden for tourism purposes must be critically assessed and evaluated because of its negative impact on the cultural landscape. Tourism activity can cause a negative impact on the biophysical environment through an increase in vandalism, litter, and pollution. In a social context, tourism activity contributes sociocultural changes in the local community. Globally, the effect of tourism in local cultural changes has been well documented (Picard 1995; McKercher and Du Cros 2002; Ringer 2013).

Cultural landscape management and integration into tourism are relying on the capability of farmer managing soil biodiversity. Scholars note that farmer's knowledge and understanding of vegetation, soil, and soil-related process in traditional agroecosystem contributes significantly to agroecosystem health and is able to reduce soil erosions. In the recent increase of tourism activity in cultural landscape sites, knowledge on bio-cultural resources management becomes important.

4.3 Tourism Product Development

From the perspective of tourism product development, the bio-cultural attributes of cultural landscapes that can be appreciated include their uniqueness and naturalness (O'Hare 1997; Ringer 2013; Kikuchi et al. 2014). Seeing the uniqueness of a cultural landscape is an authentic experience. Biophysically, the uniqueness of the paddy terraces in Banyuwangi is affected by land contour, soil character, water supply, site elevation, crops, and vegetation. Rotational cropping systems in terraced lands, one of the unique features of a paddy terrace ecosystem, are often associated with social, economic, and cultural aspects. Their naturalness depends primarily on the abundance of green areas and few numbers of modern man-made buildings.

From the perspective of the tourism market, the unique and outstanding cultural landscape is not an attraction unless its potential value is transformed into a product that can be consumed by tourists. Tourism products in cultural landscape sites are numerous, ranging from farm trips to local culinary products. Recreational activity in cultural landscape sites is especially close to the attractions, in which it is the core and magnet of the destination. The spectrum of farm tours in agroforestry gardens can be numerous, including garden trekking and bird watching. In Tlemung (Kalipuro District), some households sell family produce and offer kopi luwak, or civet coffee, to foreign visitors, providing an additional source of household income.

Creating tourism product in cultural landscape sites is difficult unless the scientific information regarding object available. Scientific approach supports tourism

manager to define the tourism product. It includes numerous scientific issues. The most important issues are following:

- Farmer knowledge, perception, and sustainable live principles. Understanding how farmers use natural resources sustainably is essential to determine the story behind the cultural landscape.
- Biodiversity richness, understanding biodiversity, and vegetation seasonality in cultural landscape tourism object area will facilitate diverse tourism product development such as fruit harvesting time, festival, and culinary based on specific plant. It is also important to promote mapping and exploring biodiversity and providing comprehensible explanations for tourists.
- Investigating and compiling data on lands physical characters, indigenous fruits and vegetables, outlining differences and providing comprehensible explanations. This could become a basis for better observation by tourists, valuing nature and appreciation of harvest experience, and enjoying local food.

Ensuring a healthy agroecosystem is also an essential factor for tourism program development. Osingnese agroforestry system presents variation in plant species, plant community arrangement and structure, and canopy structure. Agroforestry system provides habitat for a wide range of species (McNeely and Schroth 2006). Numerous tropical fruit trees species offer many opportunities for the sustainable use of agroforestry gardens, especially through agrotourism development. Designing for tourism product in agroforestry farming system sites may require an understanding of the diversity, characters, and phenology of plant species. According to scholars, the improvement of human resources to handle tourism program planning must be accompanied by local people education. This can be achieved through the increasing capacity of a local planner, community, and tourist guide (Weiermair 2004; Walder et al. 2006).

The tourism destination manager should have a clear and comprehensive understanding of the products of cultural landscapes (Walder et al. 2006; Ringer 2013). Regarding cultural landscape preservation, tourism products not only must be created to secure the visitors but should also be established to provide visitor experiences and knowledge. This is especially important because tourism managers often focus their attention on income and visitor satisfaction, but are rarely concerned with the educational aspects of tourism in cultural landscape sites. The future challenge lies not only in increasing tourist visits to cultural landscapes sites but also in offering interpretations and delivering scientific and preservation messages to the visitors. Simply, destination managers should develop a comprehensive understanding of what cultural landscapes are and how they work.

The form and value of cultural landscapes should be considered when establishing attractiveness in tourism products. Each cultural landscape has tangible and intangible value. Scholars point out that a cultural landscape is more than a physical object; it also represents the symbiosis between human culture and natural resources management (O'Hare 1997; Strang 1997; Farina 2000; Agnoletti 2006; Nagaoka

preserving certain aspects of the norms, values, and cultural identity, (3) providing and sharing local knowledge to support programs and actions, and (4) monitoring and evaluating program implementation. Effective management of cultural landscapes as tourism attractions in the future will, therefore, depend on the degree of community involvement and participation (Moscardo 2008). Managing cultural landscapes for the tourism industry requires an understanding of the interaction between human, culture, tradition, and environment. Part of the approach involves a fundamental recognition and appreciation of local human rights; this is crucial because every relationship between humans, nature, and culture is unique.

Community empowerment is a further agenda of development, and it is especially critical for the local community within cultural landscapes area in Banyuwangi regency. Local community education is the starting point for involving community into planning, monitoring, and evaluating tourism activity in cultural landscapes. In the perspectives of destination and attraction management, education becomes especially important in times of high competition. Economic and income generating issues of local people must be considered when designing cultural landscape as tourism attractions.

5 Conclusions

The Blambangan Biosphere Reserve contains many forms of cultural landscapes, comprising paddy terraces, agroforestry gardens, and local settlements. Cultural landscapes and tourism in this area can coexist when the principles of tourism destination management are implemented. Although cultural landscapes are recognized as important elements in tourism destinations, not all of their assets have been considered in tourism planning. Their use in tourism must be critically considered because of the possible negative impacts. In Banyuwangi, a lack of methodology and technical aspects to protect cultural landscapes has resulted in rapid losses in the paddy field and agroforestry systems. These contribute to the future tourism development. A key to devising and maintaining successful tourism programs in cultural landscape areas is the development of management plans. Tourism product design requires a comprehensive understanding of the farmers, biodiversity structure and extent, and physical characteristics of the cultural landscapes.

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