Ecotourism in Asian tropical countries: Planning a destination's site-plan to meets education objectives

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Abstract

The emerging discussions of ecotourism in the world show the significant role of such tourism in achieving Millennium Development Goals (MDGs). In particular, ecotourism in developing countries has raised crucial issues since most of them are home to high biodiversity, and recently are facing serious problems relating to the poverty, environmental degradation and biodiversity extinction. In Indonesia, the tourism sector, for long time, has been known as being significant in generating foreign earnings, combating poverty, and triggering development of many remote areas. The use of tourism as a vehicle to promote biodiversity conservation has evolved in recent decades by allowing conservation areas to be open to recreation use by opening up new nature-based destinations, by helping formulate tourism policies and development guidelines in pristine areas, and by implementing environmental standards for tourism. According to Indonesian governmental documents, ecotourism is being addressed to increase tourism earnings, to contribute to environmental conservation, to promote environmental education, and to empower local people in adjacent forests, remote areas and protected areas. This paper examines the recent status of ecotourism planning and practices in East Java and proposes a framework for establishing and improving destination performance as a central issue for sustainability and competitiveness of tourism in Indonesia. In particular, the establishing of a destination model to facilitate eco-culture and environmental education are discussed based on the authors intensive studies in the Alas Purwo National Park.

Keywords: Biodiversity conservation, Ecotourism, Education, Tropical countries

Introduction

The term ecotourism is now prominent in global discussion and it found prominence in 2002 when that year was declared as the International Year of Ecotourism by the United Nations. Ecotourism is the responsible travel to a natural area with the objectives of studying and enjoying the scenery, its wild plants and animals as well as any cultural manifestations of the area (Deng et al., 2002; Gunn & Var, 2002; Hall & Page, 2006; Weaver & Lawton, 2007). Among developing countries, international visitors to natural destinations form a significant tourism sector, and generate significant national income. It is argued that ecotourism is a crucial tool in the coexistence of development

and conservation, and therefore it has become a key component in sustainable development. Ecotourism is a form of environmentally sound business and clean industry, and furthermore addresses the global warming issues (Gossling, 1999; Honey, 1999; Gunn & Var, 2002). Scholars claim that the roles of ecotourism are numerous, ranging from education, conservation, and economic support for local societies and protected areas. Therefore, the role of ecotourism in the Millennium Development Goals (MDGs) is significant.

Tourism based on the natural environment is a huge business in tropical countries (Deng et al., 2002), and therefore promoting ecotourism would change the traditional paradigm which views tropical rainforest as a source of wood. Ecotourism development has been fast, and over the past 15-years has become one of the fastest growing sectors of the tourism industry (TIES, 2007; Deng et al., 2002). There are many examples of the success of ecotourism implementation throughout the world, and therefore fostering ecotourism will help support sustainable development objectives. Among the tropical developing countries such as Costa Rica, Brasilia, Nicaragua, Tanzania, Kenya, India, Malaysia, and Thailand, tourism reportedly benefits their natural habitats and generates subsistence for local dwellers (Heywood & Watson, 1995; Honey, 1999). In Indonesia, ecotourism evolved in the early 1980's and become a significant tourism sub sector in the beginning of 1991 (Hakim, 2004; Cochrane, 2006; Hakim et al., 2007a).

The potential of Indonesia to implement ecotourism lies in the country's richness of natural resources. Indonesia is home to 10% of the world's angiosperms (flowering plants), 12% of mammals, 16% of amphibians and reptiles, 17% of birds, 25% of fish and 15% of insects, making Indonesia known as mega biodiversity country. This archipelago is endowed with numerous ecosystems, ranging from deep ocean to high mountains, from grassland to forest, and it offers a wide range of environmental settings for recreation and relaxation. In tourism, marine and coastal environments have been used and developed to meet national tourism earning targets. Small islands have been developed as nature-based tourism destinations, and many of them nowadays are under feasibility study for tourism development (Ross & Wall, 1999; Hakim, 2004; Budpar, 2006; Hakim et al., 2007a).

