

ENVIRONMENTAL EFFECTS OF ECOTOURISM IN INDONESIA

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Abstract

The ecotourism is global issues who most talked lately in Indonesia, it is one of the activities special tourist interest which low impacts on natural tourism. The presence of ecotourism in the era of sustainable and tourism development mission should be minimum negative impacts, both on the environment resources and on socio-cultural local values. Ecotourism activities were more oriented on the utilization of natural resources, the natural ecosystems and have not been polluted yet. However, when all of tourism development can not be separated from the negative impacts, such as ecosystem distress in ecotourism object when visited by large number of tourists, there are many conflicts of interest between the ecotourism management with local communities, especially regarding the benefits sharing and its accessibilities. The purpose of this paper is to identify the environmental impacts arising as a result of ecotourism activities and to find out alternative efforts in mitigating the environmental impact of ecotourism activities. Carrying capacity of ecotourism is not just limited to the number of visits, but also covers other aspects, such as: (1) ecological capacity that is ability of natural environment in providing the needs of tourists, (2) physical capacity, that is ability of facilities and infrastructure in providing the needs of tourists, (3) social capacity, that is ability to absorb tourism activities without the negative impacts on the local communities, (4) the economic capacity, that is ability to absorb destination commercial efforts and accommodate any interests of the local economy.

Keywords: Ecotourism, environmental impacts, carrying capacity.

INTRODUCTION

Indonesia is a country rich in natural and cultural resources. Area of this country consists of more than 17,000 islands and small islands that stretch along the 6400 km from west to east, and about 3,000 km from north and south, and therefore naturally suggest the high diversities. Indonesia has the diverse flora and fauna resources. "Asia" fauna is available at the Greater Sunda Islands (Sumatra, Kalimantan, Java and Bali). Lesser Sunda Islands (East of Bali) have been affected by the "Australia" fauna, the greatest effects are in the shallow Sahul (Ambon, Seram, Aru). There are also several unique species in certain places that are not found in other places such as Komodo dragons (*Varanus komodiensis*). About 60 % of Indonesia's land consists of many types of forests and vegetations. Ethnic groups have its own culture, language, customs and ceremonies of their own special showing Indonesia's cultural diversity.

The issue of Indonesian tourism is a high concentration of activities in the most developed provinces, such as Jakarta, Bali, Yogyakarta, and several places in North Sumatra, North Sulawesi and South Sulawesi. These facts show that there

are still many other provinces which have a ecotourism resources and unique traditional culture but have not been utilized properly. Tourism objects, such as heritage tourisms, traditional small town, down-town and the coastal cities and water front cities, natural landscapes and wildlife flora and fauna are scattered throughout the country.

Ecosystem diversity suggests the biodiversity of flora and fauna in this country. Indonesia is the second country after Brazil in their biodiversity (Primack et al., 1998). The biodiversity of flora, fauna and ecosystems, and cultural diversity are the potential attractions for tourism development in this country. Ecotourism and nature-tourism are suitable to improve the tourism standing, based on their nature and heritage tourisms, the local social capital, and its tourism carrying capacity. As nature tourism activities that have a specific purpose and responsibility, the ecotourism communities more and more popular as a fun tourism activities. This trend is signed by the increasing number of "the nature-lover" among the Indonesian people who perform various activities in the form of cross-country (hiking), rock climbing, rafting, camping grounds, rising bicycle, enjoy the natural amenities and uniqueness of local traditional culture.

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Indonesia suggests the high potencies of ecotourism attractions, include the nature ecosystems and its resources, nature biodiversity and traditional values spread in various regions of archipelagoes. However, management of these ecotourism attractions are actually undeveloped in many tourism destinations. Its activities are really still limited to certain nature areas. According to UNEP (2003), the ecotourism planning and management are the most effective tools in conserving biodiversity at the long term. The main ecotourism attractions are based on nature flora and fauna (90%), and local traditional culture (10%). For Indonesia, the ratio may be the nature resources of 60% and traditional culture of 40%, because this country is very rich in traditional culture (Sudarto, 1999). The nature and traditional-culture are the main ecotourism attractions in Indonesia, people need to conserve nature resources in order to sustain any ecotourism objects and attractions. These activities are not so easy because Ryan and Crotts (1997) reported that the impacts of tourism are relatively complex and it is difficult to be managed (Hvenegaard and Dearden, 1998).

