

## Strategic Management of Nature-Based Tourism in Ijen Crater in the Context of Sustainable Tourism Development

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### Abstract

The aim of the study is to define the strategic management of nature based tourism in Ijen crater, East Java. From the perspectives of accessibility, problems facing by accessibility are related to the travel distance and forest road quality. Ijen craters have three important aspect in competitiveness tourism aspect, namely something to see (mountain landscape), something to do (trekking, hiking, bird watching), and something to buy (meals). The future development of such attraction should be meets ecotourism principles. This study found that improving tourism facility and infrastructure were important aspects. The development and improvement of tourism facility and infrastructure, however, should be incorporates ecotourism principles. In such a case, the conservation, local people and community development becomes crucial issue. Involvement of stakeholder and local community in facility and infrastructure will increase the quality and sustainability of infrastructure and tourism facility.

**Keywords:** ecotourism strategy, tourism management.

### INTRODUCTION

Recently the development of strategic planning and implementation of tourism has been considered important. It is especially important in many cases where tourist visitation to natural ecosystems and environment grows significantly. Are with abundance resources, such as forest, waterfall, rivers, crater, grasslands, caldera, lake have a significant role in tourism destination development. Scholars point out that numerous natural ecosystems have been suffered from mass tourism which is to decrease biodiversity level. Tourism in natural environment therefore needs to be managed properly, especially in order to protect biodiversity and enhance the sustainable uses of natural resources [1-3].

Recent issues in sustainable tourism argue that comprehensive destination management is important. Destination management should be embraced cultural integrity, ecological process, biodiversity and other related systems which are contribute to sustainable living systems in harmony. Many destination however lack of the ability to maintain sustainable issues and therefore vulnerable to degradations. Scholars point out that many fragile ecosystems such as mountain, forest and beach are suffered from

tourism activity. One of the crucial threats to the sustainability of the mountain ecosystem is related to the increasing number of tourism beyond carrying capacity. Increasing number of tourism often responded by rapid and massive physical development of tourism infrastructure. There are intensive land uses changes and wildlife habitat clearing to provides adequate spaces for tourism infrastructure development. The infrastructure development often ignored ecotourism principles which are important to ensure ecosystem sustainability [2,4].

In many nature-based tourism destinations, practicing sustainable tourism development tourism is one of the principal problems. There are lacks of basic tourism philosophy which are important to drive tourism into sustainable practices. Infrastructure has been build without considering local characteristics and local wisdoms. Many nature-based tourism destinations are lack of the integrative tourism strategic planning which is suitable for local environments and meets the ecotourism principles. These aspects are leading to the poor of destination competitiveness [4].

Ijen crater is one of the important tourism destinations in East Java. The geological attraction of Ijen craters is actives craters and sulfur lakes with blue-green waters. The mountainous landscapes were beautiful. Tourism grows significantly. In 20014, about 6.722 domestic tourism recorded in Ijen Craters while international tourism was recorded about 28.668

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[5]. Effort to increase tourism performance in Ijen crater has been implemented by local government and related agencies, i.e. Banyuwangi dan Bondowoso Regency. As far, the comprehensive evaluation of destination sustainability was absent. The objective of the research is to evaluate the recent condition of tourism implementation and build the strategic management of nature-based tourism development in Ijen crater.