Having ecotourism in regions where development and population growth is fast causes of serious threats to the biodiversity and nature, in the case of East Java, it is interesting and contributes appropriate tools and strategies regarding the millennium development goals. This paper discusses ecotourism in East Java, as one of the provinces in Indonesia where tourism has been growing for a long time, and has contributed significantly to regional earnings, serving socio-economical benefits and promoting the nature of East Java to the international community.

Recent policy and practices of tourism in natural environments

East Java is one of the rich provinces in terms of biodiversity and its position is significant regarding national development and conservation issues. Among the five provinces in Java Island, East Java has the largest forest area, including protected forest (316,000 ha), nature reserve and nature protection forest (230,000 ha) and definitive production forest (812,000 ha). Agricultural estates are estimated at about 179,710 ha, and include coffee, tea, gloves, and other significant goods which contribute to East Java as being the center of agricultural production. In order to conserve the high biodiversity, four national parks and many nature reserves were established to support the conservation program. The protected areas are habitat to numerous plants and animal species, some of them are endemic, and therefore the issue of sustainable use of resources is important (BPS, 2001; BPS, 2005).

Many amazing landscapes exist and for a long time have helped build the image of this area as a tropical paradise of tourism. Tourism brochures, websites, and travel books have described Mt. Bromo, Tengger Caldera, Mt.Semeru, Ijen crater, Alas Purwo National Park, Iyang plateau, Meru Betiri National Park, Sukamade beach, Baluran National Park and other wilderness areas. These places are known as special heritage which cannot be found in other places in the globe. According to the data, it is clear that tourism in natural environments contributes significantly to the regional

and local earnings, and trend of tourist to explore natural environments continues to grow (Disparta Jatim, 2005).

Despite its importance, ecotourism has not been extensively studied in East Java, Indonesia. In a regional context, policy for tourism planning and development was documented in the East Java Province Regional Development Plan for 2006-2008 (called RPJMD 2006-2008). This plan determined the potential contribution of tourism in regional development, the aims of tourism development, the problems of tourism and the strategies to meet tourism growth in the region. Another document related to tourism in natural environments was also released by national parks and nature conservation agencies. Recent policy of tourism development argues that ecotourism should be prioritized in order to meet provincial development objectives. To support tourism development, tourism infrastructure, facilities and tourism information systems need to be intensively developed (Government of East Java, 2005). Developing tourism infrastructure in remote areas allows easier tourist flow to destinations and therefore enhances tourist satisfaction. Moreover, ecolodges have been established to provide environmentally sound accommodation and education facilities. Most ecolodges are located near the villages and often offer authenticity of destination themes. Ecolodges offer special programs to visit villages, plantations and protected areas, and often offer tourists an experience of local life and culture (Hakim, 2007b).

As mentioned above, the national park is the famous tourism destination and receives many visitors yearly. For instance, Bromo Tengger Semeru National Park receives many international and domestic visitors, and therefore contributes strongly in building images of East Java as an excellent nature-based tourism destination. The luxurious tropical forest, unspoiled habitats, fascinating wildlife and amazing landscape are the factors lead travelers to enjoy these parks. To some extent, local culture and tradition also contribute significantly, such as the Tenggerese with their ceremonial performance which was widely known (Government of East Java, 2005; Cochrane, 2006; Hakim & Nakagoshi, 2006). However, threat analysis for tourism growth and development shows that reduced management of habitats, poor quality of the environmental performance, and a decrease in natural attractions are the factors that have led to negative growth and a decrease in tourism. A low quality of habitat and ecosystem management has led tourism attractions to disappear and causes visitor dissatisfaction. For instance, invasion of alien species such as *Cassia tora* and *Eupathorium inulifolium* have changed the native grassland structure, and lead to the disappearance of herbivorous herds such as Banteng *Bos javanicus*. Gap analysis found negative values between tourism expectation and perception, indicating visitor's dissatisfaction to such destinations (Hakim et al., 2005). In Baluran national park, *Acacia nilotica* replaced much native vegetation and disturbance to native grassland affected wildlife, having an effect on the nature encounter program (Whitten et al., 1996).