This suggests that ecotourism has an important role in the context of sustainable development, because it offers the high potencies for the private sectors to develop and utilize the natural resources potencies, and to support community economic development, particularly in rural areas surrounding the ecotourism destinations (Eagles, 2002).

In this paper it is described the ecotourism potencies from various regions in Indonesia, it provides general informations about the existing economic and social development. In the perspective of ecotourism, it is identified environmental impacts due to the tourism activities and the impact prevention and its mitigation are discussed in order to support the goals of sustainable tourism and preservation of natural resources development program.

1. What is Ecotourism

The definition of ecotourism was introduced by the The International Ecotourism Society (IES) in 1990 (Fandeli, 2000), which states that ecotourism is a form of travel into the natural areas aimed in conserving the environmental resources and preserve biodiversity, and improve the local communities livelihood. Ecotourism is a form of tourism that is responsible in preserving the nature areas, to create economic benefits and maintain the cultural integrity of local communities, which is

also a form of special tourism interest (Fandeli, 2003).

A tourist activities can be regarded as ecotourism if it has met three dimensions: (1) conservation dimensions, namely tourism activities are helping local conservation efforts with minimum negative impacts, (2) educational dimensions, namely the tourists who follow the activities of these tours will get knowledge about ecotourism, unique local biological and socio-cultural lives, and (3) social dimensions, namely the local people who have been key actors in implementing any tourism activities (Hafid, 1995).

Data suggest that among various types of ecotourism , the nature attractions are quite interested or about 10% of the overall tourism enthusiasts (WTO, 2000). In the future looks more positive with the declaration of 2002 as the year of the International Ecotourism, the positive responses have been suggested by more than 93 countries in the world. Indeed, to develop ecotourism is not easy because it must meet the international standards and rules. However, it is not expensive and very profitable in terms of nature conservation and local community empowerment.

Ecotourism based on this criteria is ecological tourism, which is a model of responsible tourism development in an undisturbed nature areas or areas that are managed by the specific rules to enjoy and appreciate any ecosystem services and all forms of traditional culture that support conservation, involving educational elements, has a low impacts of socio-economic and active involvement of local communities.

Ecotourism is a form of tourism that very closely with the principles of the environmental conservation. In developing the strategy of ecotourism it is used the sustainable ecosystem management. Thus ecotourism is very feasible in maintaining the sustainability of ecosystems. Directly and indirectly, activities of ecotourism also play a significant role in efforts to protect and manage the natural habitats and species that are found in them, and creates economic benefits for the surrounding communities.

2. Ecotourism Development in Indonesia

In Indonesia, tourism started to become an important concept from 1995, when there is a national seminar and workshop organized by the Pakta Indonesia and WALHI at Bogor city. In order to strengthen Indonesian ecotourism movement, participants in the Second National

Workshop on Ecotourism held in Bali on 1 to 5 July 1996, declared the Ecotourism Society of Indonesia (Indonesian Ecotourism Society, IES). Activities of this community among others are to increase awareness about the need for nature conservation, to develop the environmental education for the tourists who visit ecotourism destination, and create economic benefits for local communities. Since 1996, tourism discussions, workshops on ecotourism strategic planning and implementation of ecotourism in Indonesia have been performed. The IES was encouraged the first meeting (1997) in Flores city, and second meeting (1998) in Tana-Toraja, South Sulawesi (Sudarto, 1999).

Development of ecotourism in Indonesia was originally driven by non-governmental organizations (NGO), community services and environmentalist. It is more based on a commitment to the environmental preservation, economic development and empowerment of local communities in a sustainable way. Sometimes that commitment is not supported with the professional management, so that there are areas of ecotourism are not sustained. Meanwhile, private sectors have not been interested in doing business in this field, as it must take into account the social costs and the ecological costs (Ditjen PKK, 2001).

