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# International Federation of Landscape Architects Asia-Pacific Region Annual Conference

Shanghai, China

22-24 October 2012

Edited by

*Zhaozhen MENG*

*Xiaoli CHEN*



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*Zhaozhen MENG, Xiaoli CHEN*

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## Preface

International Federation of Landscape Architects (IFLA) World Congress is an important global platform in providing the opportunity for landscape architectural professionals to exchange ideas and to share latest findings, design approaches, trends and technologies in the profession of landscape architecture and landscape development.

We are very glad that the 2012 IFLA APRC World Congress was held in Shanghai, China. It is a significant chance for Chinese landscape architectural professionals to showcase their achievements in landscape construction and research, as well as to learn the successful experiences from foreign colleagues.

The congress theme is 'Better Landscape, Better Life', which aims to discuss how to cherish and preserve traditional values and balance the relationship between tradition and modern social development against the background of globalization and urbanization.

The congress got keen interests from professionals and students at home and abroad, and the congress received 67 papers from 17 countries and regions including China, New Zealand, Malaysia, Indonesia, Japan, The United States and Australia, etc..

After the Congress, responding to some authors' requirement, the organization committee of the Congress furthered to edit and publish the hard copy proceeding.

Thanks a lot for the supports by all of authors, for the jury works by experts in academic committee, as well as for the great help from publishers.

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# Potential Evaluation of Community-based Agritourism in Banyuroto and Ketep Rural Landscape Magelang Regency Central Java Province Indonesia

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**Abstract:** The research was conducted in Banyuroto and Ketep Villages, in Sawangan District, Magelang Regency, Central Java, Indonesia. The data of the rural landscape, socio-economic and cultural development were analyzed to develop the community-based agritourism. The results showed that the Banyuroto and Ketep Villages have rural landscape and culture of the farming community with huge potential to be developed as a community-based agritourism. Perception and preference evaluation results showed that visitors are interested in agritourism attractions with active participation in the process of plant cultivation and livestock production. Community sustainability assessment indicated that Banyuroto and Ketep Villages have ecological, social, and spiritual sustainabilities. The concepts need to be developed for community-based agritourism in this area are as follows: Touring plans include object and activity from cultivation farm to the agricultural products; processing places have to be combined with natural attractions; Human resources and community institutions need to be improved to manage the tourism program. Promotion of tourism and cooperation with stakeholders, and Government's guidance to accommodate agritourism in this area.

**Keywords:** Agritourism; Community-based; Community Sustainable Analysis; Rural Landscape.

## 1. Introduction

### 1.1. Background

Agriculture is an important sector which plays an important role in the provision of food, clothing, and medicine, as well as employment and income for most households of the rural peoples in Indonesia. Some of the problems facing the agriculture sector are: 1) land use change, 2) land degradation, 3) scale subsistence farming, 4) price fluctuation of agricultural products, 5) low people appreciation in agriculture, 6) decreased interest in the young generation towards agriculture, and 7) less balanced development in rural and urban areas.

Thus, increased value-added agricultural products and services in rural areas are needed, so the farmers earn a better income. The development of agri-based rural community is expected to provide value-added agricultural businesses in rural areas so that agricultural land can be sustainable. Then, agritourism is an alternative that could potentially be developed in line with interest growth and demand for tourism.

Development of agricultural tourism activity will increase the positive perception of the importance of agriculture, the preservation of agricultural land resources, and also will create jobs for rural communities, so as to suppress the migration of villagers to the cities. In addition, the development of agritourism activities to conserve the resource, local wisdom and technology, as well as increase the income of farmers or people around the area of agricultural tourism<sup>[1]</sup>.

### 1.2. Objectives

The objectives of the research are: 1) to identify the character of the rural landscape, 2) to find out the potency of agritourism and culture, 3) to identify the socio-economic and local institutions, 4) to identify the factors that play a role in the development of agritourism community-based and the programs related to the development of agritourism, and 5) to formulate a model of community-based agritourism

## 2. Methodology

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The research was conducted in Banyuroto and Ketep Villages, Sawangan District, Magelang Regency, Central Java Province, Indonesia from April to November 2009. Research phase consists of several stages, namely: (1) preparation of questionnaires to obtain quantitative as well as qualitative data, (2) data collection, (3) data analysis, and (4) formulation of recommendations.

