COMMUNITY-BASED ECOTOURISM AT KADILANGU MANGROVE CONSERVATION: THE SOCIO-ECONOMIC DEVELOPMENT PERSPECTIVES

Dyah Titis Kusuma Wardani, MIDEC
dyah.wardani@umy.ac.id
Department of Development Economics, Faculty of Economics and Business,Universitas Muhammadiyah Yogyakarta, Indonesia
Jalan Lingkar Selatan, Tamantirto, Kasihan, Bantul, Daerah Istimewa Yogykarta 55183, Indonesia

Abstract

The conservation efforts by Kadilangu community have produced the enhancement of mangrove forest areas, however the utilization of mangrove forest by people around was limited. The conservation effort was analyzed descriptively based on Indonesia Government Rule Number 5 in 1990 and Number 32 in 2004. To make the conservation effort sustainable, it needs to develop community-based ecotourism (CBET) at Kadilangu mangrove forest, so as they can utilize mangrove forest benefits. Mangrove forests protect coastline by preventing abrasion, enrich coastal waters, support coastal fisheries, give additional benefits for biodiversity, and improve ecotourism industry. This research intended to study the conservation and ecotourism effort in Kadilangu Village and the community perception of both conservation and ecotourism toward sustainable socio-economic development. The data collection was undertaken through field visits and interviews using simple random sampling. In addition, to investigate the ecotourism potential at Kadilangu mangrove forest this research using components obtained from key informants interview which are divided into four parameters. In addition, to estimate of potential economic value of Kadilangu ecotourism mangrove forest with Travel Cost Method (TCM). The Six-Pack Training Pilot Project is a recommendation to solve the problem of CBET in Kadilangu. The results are supposed to give strategies on how running the efficient training to maintain sustainable management of CBET therefore conservation efforts as well as community's welfare improved significantly.

Keywords: *community-based ecotourism (CBET), mangrove conservation, socio-economic, sustainable development* ***JEL Classifications:*** *Z32, F64, O20, Q01*

1. Introduction

Ecotourism is one of the important industrial sectors and has great potential and opportunities to be improved. The government of Indonesia continues to develop the ecotourism as a part of tourism sector that will become the new engine in supporting national growth and sustainable development. Not only because this sector became one of the sources of income, but also World Tourism Organization data of 1994 said that, in the 21st century, tourism become one of the most important socio-economic activities and

become one of the largest export industries in the world. The growth of Indonesian tourism is very significant, the Ministry of Tourism and Indonesian Agency for Creative Economy (BEKRAF) stated that, tourism growth is higher than the overall growth of the Indonesian economy. The development of tourism in Indonesia is also increasing as the government of Indonesia is targeting the visit of 20 million tourists in 2020. To realize the target, the government is currently intensively promoting tourism in various countries, one of them in New Delhi, India in the World Festival (WCF) (Ministry of Tourism, 2017).

1.1 Background

The fundamental purpose of ecotourism is to conserve the environment, at the same time, to support poverty alleviation of the local people in line with the issue in Sustainable Development Goals (SDGs) namely "Green Economy". Sustainable development has been the overall goal of the international community since 1992 in the UN Conference on Environment and Development (UNCED). The conference invited governments to develop national strategies for sustainable development, incorporating policy measures outlined in the Rio Declaration and Agenda 21. Despite the efforts of many governments around the world to implement such strategies as well as international cooperation to support national governments, there are continuing concerns over global economic and environmental developments in many countries addressing some issues related to global energy, food and financial crises, and is underlined by further warnings from global scientists that communities are in danger of breaking ecological limits. Thus, one of chapters in the guidebook to the green economy[1] is coherent with ecotourism in Indonesia, one of issue in guidebook entitled, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* which is written by United Nations Environment Program (UNEP). The *green economy* is defined by UNEP as one that results in improvement of human *well-being* and *social equity*, while significantly reducing *environmental risks* and *ecological scarcities.*