To support the ecotourism development in Indonesia, tourism communities should understand any constraints in ecotourism management. Several constraints have been identified include forest logging (e.g. in the Tanjung Putting), uncontrolled mining (e.g. in the Tanjung Putting) and illegal hunting (generally in Bali). Other threats include flood disasters, social conflicts and environmental insecurities (Sudarto, 1999).

In 1993, tourism in the Asia Pacific regions have contributed U.S. \$ 950 billion and 10% comes from ecotourism activities. Because Indonesia is rich in biodiversity and culture attractions, there are chances for this country to get 10% of this amount. If this happens, Indonesia will get U.S. \$950 million from the ecotourism sub-sector. A potential market for ecotourism is the United States, about 43 millions people ready to do ecotours (Sudarto, 1999).

However, there are five basic principles of ecotourism that should be implemented in Indonesia, i.e.: (1) supporting program in nature conservation, (2) involving the local communities in ecotourism activities, (3) provide economic

benefits for the tourism communities, (4) preserve social values, local traditional cultural and religious communities, and (5) comply with regulations related to tourism and nature conservation (Anonymous, 1997; Anonymous, 1998).

One real example that can be described is ecotourism in Bali, it is supported by the Prudential Foundation, which provides funds to empower people in adopting eco-tourism in their village; e.g. the Pelaga - Turn Sidan, Sibetan, Tenganan and Ceningan. These initiatives are likely to slow the development of mass-tourism which can generate any problems of environmental degradation and social disorders (Carroll and Turpin, 1997).

Development of ecotourism in Indonesia should be supported by an active role of local communities by way (Ditjen PKK, 2001): (1) developing any relationships of partnership with the local communities, (2) involving any local communities in the process of planning, implementation, monitoring and evaluation, (3) creating the local community aspirations and initiatives for the development of ecotourism, (4) having regard to the specificity of local and traditional wisdom, and (5) providing business opportunities and job opportunities for the local community.

3. Potential Tourism Objects

Objects and attractions (tourist attraction) are the geographical formation, supporting activities and facilities, which can attract tourists to visit the specific place (Spillane, 1985). In Act. No 9 /1990, it is stated that the objects and attractions are all things that a tourist target. Tourism activities in this trip is voluntary and temporary to enjoy the objects and attractions of tourism.

There are three basic elements in all the objects and attractions of tourism (Nyoman, 1990), namely: (1) places, which are the special places that can be visited by tourists, (2) signs or symbols that are visible and indicate the high value of tourism, and (3) physical borders that limits the physical objects or environmental attractions. All of attractions are the main attractions someone came to visit due to their authenticity of objects and uniqueness of attractions, it should be maintained.

However, the most important in developing tourism attraction is the tourism carrying capacity. The tourism carrying capacity have been influenced by numerous factors of tourist motivations and environmental properties

in the ecotourism locations. Carrying capacity of ecotourism is not just limited to the number of visits, but also covers other aspects, such as: (1) ecological capacity, that is ability of natural environment to satisfy the tourist needs, (2) physical capacity, that is ability of supporting facilities and infrastructure to satisfy the tourist needs, (3) social capacity, that is ability to accept any tourism destination sites with no negative impacts on local communities, (4) economic capacity, that is ability to absorb destination commercial efforts while still accommodate interests of the local economy.

The nature attractions can be either climatic conditions (clean air and cool temperatures, sunshine that are comfort and quiet), landscapes (the typical panorama of beautiful mountains, waterfalls, lakes and rivers), and healthy water resources (mineral-water and hot-water). Man-made tourist attractions include the facilities or infrastructure, heritage and culture, traditional lifestyle and green open spaces or parks for recreation or sports.



Figure 1. The Mountainous Landscape (a-b), one of the ecotourism destination in North Sulawesi, Indonesia (Source : Personal Documentation , 2011).



Figure 2. The agricultural tourism destinations in EastJava and the Coastal Tourism object in Lombok Island, Indonesia (Source :Personal Documentation, 2012).