According to examined documents, ecotourism in East Java is being addressed to meet three core issues of ecotourism, namely (1) to protect and enhance the environment, (2) to respect the local culture, and (3) education. While ecotourism is succeeding in attracting tourist as indicated by increasing visitors to parks, its objectives in facilitating environmental education are questionable. According to official documents, one of the problems relates to inadequate preparation of the destinations site plans (Government of East Java, 2005). So far, destinations are inappropriately planned and there are no assessments of resource availability which acts to support tourist satisfaction, ensure attraction sustainability, and facilitation of education objectives. The key to enhancing destination therefore becomes a crucial issue.

Improving destination planning: Lesson learned from Alas Purwo National Park

The success of tourism to natural environment implementation is close to the biodiversity and its management practices (Deng et al., 2002; Fyall et al., 2005). In particular, reaching tourism objectives such as eco-cultural goals and environmental education are important. Meaning, tourism destinations become the key in discussing ecotourism

objectives. According to Gunn and Var, (2002) the destination zone is defined as the complex of entry, community, corridor and tourism attractions. Past planning and development of tourism in East Java has paid attention to the physical approach by developing infrastructure and tourism support services, but little attention has bee paid to eco-cultural and environmental aspect of the destination. As mentioned above, this has led to a low quality experience at the destination, and therefore causing visitor dissatisfaction. In order to improve nature-based tourism performance, we propose and develop a framework for improvement, using Alas Purwo National Park as a case study. Alas Purwo National Park (APNP, an area about 25,000 ha.) is a lowland forest where wildlife is abundant and it has been known as the most famous tourism destination in Java and Bali islands (Whitten et al., 1996; Hakim et al., 2005).

Field surveys were carried out in an intensive-use zone of park and its surrounding area. The entire study sites were located at the Rowobendo sector, a southern sector of the national park's management system. This management section is rich in scenic beauty, eco-cultural activities, traditional religious sites, and wildlife. There are several tourist destinations (Fig.1), namely Rowobendo (A), Pura Giri Salaka (B), Trianggulasi Beach (C), Sunglon Ombo (D), Pancur Beach (E), Gua Istana (F), Gua Bashori (G) and the Sadengan Feeding Area (Sfa.). Some of them are joined by forest roads. For tourism purposes, several roads are also offered and used as a wildlife seeing tracks. A preliminary survey has been done to assess and describe the general situation of these tourist tracts, to list biodiversity and the natural attractions, and to examine the physical environment of the study area.

Following the preliminary study, we used birds and primates as our animal object in developing ecotourism site-plan. Since the diversity of animals was high, key species were selected as being those that were: (1) frequently observed during preliminary study, (2) a species which frequently appear as reported by a forest ranger, and (3) a species which is frequently found by local people. Such qualifications are necessary in terms of technical and practical purposes to establish the appropriate design and to meet eco-cultural and environmental education. Moreover, coordinates of the locations were recorded using GPS. Based on the dominant vegetation component, the forest types were described. We examined each track doing six observations during July to September 2004, when Java Island in its dry season. The geographic data was stored in a computer system and analyzed using GIS to produce a species distribution maps. Furthermore, destination design was simulated based on spatial distribution information of tourism capitals and their bio-physical characteristics.

The synthesized design shows numerous advantages in order to accommodate tourism needs and biodiversity conservation (Fig. 1).