1.2 Objectives

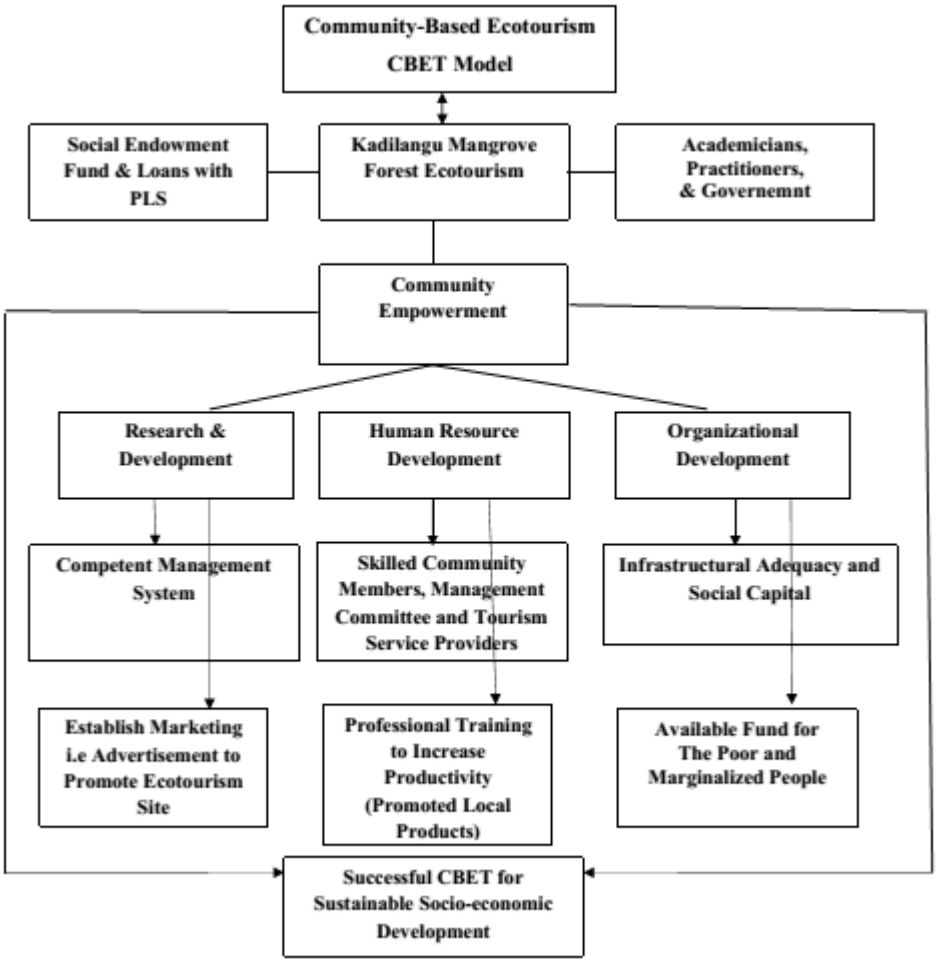
Based on green economy concept of SDGs, it is important to conduct the research that aim to enhance ecotourism in Indonesia to comply with the United Nation program. The first hypothesis is, although Kadilangu Sand Beach has produced the enhancement of mangrove forest areas, however, the utilization of mangrove forests is still limited. Therefore, it needs to develop community-based ecotourism (CBET) at Kadilangu mangrove forest, in order to obtain the benefit of mangrove forests optimally. Mangrove forests are not only useful because they produce wood, but also as a buffer for marine and terrestrial ecosystems (Davis and Johnson, 1987). One of the benefits of mangrove forest is to provide some food and nutrients for some marine animal species including those that

[1] The term green economy was first coined in a pioneering 1989 report for the Government of the United Kingdom by a group of leading environmental economists, entitled Blueprint for a Green Economy (Pearce, Markandya and Barbier, 1989). The report was commissioned to advise the UK Government if there was a consensus definition to the term "sustainable development" and the implications of sustainable development for the measurement of economic progress and the appraisal of projects and policies

have important ecosystem meaning (Blackwell, 2007). Nutrient elements and large amounts of organic matter in these mangrove forests are mostly derived from the leaves of mangroves and organisms that have died and broken down by microorganisms (Bengen, 2001). The second hypothesis is, the managerial problem of CBET due to low skill of community.