## **MATERIALS AND METHODS**

### **Study Area**

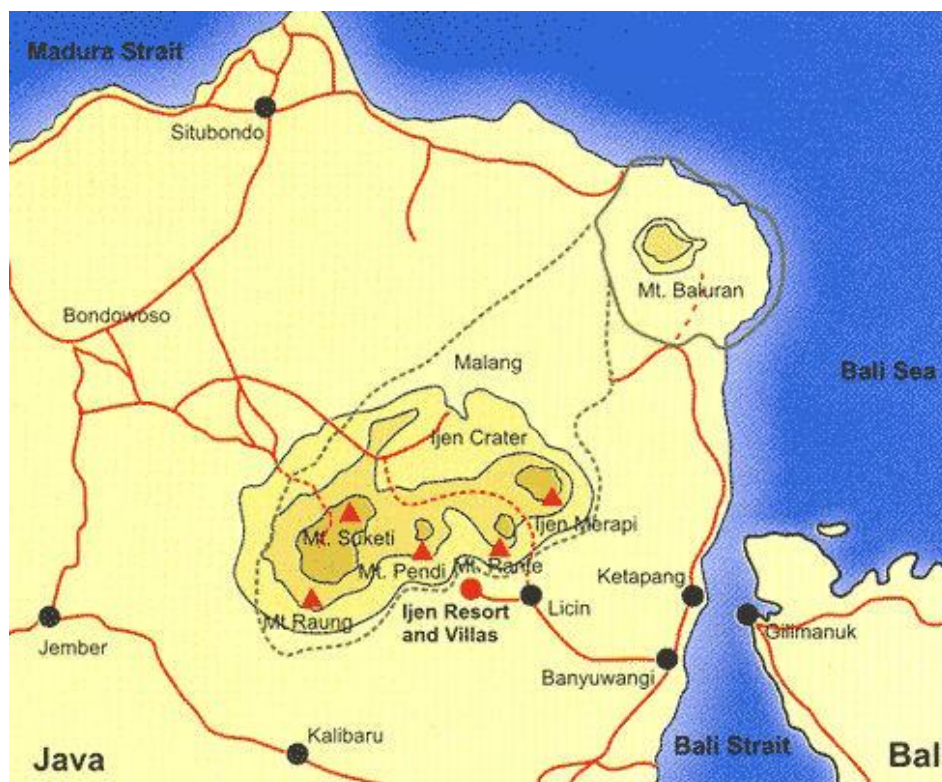
Ijen Crater located at the border of Banyuwangi and Bondowoso Regency (Fig.1). Ijen Crater is one of the famous mountain based tourism attraction in East Java. Administratively, Ijen Crater belong to the protected area system, namely Ijen Strict Nature Reserve. Ijen Crater is the recreation area with 92 hectares. The area divided into two area management, namely intensive uses zone (23.85 ha) and protection area (62.58 ha). In the intensive uses zone, there are official buildings, tourism infrastructure, parking area, shelter, toilet, and restaurant and camping ground area [6]. The natural attraction of Ijen craters is active volcanic and sulfur lake with green colors. The Biodiversity of Ijen Crater was considered high. Forest fire and vandalism is

one of the important threat to Ijen Craters. Recently, however, scholar identify that invasion of exotic plant species become the important threats to the Ijen crater ecosystems [7].

### **Data Collection and Analysis**

Research consists of secondary data collection, questionnaires and field observation. Secondary data collection was done through official visitation in office of Tourism of Banyuwangi Regency, office of tourism in Bondowoso Regency, Nature conservation Agency (BKSDA) and regional office of National Statistic Office in Banyuwangi. Focus of the research was data and information regarding regional planning policy and implementation, regency policy regarding tourism development, and tourism statistics.

Four aspect namely tourism accessibility, attraction, facility and the contribution of stakeholder in tourism development was evaluated descriptively. The assessment was implemented based on direct observation and interviews with respondents in the field. Focus of the assessments the basic feature of tourism accessibility, attraction, facility and the contribution of stakeholder. Mainly, it is encompasses internal factor of the destination, i.e. strengths and weaknesses.



**Figure 1.** Ijen Crater tourism area is part of important biodiversity area in the eastern part of East Java Province [8]

In this study, management performance of tourism in Ijen crater was implemented to identify the scenario for sustainable tourism development and biodiversity conservation. Tree aspects, namely physical, economical and social aspects were evaluated using questionnaire instruments. The questionnaire was distributed to the both local and domestic tourist in October 2014. Respondents sampling was done through accidental sampling. Totally, the questionnaire was distributes to the 60 tourist. Each important aspect of such factors was assessed using Sturges interval criteria using calculation formula of Nazir [9]:

$$K = 1 + 3.3 \log n \quad K = 1 + 3.3 (1,079)$$

$$K = 1 + 3.3 (\log 12) \quad K = 4.56 \approx 4$$

From these calculation, intervals of respondents's answer related to physical, economical and social aspects were classified as poor (interval value 12-21), moderates (interval value 21-30), Good (interval value 30-39), and Excellence (interval value 39-48).

In order to describe the strategy of Ijen crater, the Internal Strategic Factors Analysis and External Strategic Factors Analysis was implemented. The strength, weaknesses, opportunities and threats of tourism implementation and development in Ijen was assessed comprehensively.

