

Implementation of Community-Based Ecotourism through Waste Management: The Study Case of Sukunan Tourism Village, Yogyakarta, Indonesia

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Abstract

The research aims to investigate the transformation process required within an Indonesian village in order to overcome huge waste management problems by enhancing the ecotourism sector, as well as to analyze the innovations introduced to improve the environmental quality standards of the local inhabitants. It presents some findings from a field study in Sukunan Village, Yogyakarta (Indonesia), used as a case study to delve deeper into several issues related to ecotourism development via innovative waste management systems. To investigate the ecotourism phenomenon in this context, the research employs a qualitative approach, conducting in-depth interviews with several key informants who are currently residing in the village. This study demonstrates that the development of ecotourism through waste management has a positive impact on the village's social, economic, and environmental life, reevaluating a sub-urban context within an area that is unfortunately known for being one of the most polluted in the world.

Keyword: *ecotourism, waste management, sustainability, environment, sustainable development*

1. Introduction

Nowadays, ecotourism – considered a mean for natural conservation – is becoming a trend among tourists who want to travel in sustainable ways. As it has been proved by a significant body of research (Blamey, 2001; Lamey, 2001; Gale and Hill, 2009), the global development of the ecotourism industry successfully improved the quality of touristic destinations while maintaining and preserving their natural value and resources, guaranteeing their future use.

Since many countries in the world are currently struggling with waste (especially

concerning plastic materials), the application of ecotourism based on waste management undoubtedly constitutes an interesting phenomenon capable of stimulating critical discussions. The data collected by researchers and international organizations shows that the current nature of the problem has reached a critical stage: plastic use and consumption, in fact, constantly increased worldwide in a wide variety of applications, with global production that exceeds 300 million tons per year since 2014 (Lebreton et al., 2017). Furthermore, increasing population, changing consumption

patterns, economic development, changing income, urbanization, and industrialization result in increased waste generation (Schnitzer, 2009).

In order to provide a new perspective about this topic, this paper examines the small-scale ecotourism phenomenon based on innovative waste management systems in Sukunan Village, Yogyakarta (Indonesia). This paper aims to identify the origins of the environmental problems that this area in Indonesia faced and analyze the transformation process that recently occurred in the village. Therefore, the proposed case study is considered a practical example for promoting the development and spread of innovative perspectives about environmental safety and showing the impact of ecotourism on sustainable development and Sustainable Development Goals (SDGs).

2. Theoretical Frameworks

Ecotourism is recognized to have positive effects on natural ecosystems (Mirjansari, 2012). It also mentioned that ecotourism helps promote natural conservation in ecologically fragile regions. Further, ecotourism improves the economic sector within given local communities and provides a nature-based education experience for the public. Through ecotourism, the tourists are therefore provided an opportunity to learn something associated with environmental issues. According to Goeldner and Ritchie (2012), ecotourism delivers an excellent focus for the purpose of the fundamental obligation of all tourists to avoid dangerously or harmful behaviors and protect all sites they visit. The concept, therefore, is intrinsically highly value-added since tourists must accept the responsibility to be carried out for their behavior and its impacts. Thus, the vital concern towards ecotourism is to emphasize the proliferation of environmentally-based activities that uphold natural resources' preservation (Weaver, 2002). In order to safeguard the environment, ecotourism must employ and inform the locals, as well as educate the tourists. Making optimal use of environmental resources that constitute a key element in developing tourism, maintaining essential ecological processes, and helping to conserve the natural environment are some aspects that should be considered in building ecotourism (Goeldner & Ritchie 2012). In addition,

ecotourism should also guarantee a high level of tourist satisfaction, providing experiences that could raise the tourist's awareness about issues and practices related to sustainability.