## Result and Discussion

### 1. General Conditions of Banyuroto and Ketep Villages

#### Geographic Location and Topography

Research sites in Banyuroto and Ketep Villages, Sawangan District, Magelang Regency, which located on the slopes of Mount Merbabu, geographically located between 7°27'2" - 7°33'43" South Latitude and 110°16'07" - 110°26'22" East Longitude. Banyuroto Village located at an altitude of 1100 m-1800 m above sea level (asl) with a flat topography (30%), undulating (35%), to mountainous (35%), whereas Ketep Village at an altitude of 1000 m-1200 m above sea level which nearly 100% of the hills.

The total area of Banyuroto Village is 622.13 ha while Ketep Village is 418.95 ha. The land use of the villages are agricultural land in Banyuroto and Ketep is 91.6% and 65.6%, forest area is 2.97% and 27.63%, and settlements and the yard is 5.14%, and 1.65%.<sup>[3] [4]</sup>

#### Climate and Hydrology

The research location has a wet climate with IIIA rainfall patterns, annual rainfall (AR) 2000-3000 mm, wet months (AR > 100 mm/month) for 7 months and dry months (AR < 100 mm/month) for 5 months. Based on rainfall data in 2001-2004, average annual rainfall is 2212 mm/year, monthly average 184.2 mm, an average of 148 days of rainy days/year with 7 wet months (November-May), and 5 dry months (June-October).

Village water sources and Ketep Banyuroto comes from rain water and springs in the region and from the higher area and water wells. Drinking water needs of the rural people obtained from the fountain of the Banyuroto Village. The water flowed through the pipes and then flowed into people's homes.

### 3.2. Potential Landscape in Banyuroto and Ketep Villages

#### Vegetation and Animal

The main crops in the village are: chili (*Capsicum annuum*), cabbage (*Brassica* sp.), pumpkin (*Cucurbita* spp.), jackfruit (*Artocarpus heterophylla*), tobacco (*Nicotiana tabacum*), tomato (*Solanum lycopersicon*), coffee (*Coffea arabica*), maize (*Zea mays*), strawberry (*Fragaria daltoniana*), cassava (*Manihot utilisima*), banana (*Musa paradisiaca*), papaya (*Carica papaya*), coconut (*Cocos nucifera*), and bean (*Vigna sinensis*). Several other plants are bamboo (*Bambusa vulgaris*), flamboyant (*Delonix regia*), dracaena (*Dracaena* sp.), hibiscus (*Hibiscus rosa-sinensis*), and aglonema (*Aglaonema* sp.).

Meanwhile, animals that exist in this area include livestock that are kept in the homestead plots are cows, chickens, ducks, rabbits, whereas the other animals are birds, dogs, monkeys, deer, snakes, and insects. Then, the number of beef cattle in Banyuroto village around 700-800 heads, while in the village around Ketep 800-1000 heads. Figure 1 displays the cattle kept in the Ketep Village.

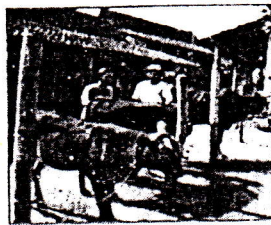


Figure 1. Beef cattle in Ketep Village

#### Acoustic and Visual

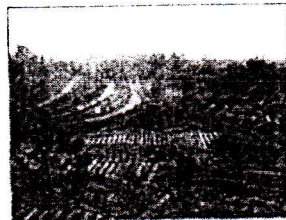


Figure 2. Agricultural land in Ketep Village

Shades of agriculture and rural landscapes can be enjoyed during the journey to this village. There are some crop plantations, vegetables, and others plants in the field (Figure 2). Besides that, some interesting to be seen in

the hamlets such as traditional houses, yards, cattle, also the people daily activities to maintain the plant and cattle in the yard, handling of vegetable crops, and processing of agricultural products.