4. Carrying Capacity of Tourism

Tourism carrying capacity is the ability of area (region) to provide any tourists needs without changing the physical properties and environmental qualities and without losses of ecosystem services quality perceived by tourists during the tourist activities. This means that the carrying capacity of tourism according to the concept of Mathieson and Wall (1982) was oriented to satisfy the tourist needs and minimize any environmental impacts.

Classifying tourists based on their preferences to enjoy a tourism attractions in the particular place and time can be used as informations on tourism carrying capacity. In other words tourism carrying capacity is manifested in the number of tourists who visit a tourist attraction per unit area per unit time (Soemarwoto,1997,in Lubis, 2006). The tourism carrying capacity is determined by the tourist destination and it is also influenced by their biophysical environment. The socio- cultural values also play an important role in the preserving carrying capacity at the long terms.

In general, tourist destination into the tourism attractions are to do various kinds of tourism activities. Among these are the leisurely walks, camping, hiking, and learning - observing - researching or a combination of its activities. Through a variety of tourist activities, someone hoping to enjoy any entertainment and recreation services. Through their recreational activities, it is expected that either physical and psychological disorders can be recovered well. Environmental attractions consists of various biological and physical components interrelating each and others. Biological components are the endemic flora and fauna and

its wildlife habitat. Physical components such as topography, soil qualities, the climatic tourism indexes (air temperature and relative humidity), supporting facilities and infrastructure, and the time needed to perform any tourist attractions (Douglass, 1978, in Lubis, 2006).

As for the appeal of a tourist attraction located on: any resource that can give rise to a happiness senses, beautiful, comfortable and clean; the existence of a high accessibility to be able to visit; the existence of distinctive features/specifications of uniqueness; availability of supporting infrastructures to support tourists, and natural objects which offer a high recreational values e.g. a beautiful views of the mountains landscapes, rivers, beaches, sand dunes, forests and others (Suwanto, 1997, in Lubis, 2006).

5. Environmental Impacts of Ecotourism Activities

Based on the research findings of Roe et al. (1997), impacts of tourism development can be categorized into three aspects: (1) environmental aspects, (2) socio-cultural aspects, and (3) economical aspects. Ecotourism activities in addition to generate the positive impacts, it can also generate negative impacts on the nature environment, as well as impacts of tourism attractions on the local socio-cultural values. Environmental impacts can also occur in the form of changes to the initial value of environment, but that appears unexpectedly. If it is uncontrolled, the negative impacts on the environment can lead to environmental pollution or environmental degradation.

Environmental degradations include the destruction of landscapes, destruction of vegetation community, wildlife, coral reefs and piled of garbages. Other negative impacts may occur as a result of tourism management plans that are less good, it less attention on environmental capacity and lack of knowledge and awareness of the local community and tourists in preserving the nature environment (Anonymous, 1995).

The negative consequences on the physical, chemical and biotic aspects include the soil erosion due to the high frequency of visits, the destruction of vegetation due to changes in nature landscape, increase the volume of garbages, and noise pollution due to the motor vehicles. There are also any negative consequences of socio-economic and culture, which are the occurrence of imitating behavior

by the local community, the materialistic attitude, increase the unordered peddler, moral disorders in local communities, decrease of income, reducing interest in traditional artistic design (such as traditional souvenirs), decrease rate of the tourism magnetism, include the traditional culture attractions, decline of people's creativities in some historical and religious festivals or celebrations (Musaneef, 1995).

Various positive impacts generated as a result of ecotourism activities (Hadinoto, 1996), are: (1) ecotourism can provide economic benefits to the government and local communities. These benefits can be observed through the expenditure of tourists (tourist expenditures), 'the multiplier factor', and development linkages. The concept of the multiplier factor is that the expenditure of tourists can be done directly (primary): for example, purchases of goods and services, and indirectly (secondary): e.g. provision of employment that result in local income improvement, (2) synergism between ecotourism and nature environment, where tourists and local communities appreciate and understand each of ecosystem issues and the need for environmental preservation, (3) provide incentives to the governmental agencies, private sector and individuals which are introducing, planning and managing natural resources in a sustainable ways, (4) provide public education about the nature resources, (5) provide education to visitors about the nature and culture assets in the destination sites, (6) offers research opportunities, (7) provide employment opportunities to local communities, and (9) developing areas which are under-developed.