## RESULTS AND DISCUSSION

### Accessibility

Access to Ijen crater can be reach from Banyuwangi and Bondowoso. Tourist from Surabaya (the capital city of East Java) and its surrounding area can reach Ijen Crater from Bondowoso. Tourist from Bali can reach Ijen crater from Banyuwangi. There are road to connect Bondowoso and Banyuwangi where Ijen crater can reach easily.

Problems facing by accessibility are related to the travel distance and forest road quality. In some place, the condition of road was poor and need to be improved. Safety concern was poor and this is can be crucial issues in tourism destination competitiveness. Access from Bondowoso relatively flat, but there are many road holes and gravels. Access from Banyuwangi is relatively hard because physically tourist vehicle is passing the hard roads in undulating humid tropical forest. In some point, there are steepest slopes.

Attention to the forest road quality was important due to the number of both

international and domestic tourism to Ijen Craters grows significantly (Table 1). In Indonesia, poor accessibility was common in tourism destination. Effort to increase accessibility therefore important. Tourist trend to natural environments recently recognized as a new lifestyle for numerous developed countries, especially among European and American countries. In the future, it is predicted that tourism grows in natural environment in East Asia and Oceania grows significantly [10]. In such a case, however, infrastructure was important to facilitate tourist moving.

**Table 1.** Tourist profile in Ijen Crater from 2011 to 2014

No.	Years	International tourist	Domestic tourist
1.	2014	28,668	6,722
2.	2013	21,579	4,315
3.	2012	1,412	2,218
4.	2011	7,643	8,785

Source : Office of Tourism and Culture, Banyuwangi [5]

The commitment of local government in Banyuwangi Regency to improve road quality was good. It is showed by the project of forest road improvement from Banyuwangi to Ijen craters. These improvements are also important to increase the quality of the international cycling tournament called Tour de Ijen. Scholar point out that response of local government to build systems which was able to allow tourism destination accessible is important. It is become the basic strategy among government and society to increase number of tourist [3]. Recent data about tourism in Banyuwangi show significant increase in tourism, including visitation to Ijen which are recoded from Banyuwangi.

### Tourism attractions

Tourism attraction in Ijen craters can be identified into tree aspect, namely something to see, and something to do, something to buy (Table 2). This research found such aspect in Ijen crater, but the future development of such attraction should be meets ecotourism principles. The implemenation of ecotourism principles is improtant in order to ensure the protection of natural and cultural resources.

### Tourism facility

Tourism facility is important aspect in visitor satisfaction [11]. Tourism vafility has psycological consequences at a visitors satisfaction aspect. The availability and quality of tourism facility will

affect tourist satisfaction to particular destinations. In Ijen Craters, however, these facility needs to be improved. This resources

found and draws several important aspect of facility improvement as shown in Table 3.

**Table 2.** Management strategic to improve tourism attraction in Ijen Crater

Aspects	Object and activity	Development concept to meet ecotourism
something to see	Ijen crater	- Enhancing conservation effort of crater and its surrounding area by monitoring human activities which are potentially disturb crater ecosystem
	Mountainous landscapes	- Monitoring human activities which are potentially disturb mountain ecosystem, including illegal logging, vandalism, exotic plant species invasion, and forest fire. In Ijen forest, fire is one of the crucial agent of mountain vegetation disturbance.
	Flora and Fauna	- Increasing integrated conservation effort, compiling biodiversity data base, and designing proper integrative conservation planning - Increasing protection and law enforcement
something to do	Trekking	- Increasing trekking corridors, establishing fence in some dangerous point, re-vegetation activity in some point to minimize and countermeasure land slide along tourist corridors.
	Cultural and social events	- Exploring potential activity which are able to satisfy tourism - Increasing tourist participation in the community development in an area surrounding Ijen Crater, - Promoting tourism involvement in peasant activity i.e. coffee harvest festival.
	Out bond	- Development sustainable outbound program, including sustainable equipment for out bond and camping ground
Something to buy	Accommodations	- Providing sustainable eco-lodge following ecotourism standard and environmental safety
	Souvenir	- Educating local people to produce local souvenir using local material and reduce-cycling process
	Food and culinary	- Promoting local culinary and education local people to establish restaurant according to proper standard