Ecotourism strengthens and empowers the quality of daily life within a given community, its cultural basis, and its natural environment, educating local inhabitants and visitors through direct participation. To be effective, such involvement has to produce benefits towards socio-cultural integrity, economic growth, and environmental preservation. The local's involvement has to be regarded as a key point of development for community-based ecotourism to benefit local communities, other than concerning environmental aspects (Carr, 2011). Within this perspective, the share of profits earned by ecotourism activities must be balanced and should not lead to socio-economical discrepancies. As underlined by Gale and Hill (2009), many new forms of ecotourism are based on the idea of sustainability, such as environmental stewardship, inter-generational and intra-generational equity, and often they occur within small-scale realities in order to promote non-consumptive and responsible behaviors and to create equal benefits to people while empowering the host community. Ecotourism is considered a fundamental tool to promote sustainable development, particularly in developing countries (Kiper 2013). As regards its application within the tourism sector, sustainability not only ensures that the consumption of tourism does not exceed the ability of a given destination to prosper but also provides freedom, education, and welfare for the people who live there (Mirsanjari 2012). Ecotourism is a tool that can overcome environmental and economic problems through natural conservation improvement, tourist education, and opportunities for local people in both developed and developing countries (Kiper 2013). It has to be seen as a viable way to foster nature and build socio-cultural links between local communities and tourists, bringing benefits on both sides. It encompasses various activities based on a deep understanding of natural and cultural issues achieved through sustainable and ecological behaviors. The link between the concepts of ecotourism and sustainable development is strengthened by the fact that ecotourism is progressively being lauded as an option of

sustainable development for the communities living in the rural areas, as a mean to spur economic development without ignoring the protection of the environment (Vogt, 1997). In order to contribute to sustainable development, ecotourism must be economically feasible, culturally fitting, and environmentally sensitive as a huge concern towards sustainable development (Wall 1997). Ecotourism incorporates activities that have to be ecologically sustainable while stimulating the participation of local communities (Dowling 2000). Considering the sustainable principles and practices involved in ecotourism, this concept, if appropriately applied, could undoubtedly attain the goals of poverty reduction, cultural and natural preservation, and business viability (Sarrasin, 2013).

Concerning a transformation process in a circumscribed community within a given place, this article uses an evolutionary perspective to understand changes through advanced forms of cooperation, social and human communication. Boschma (2009) stated that the existence of technology determines this perspective for building regional growth since regions must drive the change towards innovative systems of development (Cooke, 2001). Boschma (2009) further explains that regional growth is primarily related to the exploitation of intangible assets, for instance, tacit knowledge and institutions, rather than static cost advantages. From an evolutionary economic perspective, the regional growth drivers play an essential role in recognizing the regional history that determines the available options and possible outcomes of regional innovations in either social innovation or policy.

Within Evolutionary Economic Geography, it is crucial to understand why each region has its patterns and potential of growth, and therefore why some regions are deprived of their spot while others can keep or regain it (Boschma 1997). According to Boschma and Lambooy (1999), there is a strong association between the evolutionary notions of routines - path dependency and the concept of regional adjustment at the regional level. Local routines are undoubtedly helpful in analyzing a given region's capacity to develop innovations or welcome new technologies. The concept of path dependency is closely linked to the difficulty of changing local living patterns due to limited

mindsets, lack of competencies and resources, all factors that make it difficult for a region to adapt to new essential technologies, generating a negative mechanism of 'lock-in' (Boschma and Lambooy, 1999). Also, spatial proximity is seen as a salient feature since it raises a process of collective leaning between the actors involved in the process of change through coordination and cooperation. A fruitful improvement, therefore, can be achieved by: 1) understanding the potential of the human and social capital as a vehicle to spread knowledge and awareness in a given area; 2) strengthening the transfer and feedback of information among the actors or stakeholders through both formal and informal networks; 3) sharing a collective local culture of trust, in accordance with shared practices, activities and rules (Boschma and Lambooy 1999).

Boschma (1999) stated that each transformation is triggered by specific events that play a crucial role within the whole process. Trigger events are seen as potential sources of vital technological innovations, capable of providing opportunities for further development. These elements constitute salient factors in shaping the transformation of a place, an area, or a region. In this paper, we will apply these theoretical concepts (routines, path dependency, lock-in mechanisms, trigger events, and innovations) in order to build a framework that could be helpful to analyze the case study of Sukunan village and to apply an interdisciplinary perspective that could take into account environmental, as well as socio-economic and cultural factors.