The impacts of ecotourism activities are multi dimensional. The negative and positive impacts can be seen in Table 1, 2 and 3.

It is shown the environmental components and its related negative and positive impacts. Based on ecotourism development activities, these impacts emerging from various aspects including physical, biological, economic, social, cultural and political aspects. For physical and biological aspects of the nature environment, ecotourism development suggest any chance in inducing ecosystem succession into the man-made ecosystem. In large-scale development, succession occurs in the ecosystem as a whole and all of a sudden. As for the social, economic and cultural impacts on changes in traditional lifestyle and the local community income.

Table 1. Potential Negative Impacts of Tourism on Natural Environment

Component of Environment	Negative Impacts	Tourism Activities which have induced Negative Impacts
Flora and Fauna	Breeding Disorders	<ul style="list-style-type: none"> ■ Bird Observations ■ Motion path
	The loss or extinction of animals	<ul style="list-style-type: none"> ■ Poaching ■ Animals were preserved or souvenirs made from animal body parts ■ Special Cuisine ■ The natural environment is crowded with visitors
	Changes in migration patterns of animals	<ul style="list-style-type: none"> ■ Tourism activities in the migration path
	Damage to vegetation	<ul style="list-style-type: none"> ■ Development of new tourism facilities ■ Tourist activities in protected areas
Pollution	Water Pollution	<ul style="list-style-type: none"> ■ Liquid waste ■ Spills (oil or other hazardous chemicals) ■ Disposal of solid waste into water bodies
	Air Pollution	<ul style="list-style-type: none"> ■ Motor Vehicles emission
	Noise pollution	<ul style="list-style-type: none"> ■ Motor vehicles ■ Traffic jam ■ Unbridled nightlife
Erosion	Erosion of surface soil	<ul style="list-style-type: none"> ■ The traffic is too dense
	Landslide	<ul style="list-style-type: none"> ■ Built environment of unbridled ■ Deforestation
	Damage to the riverbank area	<ul style="list-style-type: none"> ■ Tour boating unbridled ■ Riverside area is too crowded with occupants / visitors
Natural resources	Depletion of ground water and surface water	<ul style="list-style-type: none"> ■ Too many wake region ■ Damage to water sources
	The high possibility of fire	<ul style="list-style-type: none"> ■ Uncontrolled fire ■ Tourist irresponsible
Impacts scenery	Regions wake –looking	<ul style="list-style-type: none"> ■ There is no planning and control (landscape)
	Dirty Landscape	<ul style="list-style-type: none"> ■ Garbage ■ Cleanliness unguarded

Table 2. Potential Negative Impacts of Tourism on Built Environment

Component Environmental	Negative Impact Phenomena	Tourism Activities Negative Impact
Urban Environment	Improper land use	<ul style="list-style-type: none"> ■ The location of tourism facilities that are not true ■ Implementation plan Ineffective land use ■ There is no planning
	Changes in hydrological patterns	<ul style="list-style-type: none"> ■ Uncontrolled urban development
Impacts scenery	Change city skyline	<ul style="list-style-type: none"> ■ New architectural style ■ Growth wake region
	Changes in lifestyle in the city	<ul style="list-style-type: none"> ■ Changes in behavior ■ Changes in demographics ■ Changes in economic life
Infrastructure	Infrastructure too heavy burden	<ul style="list-style-type: none"> ■ High Density ■ Development of infrastructure supporting tourism activities are not adequate
	Utilization of facilities incorrectly	<ul style="list-style-type: none"> ■ There is no urban environmental management
Urban form	Changes in land use	<ul style="list-style-type: none"> ■ Shifting the location of residential and workplace ■ Inappropriate tourism resources
	Social changes in the urban communities	<ul style="list-style-type: none"> ■ Changes in work and community customs ■ Changes in patterns of social interaction