Meanwhile, Ketep Pass is a tourist area with several facilities such as volcano museum, theater, tower of view, restaurants, and rest area. Then, from Panca Arga can be seen a very interesting view into the hamlets with farmlands and mountains around it. In the morning guests can enjoy the mountains and valleys covered in mist, the sound of birds, and also the sunrise from behind the mountain (Figure 3). Some other recreational areas around the region of Ketep Pass are Kopeng Indah Park located in Pakis Sub-district, Kopeng District; and Kedung Kayang Waterfall in Wonolelo Village.



Figure 3. Mount Merapi at sunrise

**Soil**

The results of analysis of soil physical properties at Banyuroto and Ketep found that the soil is good enough to support plant growth. The soil is characterized with high porosity (RPT>60% volume), low BD (<1.0), rapid drainage pore water are quite high, high permeability, and good enough water availability.

Soil chemical properties in Banyuroto Village have a neutral pH at the top of slope. Then, organic matter content is medium and low, P<sub>2</sub>O<sub>5</sub> content is very high (except for Ca), cation exchange capacity (CEC) is low, but has a very high base saturation (BS) (Table 1). This means that land has a low nutrient retention (due to low CEC) and nutrient availability, nutrient imbalance, so that it needs to be improved by chemical fertilizer combine with organic fertilizer.

Table 1. Chemical properties of soil at Banyuroto Village, Sawangan District, Magelang Regency

Soil Chemical properties	Depth (0 – 20) cm		Depth (20–40) cm	
	Value	Category	Value	Category
pH				
H <sub>2</sub> O	6,0	Almost neutral	6,0	Almost neutral
KCl	5,6	neutral	5,6	neutral
Organic matter				
C (%)	2,00	Medium	1,63	Low
N (%)	0,17	Medium	0,13	Low
C/N	12	Medium	13	Low
HCl method (25 %)				
P <sub>2</sub> O <sub>5</sub> (mg/100g)	190	Very high	282	Very high
K <sub>2</sub> O (mg/100g)	11		8	
P <sub>2</sub> O <sub>5</sub> (Olsen) (ppm)	120	Very high	205	Very high
K <sub>2</sub> O (Morgan) (ppm)	96		67	
Cation Exchange (me/100g)				
Ca	7,67	Medium	7,12	Medium
Mg	0,88	Low	0,75	Low
K	0,18	Low	0,13	Low
Na	0,14	Low	0,11	Low
Cation Exchange Capacity (me/100 g)	8,31	Low	7,53	Low
Base saturation (%)	>100	Very high	>100	Very high
KCl 1 N method (me/100 g)				
Al <sup>3+</sup>	0,00	Very low	0,00	Very low
H	0,02		0,02	
Al saturation (%)	0,00	Very low	0,00	Very low

Description analyzed at the Laboratory of Physics, Indonesian Soil Research Institute (2009)

Then, the farmers in Ketep and Banyuroto Villages apply rotation cropping with intercropping that has a high index of planting and cultivation techniques that apply well enough. They use some improved hybrid seed of vegetable (chili, tomato, cabbage), chemical and organic fertilizer, created terraced fields to reduced erosion. Botanical pesticides are developed to reduce the chemicals application. In addition to vegetable crops, farmers grow tobacco in the dry season and strawberry especially in Banyuroto Village.

Some effort needs to be done for the conservation of agricultural land include: 1) the selection of conservation techniques on steep land, 3) the selection of resistant plants in the high rainfall, 4) the selection of conservation of the existing trees on site, 5) placement locations attractions tours that correspond to natural condition.

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### 3.2. Socio-Economic and Local Institutions

The number of population at Ketep Village is 2235 peoples (586 householders), and at Banyuroto is 3628 peoples (1147 householders). Most of the rural people work in agricultural sector. There are 4 small industries and home industries at Banyuroto, while in Ketep Village there are 1 big industry, 13 medium industries, and 94 home industries [1].