3. Methodology

This paper results from field research conducted by the authors during three months (March-May 2019) in Sukunan Village (Yogyakarta, Java). The fieldwork has been organized following different methodological approaches ranging from anthropology to social and cultural studies, particularly participatory rural appraisal (Hampton, 2003), as one of the authors has been living in Yogyakarta from 2012 to 2017. Therefore, she gained a pre-knowledge of the research site that allowed her to deeply understand the crucial socio-cultural and economic dynamics involved in the phenomenon investigated. The method of

qualitative research – based on direct observation and interviews with local interlocutors – also took a fundamental role during the fieldwork as a helpful tool to describe and analyze the componential data acquired during the research process.

The field research in Sukunan aimed to analyze the proposed topic in depth through data collection based on descriptive qualitative research. The author also practiced participant observation, using the interview as a vital mean to interact with the key informants (the leader of the village, the committee of governmental and non-governmental organizations, the social agents who were handling the waste management system, and several local inhabitants). The interviews have been organized with reproducible, systematic, credible, and transparent dialogic tools to provide clear descriptions about the strategies used for data collection, support the pre-existing ideas about the topic, and generate a truthful narrative (Patton & Cochran Michal, 2002). Both semi-structured interviews (based on open questions) and in-depth interviews (based on less-structured questions to explore the respondent's perspective) were undertaken. This approach has been beneficial to understand better fundamental details regarding the transformation process of the village, its implementation of the waste management system, and the role of ecotourism in promoting environmental and economically sustainable development for local inhabitants.

4. Background of the Case Study

The case study investigated, Sukunan Village, is located in the district of Gamping, Regency of Sleman, Special Province of Yogyakarta (Java), within the major ring road of the metropolis. Regarding the demographic aspect, there are about 253 families currently living in the village, with 1117 inhabitants belonging to a wide range of diverse social and economic backgrounds.¹ The village's width is almost similar to other Indonesian villages, particularly in Yogyakarta's Province, with small roads crowded with vendors selling street food and other local products and traditional *joglo* houses almost everywhere.

Being part of the urban area of Yogyakarta, this village is fully absorbed into the local cultural

Figure 1. The environment of Sukunan Village



values, costumes, and behaviors. The Javanese culture is considered one of the most ancient in Asia, composed of multiple traditions and ethnic groups that merged during the centuries while keeping their specificity. Yogyakarta is worldwide famous for being one of the most representative icons of Javanese 'high culture', other than being one of the most important centers of Java (from both a historical and economic perspective)², furthermore strongly linked to the promotion of the local performing arts.³ Yogyakarta is therefore currently marked as a 'city of culture,' an imagined representation that is a source of pride for local inhabitants, including the members of Sukunan's community, who are constantly involved in fostering local traditions.

As regards the Javanese urban society, within the local's imaginary the population is usually subdivided into two main social classes: the *tiyang alit* (a Javanese word used to describe people belonging to the lower classes, like farmers, rough laborers, market traders, and sellers of suburban stalls) and the *priyayi* (higher classes or clerks, who usually have a good education and work inside offices, governmental institutions or undertake their own business (see Koentjaraningrat 1994). Therefore, it is clear that education has taken a prominent role in raising the social status of the lower classes, some of whose components managed to achieve socio-economical emancipation and eventually work in governmental offices. (Birsyada

& Syahrurah, 2016). The distinction mentioned above is strongly rooted in the mindset of local people and has important effects on shaping their sense of identity and the way they represent themselves, also in Yogyakarta and, therefore, in Sukunan.

The village inhabitants are fully aware and proud of their Javanese cultural and ethnic roots, and their daily routines are not too different from the ones of other Javanese. For instance, community life is undoubtedly a fundamental factor, and individualism is easily neglected; the relationship between family members or neighbors is much stronger than in Western urban environments since communication and good manners are considered crucial factors for preserving a family healthy community life. Moreover, mutual aid is widespread, and group discussions are still a fundamental means to solve collective problems by sharing knowledge and ideas since the Javanese social philosophy and ethics promote harmony through communication and interaction among the members of the society in order to maintain order and serenity (Birsyada & Syahrurah, 2016).

Regarding the economic background of Sukunan's inhabitants, it has to be mentioned that most of them (40% of the active population) work as farmers. Therefore, the agricultural sector is strong and provides incomes for a large number of families, followed by the construction sector, which employs about 400 people (30%). Business activities in diverse sectors involve 20% of the local inhabitants, while the remaining 10% work for governmental institutions as National Civil Servants (*Pegawai Negeri Sipil*). The percentage of unemployment is also considerable in Sukunan due to the lack of job opportunities. However, since the tourism phenomenon in the village, the local society started to deal with several new jobs related to the tourism sector.