Component Environmental	Negative Impact Phenomena	Tourism Activities Negative Impact
Historic sites	Damage of archeological assets	<ul style="list-style-type: none"> ■ Building not maintained ■ The buildings are too many on display (exposed) ■ Inadequate maintenance
	The use of historic buildings is not true	<ul style="list-style-type: none"> ■ The lack of working space in the area ■ Help (conflict) of interest ■ Commercialization that ignore historical and cultural value
	Restoration of historic buildings is not true	<ul style="list-style-type: none"> ■ Application of architectural styles that do not fit ■ The lack of understanding of cultural elements ■ Too commercialized

Table 3. Potential Negative Impacts of Tourism on Cultural Environment

Component Environmental	Negative Impacts	Tourism Activities which have induced any Negative Impacts
Values and beliefs	Adoption of the values and beliefs that do not fit	<ul style="list-style-type: none"> ■ Intensive interaction with local residents ■ Hedonist lifestyle
	Not heeding customary values	<ul style="list-style-type: none"> ■ No respect for local customs ■ Not understanding the local customs
Moral	Prostitution	<ul style="list-style-type: none"> ■ Promotions unofficial negative ■ Tourists who like to become prostitutes
	Drunk	<ul style="list-style-type: none"> ■ Adoption of a bad drinking habits of tourists ■ Easily obtain alcoholic beverages
Behavior	" Westernized " behavior	<ul style="list-style-type: none"> ■ Modernization obscures with the behavior of Westerners ■ Western lifestyle interesting
	Ignoring the Indonesian characters	<ul style="list-style-type: none"> ■ Conduct an attractive stranger ■ The behavior of tourists who " free to do anything "
Arts and crafts	Losses of indigenous arts	<ul style="list-style-type: none"> ■ Commercialization art ■ Original indigenous art form is not attractive to tourists
	Damage and loss of cultural objects	<ul style="list-style-type: none"> ■ Bad actions tourists ■ Cultural objects are not well protected ■ Uncontrolled access to cultural objects ■ The lack of care
Legal and discipline	Increased lawlessness	<ul style="list-style-type: none"> ■ Criminals attract tourists ■ Narcotics and other drugs ■ Tourists as a courier gang /criminal group ■ Not understanding the legal system Indonesia
History	Miss-perception on nation history	<ul style="list-style-type: none"> ■ Inaccurate historical facts ■ Historical facts are ignored ■ Distorted historical facts

It is shown the environmental components and its related negative and positive impacts. Based on ecotourism development activities, these impacts emerging from various aspects including physical, biological, economic, social, cultural and political aspects. For physical and biological aspects of the nature environment, ecotourism development suggest any chance in inducing ecosystem succession into the man-made ecosystem. In large-scale development, succession occurs in the ecosystem as a whole and all of a sudden. As for the social, economic and cultural impacts on changes in

traditional lifestyle and the local community income.

Research results of Kumurur (2002), show that the existence of development activities in the Lake Tondano has resulted in a decline in water quality of the Lake. This is because the fertilization in paddy fields is excessive, so the drainage water from the paddy-fields are rich in nutrients. This paddy-fields wastewater with surface runoff from the settlement are finally entered the Lake Tondano. Surface runoff from the settlement areas contain household wastes (e.g. detergent wastes, animal wastes and human

wastes). Input water rich in organic and inorganic materials contributing to this enormous decline of water quality of Lake Tondano. It ultimately have implications on human health who have utilized the lake water for everyday purposes.

Different things have been described by Butarbutar (2008), that there are positive impacts of ecotourism activities in the Tondano Lake areas (Villages of Laleko, Tataaran I, Koya and Paleloan) suggest the increase income of local communities, recreational facilities and adequate accommodation for tourists, the people's creativities in producing souvenirs from water hyacinth (*Eichhornia crassipes*), and tourism attractions such as fishing and water bikes. Utilization of the water hyacinth materials as the souvenir products, have increased population of this aquatic plant. However, there are also negative impacts due to the tourism activities, that are amount of solid wastes (garbages) from the tourist activities, the low level of security around the tourist sites, declining cultural and ethical values in the local communities.