1.3 Framework Analysis

Figure 1.1 Model of Community-Based Ecotourism (CBET) Kadilangu Mangrove Forest



Source: Author Estimation

1.4 Literature Review

1.4.1 Community-Based Ecotourism (CBET)

Empowerment is the language, from the Indonesian derived from the word "power" which means strength, which means the effort to build a power possessed the poor by encouraging, motivating, and raise awareness about their potential and try to develop (Esack 2000). *Six Pack-Training (Product, Price, Place, Promotion, People and Process)* initiative is a pilot project that will be implemented in ecotourism sites by empowering local people. The project aims to build the capacities of local authorities and community members, to enable them to manage community-based ecotourism become more self-sufficient and sustainable.

There are activities during the first few months revolved around community mobilization and capacity-building for members of local ecotourism authorities and ecotourism service providers. This research aims to investigate some potential of CBET at Kadilangu to set up an ecotourism training program. Thus, from the result, ecotourism training able to address the need of CBET at Kadilangu, so that the training program may contributed to the improvement of quality service toward visitors both foreigner and domestic, enhancement of conservation effort as well as community's welfare by increasing trading activities surrounding mangrove forest to achieve sustainable socio-economic development in the mangrove forest area (Fadhilah, 2015).

1.4.2 Tourism Elements

According to Spillane (1987) there are five elements of tourism such as attraction, facilities, infrastructure, transportations and hospitality. According to Mathieson and Wall (1982), tourism demand is the total number of people who travel to use tourism facilities and services in a place far from where they live and where they work. The demand for tourism affects all sectors economy, including: individual (individual), Small Business Medium Enterprises, Private Companies, and Government Sectors (Sinclair and Stabler, 1997). The demand for tourism is also based on the budget shopping that people have, this is the core of demand tourism. Someone will consider to reduce the budget people have for a holiday interest.

2. Method

2.1 Object of the Research

The object of this study is visitors of mangrove forest tour at Kadilangu Beach located in Yogyakarta. The study is conducted at Kadilangu since this tourism site is quite new and potential to be developed. Besides this research is important since to investigate sustainable management in mangrove conservation.

2.2 Data

The research is using quantitative method, where the data that is obtained is a number, then further analyzed in a data analysis. Data used in this research is primary data which is obtained directly from the source, they are, visitors of Kadilangu ecotourism and Kadilangu Community. In addition, this research also apply qualitative method to get details and further information to investigate on how substantial CBET contribution to mangrove forest ecotourism as well as conservation effort built in the ecotourism program by doing field observations and interviews to the key informant.

2.3 Sampling Technique

The simple random sampling method is the sampling method is a sampling method that gives the same opportunity or opportunity for elements or members of the population to be selected to be randomly sampled. The method used by accidental sampling is technique sampling based on anyone who happens to meet with researchers and willing to be respondents in Kadilangu mangrove forest. Advantages of this sampling method is an easy sample selection procedure, moreover, misclassification can be avoided.

The minimum number of visits to Kadilangu mangrove forest during these 5 months is 1 times and a maximum number is 6 times. The lowest number of visits, 1-2 times at amount 87 respondents or 72.5% and the highest number of visits, 6 times at about 6 respondent or equal to 5%. Description of number of visits can be seen in the following table:

Table 2.1 Number of Visits at Kadilangu Mangrove Forest

Number of Visits (Times)	Number of Respondents (People)	Percentage (%)
1-2	87	72.5
3-4	27	22.5
5-6	6	0.5
Total	120	100%

The number of samples in this study using *Slovin formula* with the following calculation:

$$n = \frac{N}{1 + Nd^2}$$

Where,

n = Sample

N = Population

d = Standard deviation

Therefore, the amount of sample size, if d = 10% for visitors mangrove forest estimated as follow,

$$n = \frac{120}{1 + 120\ (0.10)^2} = 54.54 \text{ or } 55 \text{ visitors}$$

Then, sample size is 55 visitors.

2.4 Data Collection Technique

The data collection techniques is using in this research differentiated into two techniques, they are as follow,

2.4.1 Key Informant Interview

It is a technique of data collection conducted by holding a verbal question and answer. The task was to identify potential community based ecotourism (CBET) sites in Sanden that might have been missed in the initial short listing. In the absence of relevant data, stakeholders were relied on as both key informants and key players in the implementation of ecotourism development activities. Key informant interviews, meetings and discussions with relevant stakeholders were a vital part of the study since there was insufficient or no publicly available information about community-based ecotourism in the ecotourism site. Each stakeholder was provided with the list of the components and parameters and asked to provide insights and give the score. The main objective of these discussions was to use the expertise of the team members to identify the sites with most potential and arrive at a number that would meet the project's financial and time constraints. Thereafter, the following list was finalized to conduct field visits.