Environmental awareness and ecological behaviors are still new concepts for Indonesian people (especially those belonging to older generations), and their mindset probably constitutes a major obstacle to promoting a critical dialogue focused on environmental issues. Due to this lack of knowledge and self-consciousness thus, the preservation of natural environments does not seem to be a priority for many Indonesian people living

in rural and urban areas, who barely consider the impacts and consequences of their daily actions on the reality surrounding them. More specifically, the lack of environmental education, the high percentage of plastic usage, and the inadequate management of waste disposals and recycling systems have to be considered as the main factor that produced the critical environmental condition that Indonesia is currently facing. For instance, in some Indonesian regions (mainly in rural areas and small villages), the trash bins or waste disposals are not sufficient for collecting the high amount of waste produced by the local inhabitants, who use to burn it (including plastic and other polluting materials) along the side of the roads or to throw it in rivers and forests. Therefore, it is problematic for central government and local communities to promote environmental-friendly systems and the concept of sustainability itself.

The nuisances regarding environmental problems also take place in Yogyakarta. Although they live in a big modern city, a well-known touristic destination, Yogyakarta's inhabitants are still unaware of environmental issues such as waste management. The absence of social resources and services to share environmental knowledge (how to interact with nature sustainably) is at the root of the problem. Within this context, the active participation of the local community is essential to increase the level of self-consciousness about how to preserve nature and manage waste. Being part of Yogyakarta's urban area, the village of Sukunan also faced the same problems until 2004, when a vital transformation process took place. Before that moment, the village was full of dumped or

Figure 2. The situation of waste dumped along the street in 2000 in Sukunan Village



unmanaged waste, which caused exhalations of unpleasant smells and increased pollution. The village was also devoid of waste sorting that could differentiate diverse materials, such as plastics, paper, organic, and others, until some local inhabitants decided to change the situation.

5. An Evolutionary Perspective in Sukunan Village

The evolutionary perspective in this context is crucial for understanding the transformation process in Sukunan through an initiative of educative ecotourism through waste management within Yogyakarta. This process occurred through three main phases:

1. Start-up process through social innovation;
2. The improvement of the waste management system through community-based initiatives;
3. Maturity process towards environmental issues and ecotourism

5.1 Social Innovation

Social innovation (SI) often occurs as the product of innovative activities and services aimed at fulfilling specific social needs through either organizations or empowerment (Mulgan, 2006), and therefore it has a great potential in shaping regular or radical development. The cultivation of SI begins with the presumption that people are competent enough in defining or interpreting their lives while also enabling themselves as competent problem solvers (Mulgan, 2006). Once this condition occurs, to achieve its primary goals, SI requires the application of systematic strategies that are able to support development on both a regional and national scale.

In Sukunan, the will to introduce SI was motivated by the local's awareness about the threatening conditions of the natural environment surrounding them. The village inhabitants interpreted the problem and realized that the waste management was not efficient due to unhealthy daily routines caused by specific lock-in psychological and behavioral mechanisms.

Routines – whether individual or organizational – are built up over time and play a prominent role in influencing the tacit knowledge and the daily experience of a given community (Boschma and Frenken, 2003). The

lack of environmental awareness among Sukunan's inhabitants was at the basis of a lock-in mechanism that led them to burn and dump the waste into the rivers or along the banks of the streets. This situation was worsened because the local government did not provide any waste management service. Moreover, in continuous accumulation, the piles of waste were not sorted between paper, plastics, and organics, since the first governmental regulation concerning waste management was established in 2015 (regional policy no. 4/2015).⁴

In the period between 2000 and 2002, thus, the situation was critical and caused the occurrence of some trigger events – defined as potential sources of vital and significant technological innovation (Boschma and Lambooy, 1999) – that have to be regarded as the primary impulses within the process of transformation started a few years later. The trigger events that happened in Sukunan undoubtedly had a strong socio-economic impact on the local community and stimulated the inhabitants to gain knowledge about environmental issues. For instance, the dumped waste affected the agricultural sector, causing a failure of rice harvesting and leading to significant economic losses; the waste polluting the local river affected its ecosystem, causing the death of a massive quantity of fish (another vital resource for the local's sustenance).