Local institutions that support the development of agritourism in rural areas include of 1) government institutions, 2) economic institutions, and 3) community institutions. Government institutions are divided into a) village, district, and regency, and b) the relevant agencies of Department of Agriculture, Department of Tourism and Culture, Department of Industry and Trade, and Department of Transportation and Planning Agency. Then, in every village of Sawangan District, there is an Extension Worker that advice the farmers. In general, government officials, agencies in Magelang Regency support the development of community-based agritourism. This is in line with the Department of Tourism and Culture in Magelang Regency planning the development of rural tourism with the particularities of each village and prioritizing local citizen as a manager.

The development of highland vegetable farming is supported by various economic institutions for capital, production facilities, and marketing. Economic institution in Ketep and Banyuroto Villages are Farmers Group, group of women farmers, and business group that goes with guidance from the relevant agencies. Agribusiness Terminal Station (ATS) in Sewukan village (located about 2 km from Ketep Village) supports the marketing of agricultural products (Figure 4).

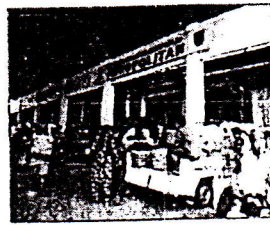


Figure 4. Agribusiness Terminal Station

Farmer groups in Banyuroto village sufficiently developed from three groups in 2006 to nine in 2009, while the groups in Ketep increased from three to five groups in 2009. There are the providers of seedling and the producer of farmer on agricultural land. Village Cooperatives has grown quite long in Banyuroto and Ketep Village. They also help the marketing of agricultural products. Then, the institutions located in Ketep and Banyuroto rural communities include of 1) the arts and culture, 2) water management group, 3) religious groups, and 4) social gathering.

### 3.4. Agri-Based Community Development

Focus Group Results Discussion (FGD) with community showed that two rural communities responding positively to the development of community-based agritourism. Moreover, after *Prima Tani* program that conducted from 2005 to 2009, the number of visitors at the two villages increased for touring or learning about farms with biogas systems, environmentally farming, cultivation of strawberries, and processing of agricultural products.

Some of the improvements proposed for the preparation of rural tourism are: 1) adequate roads to the village, 2) increase human resources management of agri-tourism in rural areas, 3) increase in cultivation and post harvest technology of agricultural products, 4) increase in marketing, 5) access in capital, 6) addition of infrastructure and public facilities, 7) farm management training, 8) improve cropping pattern and trading that price is not too low, 9) handling of livestock waste to compost.

The results of the sustainability appraisal [2] showed that Banyuroto and Ketep Villages has a good potential for sustainability, especially in social and spiritual aspects, while the ecological aspects show a good stage for toward sustainability. This is a very good basis for the development of sustainable community-based agritourism.

Response tourists interviewed about the development of agritourism shows that most visitors of Ketep Pass (>70%) like the agricultural tourism attractions that are directly involved such as maintenance of plants, livestock, and harvesting.

## 4. Conclusion

Ketep and Banyuroto Villages have an excellent potential for tourism development with community-based agriculture. The agricultural land is suitable for cultivation of upland vegetables, corn, strawberries, and tobacco. Then, social and cultural conditions of the agricultural community with the cultural wisdom applying the principle of land conservation just need a little improvement, and local institutions can play a role in the



management. These conditions are supported by good access and strategic location and near from some tourist destination.

Community and village officials in Ketep and Banyuroto well accepted concept of community-based agritourism development is expected to increase the value added in agricultural systems and increase the appreciation in the field of agriculture. Assessment of the sustainability of communities in both villages indicates that the ecological, social and cultural shows a good sustainability.

Evaluation results show that perception and preference of most customers/visitors enjoying agritourism to participate actively in the process of production of crops, livestock or fish. Moreover, visitors want an improvement agritourism objects, infrastructures, and services.

Thus, community-based agritourism development directed at the concept of tourism activities that provide education, follow agricultural field activities and agro-processing, and enjoy the natural beauty of rural areas by zoning division adjusted to the proximity of the location, time allocation, and combined with the natural attractions in the local village.

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