2.4.2 Field Visit

This research using open-ended observation, and then focusing on a particular behavior or group or event once they have a particular question, topic, or hypothesis. This method allows us to discover rather than simply test, thereby reasoning by induction rather than deduction. In addition, to provide a means for triangulation by testing data from observation against published research and what people say in interviews. Field visits may possible to observe interesting tours related to wildlife, biodiversity, bird watching, and more are gaining popularity in Kadilangu mangrove forest. Since in that area is host to several species of orchids and flowering plants, this niche segment is a potential target group if promoted effectively.

2.4.3 Questionnaire

Data collection technique done by way provide some written questions that should be answered by the community (key players) as respondents. Questionnaire used in data collection is a questionnaire that includes profiles of respondents, respondents' responses to the questions posed related to each indicator of the research variable.

2.5 Operational Definition of Variables

Based on the findings of the pilot study in ecotourism site using key informants interview, a set of parameters was developed, then become the basis of the preliminary research for field visits. The parameters were divided into four major components, namely the program's objective, primary facilitators, secondary facilitators, and people,

2.5.1 Objectives

The main objective of this project is to reduce threats to biodiversity, create alternative means of livelihood, and improve gender and social inclusion. Ecotourism is seen as just one of the ways to do it. Tourism is one of the fastest growing industries and can be a sustainable alternative to economic activities that would be damaging to biodiversity. Therefore, three major parameters were evaluated under this goal: biodiversity, livelihood, and gender and social inclusion. *The highest weight of 4 was given to this component as it determines where the project is most suitable and in line with the objective of the program.*

1. *Biodiversity*: The factors that were measured to score biodiversity were based on the availability of attractive, well-protected areas, wetland sites, important bird areas, the occurrence of endemic and rare charismatic species, and attractive geomorphic formations. If ecotourism site rich in biodiversity then it would be scoring high, because conservation is key to protecting the sites from potential threats. Tourists are also attracted by natural landscapes that harbor significant biodiversity.

2. *Livelihood*: The landscapes of ecotourism site were evaluated on the basis of various sources of livelihood, for example, agriculture, trade and industry, and dairy farming. Ecotourism site with no alternative means of livelihood were given a higher score as the project is aimed at venturing into areas without alternative sources of income. Ecotourism can be a key source of income and employment for local communities, which in turn provides strong incentives to protect biodiversity.

3. Gender and Social Inclusion: To evaluate this parameter this study used gender and social status equality in ecotourism participations. These were taken to score the ecotourism site under this parameter. Ecotourism site with a low score would be rated higher, that means that this factor need to be improved since the ecotourism training project aims to foster social inclusion, gender balance, and empowerment of vulnerable groups in the region.

2.5.2 Primary Facilitators

Includes those factors that facilitate the development of a tourist destination. These are attractions that will drive tourists to visit these destinations. Without these it will not be able to package an attractive destination.

1. Geological Attractiveness: geomorphic formations and features, mountain views, famous lakes and rivers, waterfalls, and historical sites were considered while scoring the ecotourism site.

2. Flora & Fauna: Ecotourism site was reviewed based on their level of flora and fauna, with districts with greater flora and fauna being rated higher.

3. Cultural Heritage: historical sites, religious sites, and ethnic cultural prominence. Ecotourism site is scoring under culture heritage. The more ecotourism has cultural heritage, the higher score achieved.

4. Existing Tourism Destination: Districts were reviewed and scored on the basis of available tourism destinations and their ability to attract tourists. Ecotourism with these features were scored higher.

5. Potential for Clustering: in question were analyzed to see if a possible group or cluster could be made by combining destinations that would provide a varied and holistic range of tourist attractions. Ecotourism site that could be grouped with other such ecotourism or tourism destinations in the vicinity was scored higher.