To understand the development process in Sukunan, it is necessary to analyze the role of the social agents who drove the transformation, taking a fundamental role in sharing their innovative ideas and pursuing other people to seek a better way of living and thus for a healthier environment. Among them, a mention should be made of Mr. Iswanto and his wife, Mrs. Endah, who had strived to stimulate a positive change through collaboration. Their main concern was to improve the quality of local people's lives and prevent further environmental disasters by applying a functional waste management system. They introduced experimental methods to recycle inorganic waste and make handicrafts from the resulting materials, providing an added value to waste and positively influencing the village's economy. Besides that, Mr. Iswanto also introduced an efficient technique for producing compost through organic waste as a useful means to improve the agricultural sector in the village. Their trial process lasted almost four months, and

Figure 3. Handicrafts made of plastic waste (picture source: Mr. Iswanto)



Figure 4. A Place for processing Organic Waste into Compost



after, individuals began to transfer their knowledge to the local inhabitants.

5.2 The improvement of the Waste Management System through Community-Based Initiatives

The introduction of technological innovations – a fundamental aspect of SI – had a significant role in conveying the village's economic growth. Mr. Iswanto initiated a fundraising activity in order to support his ideas. The Australian Consortium in Country Indonesian Studies (ACICIS)⁵ aided him in finding a philanthropist who could provide funding for the implementation of his project. Since a fruitful dynamic of growth requires the interaction of stakeholders involved in all the levels of society, on 19 January 2004, he organized

a meeting with a wide range of people belonging to different socio-economic backgrounds to pursue them to enact more sustainable ways of managing waste. The locals agreed to create an independent regulation of waste management to promote new ecologic habits by applying the 3R system (reduce, reuse and recycle). The regulation also obliged each household to proceed with waste sorting by differentiating it into five categories: plastics, paper, organic, metal/glass, and aluminum/foil.

In the next phase, a committee has been formed to handle the application of the new waste management system. This committee played a fundamental role in providing empowerment, stimulating the locals to reconsider the importance of respecting their environment. Efforts on community empowerment can be considered successful when a social group becomes the driving force that determines the right strategic option, consequently increasing the skills and the independence of other groups (Staples, 1990). In Sukunan, empowerment has been conducted to improve the skills of the local people towards the management of waste, creating a condition capable of allowing all the community members to develop their potential and their socio-economic power while preventing unbalanced competition that could pose threats and inner conflicts. After carefully considering the problems related to waste management and the basic needs of the local community, the committee began to operate concretely by regularly providing collective non-formal training and socialization meetings to introduce the system as mentioned earlier of 3R. The committee also operated in order to: establish an environmental management organization in Sukunan; formulate its vision and mission, introducing a formal regulation about waste management; provide facilities and stimulate the creation of a business group for recycling waste; monitor and evaluate the program regularly, conducting transparent reports; undertake collaboration and coordination with all the stakeholders involved (government, educational institutions, organizations, private institutions). Through these steps, the local inhabitants slowly began to reshape their behavior toward the environment.

5.3. Maturity process towards environmental issues and ecotourism

The maturity process is strongly associated with the ability to promote innovation in a given area. In its maturity phase, the most prominent aspect that underlies a fruitful transformation process is concrete improvements, often accompanied by successfully integrated innovations. In Sukunan, the new waste management system was well-organized, planned, and implemented through a series of improvements; following the enactment and application of community empowerment, the inhabitants of Sukunan started to get used to the new system and regulation, a factor that automatically generated further improvements, stimulating a continuous self-refinement.

Being aware of the new waste management program’s usefulness, the local government responded positively, providing the local people further training programs. Starting from 2005, people from outside began to visit the village in order to learn about the implementation of systematic ways of managing waste. Since the number of visitors kept growing year by year, in 2009, some members of the local community started to provide touristic services and facilities, thus transforming Sukunan into a tourism village. Consequently, the village’s activities attracted the attention of the Department of Tourism of Sleman Regency, which took a crucial role in supporting and actualizing tourism activities in the village. On 19 January 2009, the local officials of the Department launched a campaign to promote Sukunan as a touristic attraction, focusing on the concept of ecotourism based on waste management. This launching has to be seen as a starting point for further developments within the local tourism sector, especially tourism management and sustainability. In 2009 the Department provided grants and funding for training human resources (guides and operators) and improving the whole system’s administration.