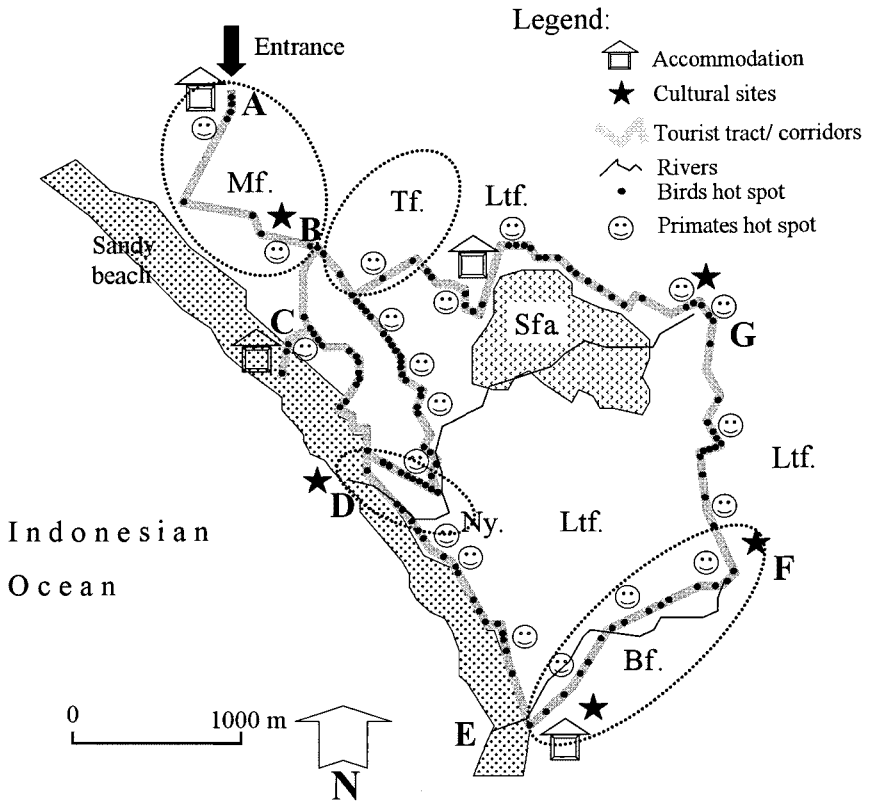

Figure 1: The site-plan design for intensive use zone of APNP. See text and Table 1 for abbreviations.

Firstly, it must be ensured that all possible tourist centers (including tourist facilities and observation points) are mapped and involved in tourism planning. This is important because one of the key purposes of ecotourism is to encounter biodiversity. The touring success lies in frequent contact between tourist and observed objects (Deng et al., 2002; Fyall et al., 2005; Hakim, 2005). Since animals are distributed in a temporal and spatial pattern, and many of them develop intra-specific interactions; making inventories, predicting distribution, and mapping living attractions are crucial. For instance, among 236 recorded birds in APNP, potentially only 60 species become observed objects in bird related program due to their distribution patterns. Moreover, cultural and natural attractions were mapped aid visitation and observation, and therefore ensure education programs and tourist satisfaction.

Secondly, the proposed designs allow conservation practices to become better, and reduce tourism threats to biodiversity extinction. The design supports rare and endangered species conservation by minimizing tourist tracts and disturbance to the habitat of rare and endangered species. Many animals are sensitive to human intrusion, particularly through a sensitiveness related to animal reproduction (Reynolds & Braithwaite, 2001). Illegal collecting and habitat disturbance has been reported in many tourism destinations, and therefore protecting such habitats is crucial. It is also important to emphasize that cultural sites are also a part of any fragile ecosystem, and therefore attention should be paid to omit vandalism. Some places are sacred to local people and traditions (Whitten et al., 1996; Hakim & Nakagoshi, 2006), and therefore management objectives should have the ability to protect such areas.