2.5.3 Secondary Facilitators

Secondary facilitators are those that will enable tourism activities to be conducted. As a result of Kadilangu geographical terrain there are many places that have huge tourism potential but are not easily accessible. Also due to the lack of infrastructural adequacy these areas have not been able to cash in on the tourism potential supported by their rich natural and cultural resources.

1. Accessibility: in order to measure accessibility, the availability of airports and road connections were considered. To assess the accessibility, the existing road density in each of the districts was evaluated.

2. *Infrastructural Adequacy*: In order to measure infrastructural adequacy, the availability of facilities such as drinking water, electricity, and sanitation were considered. Ecotourism site with a greater availability of these features was given a higher score.

2.5.4 People

Is the willingness and ability of the people to engage in tourism activities, the parameters, are:

1. *Demography*: The demographic profile of the districts was measured using the formula given below. The lower the literacy level of the district, the greater the score as there is a lower chance of migration. For this criteria, the bigger the household, the greater the score given. This is because there is a greater chance that these households have just one source of income from traditional means, which is unlikely to sustain their entire household.

2. *Migration Pressure*: The lower the migration rate, the higher the score, as it is essential to provide opportunities for people to prevent outmigration.

2.6 Method of Analysis

The methods of analysis of this research as follow,

2.6.1 Descriptive Analysis: to investigate the potential of Kadilangu ecotourism site is represented in parameters that are grouped into four parameters.

2.6.2 Economic Value: *Travel Cost Method (TCM)*

In this study, the economic value of mangrove forest Kadilangu using the method of travel expenses (travel cost method). The basic concept of the travel cost method (TCM) is time and cost trips that must be paid by the visitors to visit the sights (Djijono, 2002). The cost method of travel using multiple approaches (Gravitiani, 2008).

3. Results

The parameters were divided into four major components, namely the program's objective, primary facilitators, secondary facilitators, and people, as shown in the table 1 below. All of the aforementioned parameters were rated on scale of 1 to 4. The four sets of parameters were weighted from 1 to 4, with 4 being the most important parameter and 1 is the least important.

Table 3.1 Components and Parameters for Ecotourism Site

Objectives	Primary Facilitators	Secondary Facilitators	People
Biodiversity	Geological Attractiveness	Accessibility	Demography
Livelihood	Flora & Fauna	Infrastructural Adequacy	Migration Pressures
Gender & Social Inclusion	Cultural Heritage		
	Existing Tourism Destinations		
	Scope for Clustering		
4	**3**	**2**	**1**

Table 1 shows components and parameters for ecotourism site. Since the objective of this assignment was to conserve biodiversity, increase livelihood options, and promote gender and social inclusion, this parameter was given the highest weight. Factors that facilitate the development of a tourism destination, such as the geological attractiveness, flora and fauna, and cultural heritage were deemed primary facilitators. This set was assigned a weight of 3. The next set of parameters included accessibility to and within the district and infrastructural adequacy. Although important for the development of a tourism

site, these are regarded as secondary facilitators, which is why these were assigned a weight of 2. The last parameter was the willingness and ability of the people to engage in tourism activities. Migratory pressure in the regions was also assessed under this parameter. This parameter was assigned a weight of 1. All of these parameters were assessed through desk review and interviews with related personnel as field visits to all places was not feasible. Keeping in mind the scores from the aforementioned parameters, and the level of existing tourism activities, **this ecotourism site was identified as having strong potential**.

Table 3.2 Number of Respondents, Number of Population, Number of Visits/1000 Population by District/City

District/City	Number of Respondents	Number of Population	Number of Visits/1000 People
Kulon Progo	40	388,869	0.102
Yogyakarta	23	388,627	0.059
Bantul	18	911,503	0.019
Sleman	13	1,093,110	0.011
Purworejo	26	705,483	0.036

Source: Author Estimation

Table 3.3 Average the Components of Travel Cost from District/City (Rupiah)

District/City	Transportation Cost	Consumption Cost	Entry Ticket Cost	Parking Cost	Total
Kulon Progo	407,000	388,000	120,000	60,000	977,000
Yogyakarta	870,000	607,000	92,000	64,000	1,633,000
Bantul	410,000	371,000	72,000	39,000	892,000
Sleman	640,000	372,000	52,000	41,000	1,105,000
Purworejo	785,000	422,000	68,000	68,000	1,375,000