The grants⁶ provided have been devoted to improving the management system and empowering the program’s general functioning. These financial aids practically allowed the local community to establish a structured ecotourism system with a significant economic return without omitting the vital sustainability paradigms and educational purposes.

6. The implementation of ecotourism and its impacts on sustainable development

In Sukunan Village, the enactment of ecotourism is strongly supported by the presence of educative tour packages focused on the theme of waste management. All the activities related to ecotourism are community-based, managed by local inhabitants responsible for planning, implementing, and managing the whole system. The tours offered by the local tourism board are centralized on the village itself and finalized to educate the tourists through knowledge transmission. The following table 1 shows the salient features of the packages above-mentioned.

Focusing on recycling different kinds of waste, these tour packages offer diverse and unique training activities that undoubtedly constitute an original innovation in the Indonesian tourism sector. Sukunan’s community succeeded in reshaping waste and transforming it into a tourist attraction; the educative aspects are prominent within this system, promoting a better knowledge about the environment and how to respect it. Some of the local inhabitants also provide accommodation for the tourists who want to spend some nights in the village in their own houses to learn more about their living and culture. The number of tourists (domestic and international) visiting Sukunan fluctuate monthly, usually reaching its peak in November and December as shown in figure 5.

As mentioned above (known as POKDARWIS or Kelompok Sadar Wisata), the committee comprises 35 individuals in charge of managing the ecotourism activities, representing

Figure 5. Number of tourists who visited Sukunan in 2017 and 2018

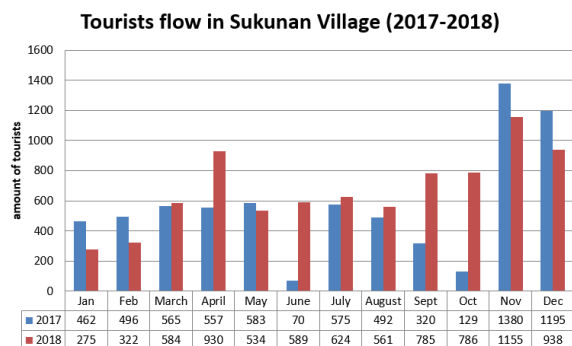


Table 1. Lists of eco-tour packages offered by the local tourism office of Sukunan Village

No.	Service Tour	Fee	Duration	Note
1.	Visit tour of the waste management system (socialization on waste sorting, compost making, plastic recycling process, paper recycling process, etc.)	≤25 people: Rp300,000 (18.75 Euro)	2-3 hours	One ideal group should be composed of 25 people
2.	Compost making training from organic waste	Rp.500,000/group (31.25 Euro)	2 hours	//
3.	Training on making handicrafts from plastic waste	Rp500,000/group (31.25 Euro)	2 hours	//
4.	Training on making woven from waste	Rp400,000/group (25 Euro)	1.5 hours	//
6.	Training on transforming Styrofoam waste into concrete brick	Rp400,000/group (25 Euro)	1.5 hours	//
7.	Training on paper waste recycling	Rp400,000/group (25 Euro)	1.5 hours	//
8.	Training on recycling glass waste into concrete brick	Rp400,000/group (25 Euro)	1.5 hours	//
9.	Training on traditional Javanese music (Gamelan)	RP200,000group (12.5 Euro)	2 hours	//
10.	Additional Service: Housing Food and Drinks	Rp60,000/room (4 Euro/room) Rp22,500/meal (1.5 Euro/meal)	1 Night	- food and drinks are not included -Rice, vegetables, meat, fruits, and drinks.

the local community, and being responsible for implementing and enhancing the tourism sector toward sustainability. The application of ecotourism in Sukunan Village strongly impacted the local population's economic, environmental, social life, nowadays fully involved in a fruitful sustainable development process.