Thirdly, tourist corridor plays an important role in facilitating tourist satisfaction to experiencing park's biodiversity, and therefore support environmental education aims. A corridor also allows visitor's to disperse and thus reduce tourist concentration in a single area. The concentration of tourist potentially threatens biodiversity and the environments. This is also a significant strategy when implementing tourism carrying capacity techniques to manage visitors in order to protect wildlife and vegetation from tourism pressure (Gunn & Var 2002; Baud-Bovi & Lawson 2002; Hakim et al., 2007a). Using GIS, a corridor can be planned which allows for tract creation to conserve biodiversity and enhance tourist-wildlife contact at selected hot spots of destinations.

These scenarios allow eco-cultural and environmental education to be practiced during ecotourism activities (see diagram Fig. 2). Moreover, numerous potential tourism objects are covered and can be linked through appropriate corridor establishment.

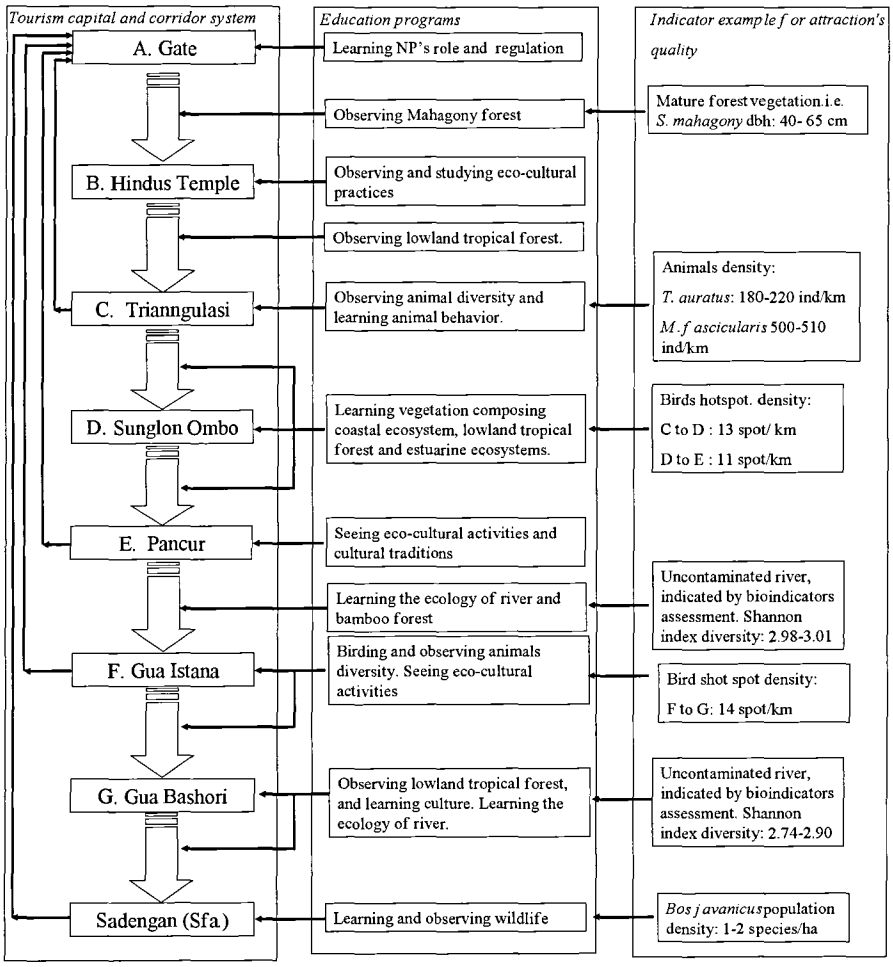

Figure 2: A scenario of touring and possible education programs which is linked to a park's attractions.

It is also important to note that developed design should be ideally followed by supporting management objectives. We draw up the proposed management objectives for the tract as shown in Table 1.

Table 1: Descriptions of special interest sites for environmental education and their proposed management guidelines.