Source: Author Estimation

From Table 5.2 above it can be seen that, the highest average travel cost incurred by the respondent comes fromYogyakarta Regency is Rp 1.633.000,00 while the cost the lowest average travels issued by the respondents comes from Bantul regency of Rp892.000,00. Assessment of potential economic value of Kadilangu ecotourism mangrove forest with travel cost approach per 1,000 population in district/city in Kulon Progo area by calculating the cost the average travels issued by the respective respondents district /city multiplied by the population. For more details can be seen in the following formula:

$$Total\ Value \quad = \frac{Average\ Value\ x\ Number\ of\ Population}{1000} + \cdots$$

To see more clearly the calculation of economic value of Kadilangu ecotourism mangrove forest can be seen in the following table:

Table 3.4 Estimation of Economic Value Ecotourism Kadilangu Mangrove Forest/1000 Population by District/City (Rupiah)

District/City	Average Travel Cost (Rupiah)	Number of Population (People)	Total Value Rupiah/Tahun/1000 People
Kulon Progo	977,000	388,869	379,925,013
Yogyakarta	1,633,000	388,627	634,627,891
Bantul	892,000	911,503	813,060,679
Sleman	1,105,000	1,093,110	1,207,886,550
Purworejo	1,375,000	705,483	970,039,125

Source: Author Estimation

Based on the estimation of Table 3.4, the value is known economic attractions of Kadilangu ecotourism mangrove forest with the travel cost approach from each district / city per 1,000 the largest population per 5 months (June-October 2017) is Sleman District at amount Rp. 1,207,886,550.

4. Discussion and Conclusion

Mangrove ecotourism is a concept maritime economy based economic empowerment that is planning to build and develop through the utilization of endowment fund. The initial stage of the first step is to observe the potential mangrove resource of coastal area in Kadilangu by field visits and interviews toward key informants since there is not enough information and some information is not open for public. Mangrove ecotourism conservation that is initiated by coastal communities through training and education given by *Six-Pack Training Program* (*Product, Price, Place, Promotion, People and Process*).

From the three pilot site study it can be learned that the following criteria are necessary to ensure a successful CBET site: [1] Competent management is needed to keep the community motivated. [2] Committee representation of marginalized community groups must be ensured to provide inclusivity, and also governing agencies and active NGOs in that area should be represented to ensure a more transparent working system. [3] Marketing activities need to be competitive, and ways to distinguish products must be explored [4] Trainings provided must be profitable with market linkages for the products made after such trainings including natural conservation training. [5] Local produce such as snacks and drinks should be promoted, and the import of packaged items should be reduced to retain as much tourism income within the community as possible. [6] A separate fund for the poor and marginalized groups should be created from which they can take loans at minimal interest to be able to engage in tourism activities. Based on the findings of the pilot site study, a set of parameters was relevant to be developed and applied to other ecotourism site surrounding Kadilangu mangrove forest, then would form the basis of the next preliminary site selection for field visits.

The integration of social endowment fund and mangrove ecotourism conservation to financial and financing access for the poor and marginalized groups should be created from which they can take loans at a justice margin using profit-loss sharing (PLS) system, therefore to be able to engage in tourism activities. Social endowment fund is a solution

towards socio-economic development of coastal society. The integration of social endowment fund and mangrove ecotourism conservation must involve the roles of academicians, practitioners, Ministry of Fisheries, Ministry of Tourism, Ministry of Creative Economy and local people in order to make mangrove ecotourism conservation in Kadilangu could benefit toward coastal society optimally.

This research give some recommendations as Kadilangu community have to do some steps to make sustainable conservation effort to promote sustainable socio-economic development in Kadilangu, such as, [1] Improving management systems community-based ecotourism (CBET) in Kadilangu, [2] Increasing capacities of members of the community-based ecotourism, management committee and tourism service providers of both CBET sites, [3] Establishing strong advertising/marketing mechanisms of CBET site using powerful promotion strategy, [4] Enhancing mechanism for preservation of natural resources, especially the mangrove forest conservation, [5] Renovating tourism facilities at CBET site accompanied by adequate ecotourism infrastructure, [6] Social endowment fund with profit-loss sharing for social need, both financial and financing.

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