As concerns the economic aspect, the financial income of Sukunan's inhabitants has grown due to the diverse activities, goods, and services offered to tourists, who can pay for joining educative tours or entertainment programs, for renting accommodation, for buying waste-based handicrafts, organic compost or food and beverages. Their money, therefore, undoubtedly constitutes an injection of demand into the local economy, and their presence provides additional job opportunities. All of the income earned through the activities based on ecotourism accrue to the local community in wages, salaries, and distributed profits, increasing its welfare and stimulating the continuity of the

waste management program locally adopted. The ecotourism phenomenon also influenced the growth of green entrepreneurship, or business activities contributing to fostering the natural environment and the concern toward environmental issues (Bosman, 2012). In Sukunan, green-preneurship is actualized through programs of professional skills enhancement – especially in the field of sustainable management –to empower the involved human resources and maximize economic income.

The development of ecotourism in Sukunan also positively impacted the environment, which promoted environmental awareness among local inhabitants and tourists. Consequently, the appreciation of the public spaces automatically increased due to the huge benefits derived from environmental care. The behavior of local inhabitants and their routines radically changed in a short period, to the point that Sukunan became an independent tourism village in the Special Region of Yogyakarta. This reality is constantly implementing

programs and activities related to waste control and management. Therefore, ecotourism has to be considered a fruitful synergy between human activities (ecologically oriented) and natural resources, mainly achieved by implementing a well-structured waste management system focused on environmental preservation. Moreover, ecotourism is also providing public education, stimulating the spread and transmission of knowledge concerning the concept of ecological sustainability. In practical terms, the positive impacts of ecotourism on the environment can be resumed in table 2 and 3.

Finally, ecotourism significantly improved the socio-cultural asset of Sukunan, promoting fruitful communication and interaction between the host community and the visitors. The growing presence of tourists belonging to diverse cultural backgrounds has encouraged cultural exchange and cross-cultural understanding. Local people have to interact with visitors from western countries daily, which has to be seen as an opportunity to broaden their mindset and raise their tolerance toward cultural diversity. Besides, as Inskeep (1991) suggested, the magnitude of the socio-cultural influences is closely connected to tourism development and can be determined by the extent of socio-cultural diversities between hosts and tourists.⁷ The ecotourism phenomena also became

an instrument to address gender qualities through the active involvement of women in economic activities associated with tourism, empowering their active role by providing them new practical skills and knowledge.

Other than positively influencing the three main factors of sustainable development (economic, environmental and socio-cultural), the ecotourism implementation in Sukunan meets some of the main points of the Sustainable Development Goals Agenda (SDGs) (See table 4).

7. Conclusion

In Sukunan village (Yogyakarta), community-based ecotourism – focused on waste management – has proved to be a functional strategy to solve enormous environmental problems, improving the living condition and the financial income of the local community. The cultural and technical innovations introduced by some local individuals – reducing, recycling, reusing waste – successfully managed to alter the harmful routines and the mindset of local people, who used to burn the trash on the edge of the streets or dump it the rivers. The new integrated waste management system is currently helping the local population implement its environmental understanding and its way of living.

Table 2. Table of the positive impacts of ecotourism on the natural environment.

Natural Environment (Components and phenomena)	Positive Impacts	Tourism activities that induced a positive impact
Pollution	Decrease of water pollution Decrease of air pollution	Waste management Waste recycling Waste reusing
Natural resources (trees, rice fields, rivers)	Improvement of natural resources Fertilization of the soil	Waste minimization Recycling organic waste into compost
Land Erosion	Improvement of the riverbank	Waste decline
Landscape	Cleanliness	Collecting the garbage in public spaces

Table 3. Table of the positive impacts of ecotourism on the social environment.