**Table 3.** Strategy for tourism facility management

Facility	Management concept
<b>Main facility</b>	
Accommodation	- Increasing number and quality of homestay - Improvement of accommodation facility - Management and maintenance of accommodation facility
Camping ground	- Managing camping ground in sustainable manner, including visitor number management - Increasing outbound facility, including <i>flying fox</i> , <i>tree top walk</i> , <i>bridge trees</i> , <i>rainfall</i>
Rest building (Gazebo) facility	- Increasing number of rest house (Gazebo) - Improving park arrangement and landscaping using indigenous plants. Reduce artificial ornaments, including exotic plant species
Information mark and direction	- Number of information mark and direction should be improved to allow tourist found the road to access main destination safely
Corridors network	- Tourism corridors improvement from Paltuding to craters - Physical building to countermeasure land slide in some points
Fresh waters availability	- Establishing fresh water installation properly, especially to support tourism needs
Electricity	- Establishing electricity in Paltuding
<b>Secondary facility</b>	
Information centre	- Maintenance of information facility
Parking area	- Enlargement of parking area without clearing vegetation - Site management for parking area. Management should be able to minimize erosion risk
Toilet	- Increasing number and capacity of toilet in Paltuding post - Increasing cleanliness of toilet. Installing water system and drainage to ensure environmental health
Roads	- Increasing safety, especially along trekking corridors from Paltuding to crater - Increasing number of forest ranger to control tourist behaviour
Waste box	- Increasing number and maintaining waste baskets and waste management in Ijen crater
Praying room	- Increasing quality of praying rooms in Paltuding Post

### Stakeholder analisys

Stakeholder plays an important role in tourism planning, implementation and monitoring. Tourism stakeholders has been reported contributes to tourism development. According Bolnick [12], the strategic and interesting role of tourism in local economic developments should be considered as one of the reasons to integrate society and tourism in development issues. From numerous aspect of stakeholder contribution in tourism development in Ijen crater, the contribution of stakeholder can be focused to the two crucial aspect, namely funding support and collaborations (Table 4). These two aspect were identified important to enhance the competi-

teness of Ijen cater as nature-based tourism destination in East Java.

### The performance of Ijen Crater management

The performance of tourism development was summarized in Table 5. From the perspective of physical, economic and social aspects, the evaluation grade were ranging from moderates to good, except for respecting local culture aspect. In order to increase destination competitiveness and tourist satisfaction, some improvements need to be implemented. It is especially crucial in the perspective of destination marketing and competitiveness [11].

**Table 4.** Stakeholder management in the development of ijen craters as a competitive tourism destination

Aspects	Notes
Funding	- Transparency in funding policy, equal sharing benefits, increasing involvement of CSR support to ensure the sustainability of community development and completing tourism facility
Collaboration	- Increasing collaboration between stakeholders. The role government to facilitate collaboration as important.
Tourism program	- Increasing tourism programs which are meet to ecotourism principles, including education and involving community development

**Table 5.** The performance of tourism in Ijen crater based on economic, social and cultural aspect

Variables	Grade value				Result of assessment	Notes
	(1)	(2)	(3)	(4)		
<b>Physical aspects</b>						
Considering carrying capacity activity planning and sustainable growth			√		3	Development has meet sustainability principles, but the usage was inefficient. In high season of tourist visitation, however, visitor number and its activity should be controlled.
Protecting biodiversity and environments		√			2	The comprehensive planning of biodiversity and its implementation needs to be improved
Minimum impact to environment				√		The environmental protection has been implemented, but the practices should be improved
Meets the cultural and physical value of environment			√		3	Local values has accommodate in some building architecture; but there are need integration strategy with other facility
Reduce water consumption		√			2	Fresh water conservation and management should be improved
Waste management		√			2	Waste management should be improved to minimize tourism impact to enviroment
<b>Economic</b>						
Research program in the contribution of tourism to local economic		√			2	Lack of research program in economic impact of tourism contributes to the less appreciation of community to active participation in tourism sectors
Tourism contributes to the local economic			√		3	Tourism has contributes to some local people, but there should be enlarge to ther community
Funding allocation for forest conservation		√			2	As far, funding support for biodiversity conservation was less. Another sources of funding should be explored.
<b>Social</b>						
Cooperation with local people		√			2	The cooperation with stakeholder is important but in some case it was neglected
Tourism contributes socially to local community			√		3	The contribution of tourism to social welfare seems to be important, but still need to be improved
Respecting local culture	√				1	The tourism managment should be paid a lot of attention to local culture
<b>Total</b>					31	