The research findings (Siagian, 2006) suggested that development activities in the Lake Toba areas generated many negative impacts on nature environment. Physical characteristics of the Lake Toba has been changed, whereby an increase in the death of goldfish in the "Karamba Jala Apung" (KJA) in the lake water. In addition, no involvement of local communities in these activities so that local wisdom is becoming obsolete and public attentions on local cultural are declining. In the socio-economic aspects, according to Noferi (2007) in his research, ecotourism activities on the Maninjau Lake also suggest the impacts on local communities livelihoods, incomes, employment and public health. It also has induced many kinds of social changes in surrounding society.

The activities of tourism has led to the socio-economic impacts in the local communities of Jayapura District. The positive impact of tourism activities in terms of socio-economics is the increase income of local communities and increase of rural employment. Conversely, there are negative impacts, such as ecosystem degradation due to the development of a tourist attraction and any social conflicts involving local communities (Lumintang, 1996).

Any activity of ecotourism have been impacted on various aspects of the nature environment. The occurrence of changes in biological aspects, physical, social, economic and

cultural are impacts of tourist activities. Therefore all parties should be more concerned about maintaining the nature sustainability: learning to know and understand the natural environment, expand employment opportunities and involving the local communities in each activities.

6. Sustainable Ecotourism

The success of ecotourism is determined by the role of stakeholders of ecotourism: tourism industry, tourists, local communities, governments, non-governmental agencies, and researchers. Ecotourism is an industry that is based on the natural environment sustainability and the success of promoting ecotourism programs related to flora, fauna, and their ecosystems. Eco-tourists is very caring towards environmental sustainability. The local community is involved in the planning, implementation and supervision of the management of ecotourism. The Government was instrumental in the making of the regulation on the development of ecotourism facilities so that doesn't happen the exploitation of nature environment. Researchers study the ecotourism and implementation the ecotourism principles management.

The sustainable ecotourism development can be a successful if the stakeholder role is played in accordance with the role, working holistically among stakeholders, the deep understanding and awareness on nature conservation, and ensure the sustainability of ecotourism activities (France, 1997, in Lubis, 2006).

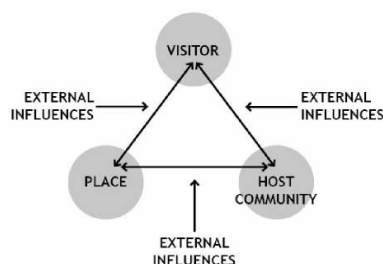


Figure 4. Sustainable Tourism Development Model (Burn and Holden, 1997).

The principles of Sustainable Tourism Development are : (1) the environment has intrinsic value that can also be a tourism asset. Utilization not only for the short interests, but also for the future generation benefits, (2) tourism should be introduced as a positive activity by providing mutual benefits for local communities, the nature environment and the

tourists themselves, (3) the relationship between tourism and the nature environment must be managed toward the sustainable environment, (4) tourism activities must be concerned about the scale or size of the nature and sites properties where the activities are held; (5) synchronizing among the needs of tourists, the place / environment, and local communities; (6) in a dynamic world, adaptation to change principles should be implemented; (7) tourism industry, local government and non-governmental organizations (NGOs), and environmentalists all have a duty to care about the above principles and work together to implement it (Burn and Holden, 1997).

The development of tourism in Indonesia should not cause any local communities lost its traditional "skills" which had owned previously. If that were the case, then in addition to loss of local wisdoms, the local communities can also threatened job losses or other sources of income. Therefore, development of tourism should be adapted to the characteristics of employments that already exists (Antariksa, 2011). When in a tourist destination is the main livelihood of the local population are farming, then the agro-tourism should be developed.