Built environment (components and phenomena)	Positive impact	Ecotourism activities that have induced positive impacts
Mindset	Environmentally friendly oriented behaviors and attitudes	Educational activities and training
Hydrological system	Improvement of the hydrological patterns	Controlled development of the hydrological system
Local facilities	Correct use of the facilities	Urban environmental management

Table 4. Role of Ecotourism of Sukunan Village in Sustainable Development Goals

SDGs points	Application of the agenda in Sukunan
SDG 1 – End poverty in all its forms	Ecotourism is a source of local enrichment, capable of providing new job opportunities and produce significant income for the community
SDG 4 – Ensure inclusive and equitable quality education and promote lifelong learning for all	Education and training concerning environmental issues (particularly waste management) provided to the local society
SDG 5 - Achieve gender quality and empower all women	Empowerment of the roles of women through active participation and income generation from enterprises focused on waste recycling
SDG 6 – Ensure availability and sustainable management of water and sanitation for all	Implementation of water accessibility and sanitation for the local inhabitants is achieved by installing communal wastewater management systems (<i>Instalasi Pengolahan Air Limbah Komunal</i>).
SDG 8 – Promote sustained, inclusive, and sustainable economic growth, employment, and decent work for all	Presence and enactment of green-preneurship, which concerns not only positive economic progress but also positive environmental impacts.
SDG 10 – Reduce inequality within the country	Social inequality reduction is achieved by stimulating dialogue and collaboration between local inhabitants and critical stakeholders; rural development is achieved by providing new job opportunities to support the economic integration of the lowest social classes.
SDG 12 – Ensure sustainable consumption and production patterns	Educational programs are aimed at increasing environmental understanding and reducing waste production.
SDG 13 – Take urgent action to combat climate change and its impacts	Water and air pollution reduction are achieved through the implementation of the waste management system and recycling technologies.
SDG 16 – Promote peaceful and inclusive societies, provide access to justice for all and build inclusive institutions	Promotion of tolerance and multicultural understanding as a result of interaction between local community and tourists.

Ecotourism constitutes, in this case, the product of an educational process that is generating visible practical consequences. For instance, tour packages are now available to provide waste recycling training for tourists who visit the village, promoting a cyclical transfer of knowledge that is extremely valuable. Ecotourism has also positively improved the local economy, the environmental conditions, and various socio-cultural aspects related to the daily lives of local people.

The transformation of Sukunan village has to be regarded as an example of a positive transition towards a better life quality, a result achieved by improving environmental awareness among local people. Within this context, the implementation of ecotourism through waste management stimulated the population to change their perspective towards environmental issues. It influenced the programs and the activities of other villages in the Special Region of Yogyakarta, which is currently working on the same concept. The successful model applied in Sukunan, therefore, does not only attract tourist

interested in learning about waste management systems but also encourage other villages to pursue better life standard and environmental quality through sustainability. Furthermore, this program perfectly fits the 2030 Agenda of Sustainable Development Goals (SDG) initiated by the United Nations, aiming to create a plan of action to balance people, the planet, and prosperity. Sukunan’s transformation is closely related to many of the 17 Goals programmed by the United Nations, providing a great example of how – even in a country like Indonesia, one of the significant plastic waste producers in the world – small communities can make a difference not only on a local but also on a global scale.

Endnotes

- 1 The data is taken from the village profile, kindly shared by the leader of the local organization of Sukunan (POKDARWIS of Sukunan Village) on the 22th of March 2019, during a personal

interview.

- 2 Yogyakarta is the only Indonesian City which is ruled by a Monarchy which applies the system of Sultanate. Sultan Hamengkumobuwono X is currently the ruler that holds the role as both governor and king of Yogyakarta. Therefore, this city is privileged status as “Special Regions”.
- 3 One of the most popular performing arts in Yogyakarta is Wayang Kulit (a shadow puppet) which has been recognized by UNESCO as a Masterpiece of the Intangible Heritage of Humanity.
- 4 This policy (*Peraturan Daerah Kabupaten Sleman Nomor 4 Tahun 2015 Tentang Pengelolaan Sampah Rumah Tangga dan Sampah Sejenis Sampah Rumah Tangga*) is aimed at regulating the waste management in Sleman regency; among its main points, it establishes that each individual is obliged to reduce waste production (article 5).
- 5 This organization is a non-profit consortium of universities which develops and coordinates high quality options for undertaking studies and researches in Indonesia. ACICIS provides a wide range of exchange programs between Australia and Indonesia to ease the international cooperation in different sectors.
- 6 The total amount of the grants provided by the Department of tourism of Sleman was 170,000,000 Rupiah (the equivalent of 10,625 Euro).
- 7 According to the author, the distinction encompasses religious beliefs, lifestyles, attitudes towards strangers and foreigners, behavioral patterns, traditions and customs, as well as basic value and logic systems.

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