Legend in Fig. 1	Corridors and dominant vegetations	Proposed management objective
Mf	A-B: mahagony forest (Mf.)	The Hindu Temple and Javanese kingdom artifacts are found in this track. Tourism used (where permitted) is limited to education and cultural appreciation activities. Natural processes allowed, mahagony forest growth promoted.
Ny	C-D: coastal vegetation.	A single population of *Nypa fruticans* (Ny.) at Sunglon ombo needs scientific research and environmental monitoring. Tourism activities emphasize the interaction with the natural environment, i.e. bird watching.
Tf	B-G: teak, bamboo and lowland tropical forest.	Teak forest (Tf.) here becoming a natural forest monument for education purposes. Camping is not allowed due to the forest fire risk.
Bf	E-F: bamboo forest (Bf.)	*Bambusa jacobsonii* is considered endemic to the park, and needs scientific research. Asphalted and cemented roads are not recommended. People activities and building expansion should be monitored
Ltf	B-D: lowland tropical forest (Ltf.)	Plant species are the objective here for taxonomy, ecology and ethobotany studies. Scientific research is needed to complete a biodiversity database and support education programs. Asphalted and cemented roads are not recommended, camping is also not allowed due to the forest fire risk. Tourism uses: non-motorized uses, a limited number of visitors, learning about the natural environment, i.e. bird watching.
Sfa	G-B: lowland tropical forest (Ltf.) and Sadengan feeding area (Sfa.)	Sadengan is home to numerous birds, reptiles, carnivores and herbivores. A special code of conduct should be developed in order to ensure tourist safety, mitigating conflict between pilgrims and visitors, and enhancing wildlife sustainability. Asphalted and cemented roads are not recommended

Conclusion and recommendation

Tropical developing countries are endowed with an abundance of resources and have opportunities for tourism growth. However, most of them are facing serious problems in terms of appropriate design to enhance sustainable tourism. It is one of the weaknesses in tourism, and therefore a framework to improve destination quality is needed. In order to meet tourist satisfaction as well as to enhance sustainability for the numerous living creatures, understanding temporal and spatial distributions therefore becomes important. Nowadays, GIS has evolved and is widely used among planners and decision makers, and can be successfully used in tourism planning to produce appropriate designs. Considering the APNP case study, the scenarios for destination development argue that in order to build competitive designs to meet tourism objectives in regard to eco-culture and environmental education, several key actions summarized below are needed.

A biodiversity data base inventory should be compiled carefully to provide accurate data and information about the biodiversity of the park and its perspectives regarding planning. Only by having complete data and information can meet environmental education objectives. In order to establish a competitive and sustainable ecotourism design, mapping biodiversity becomes a crucial step. In particular, biodiversity richness, flora and fauna distribution, the cultural landscape within the park, water and other resources, and sensitive areas should become features of any mapping. The advantage also exists of enhancing species conservation by mitigating visitor's impact on wildlife. In

addition to that, many patch habitats in tropical forests are viewed as homes of Gods, and therefore are sensitive among local people, and are respected by conservationists and tourist.

Corridor establishment should be addressed to meet environmental conservation, to enhance tourist satisfaction, and to reduce conflict between pilgrimages, tourists and conservationists. Therefore, biological and cultural perspectives should be considered than a straight physical approach in meeting such objectives and in enhancing sustainability of tourism in sensitive destinations like national park.

A framework allowing for economic, ecosystem and socio-cultural factors was constructed as a requirement for achieving sustainability. The above strategy could be adopted and disseminated to other national parks in developing countries such as Indonesia. Moreover, in order to establish strategic planning for ecotourism, we recommend that ecotourism should be developed and considered following these four issues: (1) attraction to destinations should be nature-based, (2) visitor-tourism attraction should be on learning and education, (3) involving local people in planning and development and (4) enhancing the experience and tourist product should meet sustainable development visions. Finally, GIS is valuable techniques due to its ability to process, map, and analyze spatial data and it allows parks and tourism authorities to generate competitive and sustainable ecotourism design.

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