In an effort to realize sustainable ecotourism as mentioned by The Ecotravel Center (Anonymous, 2002), there are seven important things that must be performed by ecotourism operators, namely: (1) reduce negative impacts on the environment that serve as the object of ecotourism, (2) increase the contribution to the development of ecotourism around the object and support sustainable development programs, (3) minimize reduction of local wisdom in the local communities, (5) give priority to supporting businesses owned ecotourism activities by local communities, (6) supports the efforts environmental - preservation efforts, and (7) contribute to the biodiversity conservation in the ecotourism objects (I Nengah Subhadra, 2007).

Sustainable tourism development in Indonesia, which ensures that the optimum benefit will be gained in a sustainable way, can only be realized with a comprehensive and integrated approaches. The main element in the implementation of the sustainable tourism is a good leadership (Antariksa, 2011). Leadership is "the recipes" that can change a situation which might be "impossible" into "the possible". The leaders of tourism (Government and non-government) must understand that a destination

can not be developed on an ongoing basis indefinitely. Restrictions on the number of tourists who visit on the tourist destinations or tourist attractions at any given time (carrying capacity) is very important in the development of sustainable tourism.

7. General Discussion

Ecotourism includes ecology, economy and local communities. Aspects of ecology means that ecotourism suggest any positive contributions toward the nature conservation. Economic aspect means it is a tool for economic development. Public policies needs to empower the ecotourism communities, in the economic senses by providing a role in ecotourism for local communities, and by increasing their participation in nature conservation (Sudarto, 1999).

The tourism industry can reduce the level of poverty due to the characteristics of its activities (Antariksa, 2011a): (1) the tourists come to the destination sites so as to open up opportunities for the local communities to offer a wide range of tour products and services; (2) local economic diversification opportunities open up that can be accessed by the marginal groups; (3) open up opportunities for economic ventures labor-intensive accessible by the poor people; and, (4) not only depends on the financial capital, but also accentuate the cultural capital and natural capital which is often a poor people's assets.

Any development activities, anytime and anywhere, will surely generated the numerous impacts. Positive impacts of ecotourism development are: (1) the increase of local communities prosperity and welfare, (2) local economic activities gradually have increased, (3) the increasing ability of local community to adopt innovative technologies in any productive activities, (4) enlarging the employment opportunities, (5) support the regional economic development.

The positive impact of development on the nature environment are pests and diseases control, availability of clean water, controlled flooding, and others; while the negative impacts due to physical constructions on the environmental performance are environmental pollutions, which affect any biological aspects of nature environment. In addition, changes in local community attitudes that tends to consumerism is also the other negative impacts of development. It required an in-depth planning

and related development activities for the implementation of development to achieve the sustainable goals outlined.

Furthermore Drumm (2002) states that in any ecotourism activities should have a minimum impacts on natural resources that serve as tourist attractions. It should involve any stakeholders (individuals, communities, eco - tourists, tour operators and relevant government and non government) in the planning stages , development, implementation and supervision. These stakeholder involvement should be in accordance with cultures and local traditions, resulting in a reasonable and sustainable income for local communities, stakeholders and local tour operators.

To mitigate negative impacts generating from any tourism activities , the efforts should be done to anticipate negative impacts, among others, doing relevant cooperation between sectors involved in ecotourism activities of both governments, private sectors, local communities, researchers and tourists; enable more wisdom local communities; are brought together to improve environmental comfort by planting trees; provide incentives for additional workers; fines for visitors who throw wastes; give a gift or reward for the people who make souvenirs and woven from local-natural materials in traditional ways ; preserve local traditional culture, improve quality of recreational facilities and accommodations; transportation infrastructure must be improved to facilitate sites accessibility. The business can run well when it is supported by all of stakeholders.

The successful of efforts in minimizing impacts of ecotourism can be achieved if there is good coordination among all parties concerned to realize a cross-sectoral integration in order to avoid conflict of interests among sectors. Given the tourism sector is the tertiary sector, where the tourist preferences is largely determined by the level of environmental comfort, the supporting facilities and infrastructure, to improve site accessibilities are absolutely necessary. Thus the preservation of nature environment scan be preserved and maintained for the sustainability of ecotourism in Indonesia.

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