### Strength, weakness, opportunities and threats

Identifying destination strengths, opportunities, weaknesses, threats were important in tourism strategy development. SWOT technique provides excellent tools to describe the internal and external aspect of tourism destinations and therefore contributes significantly in drawing planning and strategic management. In case of Ijen crater, the destination strengths, opportunities, weaknesses and threats were given in Table 6 and 7.

In order to map the recent position of Ijen crater based on the SWOT analysis, the x and y coordinate was evaluated as follows:

$$\begin{aligned} x &= \text{Strengths} + \text{Weaknesses} \\ &= 2.64 + (-1.65) \\ &= 0.99 \\ y &= \text{Opportunities} + \text{threats} \\ &= 2.97 + (-2.64) \\ &= 0.33 \end{aligned}$$

Based on the IFAS and EFAS matrix evaluation, the position of tourism in Ijen crater was located at first quadrant ( $X = 0.99$  ;  $Y = 0.33$ ). These means that tourism in Ijen crater has great strengths and opportunities for further development. The ecotourism principles, however,

should be incorporated into future development. The position of Ijen crater in quadrant first offers opportunities for further development. The proper strategy for further tourism development in Ijen crater should be "Rapid Growth Strategy". This is relevant with the recent tourist arrival data to Ijen crater, especially international tourists. In such strategy, however, the management authority of Ijen crater should be improved several aspects related to the facility.

The natural conservation aspect becomes important in the tourism development in Ijen. Nature as the main attraction in Ijen craters should be protected from numerous potential factors of disturbance, especially anthropogenic aspects which are related to tourist activities. Tourism from numerous countries comes to Ijen to observe active volcanoes. Beyond Ijen crater, however, there are numerous potential tourism attractions which are potential to be involved in tourism programs. The contribution of stakeholders needs to be improved. There are also increasing issues in community involvement and development. There are three important aspects to support tourism development, namely market promotion, infrastructure and management [13].

**Table 6.** Internal Strategic Factors Analysis Matrix for tourism development in Ijen craters

Factors	Internal factors	Weight	Rating	Score
<b>Strengths</b>				
Physical	Ijen crater has numerous flora-fauna which are protected by government law and numerous nature-based tourism attractions	0.33	3	0.99
Economy	Support of numerous economical instruments and abundance resources to drive new economic opportunities	0.33	2	0.66
Social	Support of community surrounding Ijen crater area	0.33	3	0.99
<b>Total strengths</b>				2.64
<b>Weakness</b>				
Physical	Limited transportation, facility and infrastructure	0.33	1	0.33
Economy	Number of economic activities was limited	0.33	2	0.66
Social	Poor of government and stakeholder support to enhance community development program	0.33	2	0.66
<b>Total weaknesses</b>				1.65

**Table 7.** External Strategic Factors Analysis Matrix for tourism development in Ijen craters

Factors	External factors	Weight	Rating	Score
<b>Opportunity</b>				
Physical	Increasing demand of qualified infrastructure and good quality of nature-based tourism attractions	0.33	2	0.66
Economy	Increase of tourist arrivals in Ijen crater	0.33	4	1.32
Social	Cultural and social capital of local community to support tourism development in Ijen	0.33	3	0.99
<b>Total opportunities</b>				2.97
<b>Threats</b>				
Physical	Increasing number of tourism contributes to environmental degradation	0.33	4	1.32
Economy	The fluctuation of tourism, increasing number of tourism providers and seller contributes to the high competition and decrease of service quality	0.33	2	0.66
Social	Poor of community participation, there are another interested aspect to be developed besides tourism sectors	0.33	2	0.66
<b>Total threats</b>				2.64

Principally, government plays an important role to build and maintain infrastructure. This is similar with case of Ijen craters. As a protected area, however, the establishment of infrastructure need to consider environmental aspect. In such a case government should be able to coordinate and make communication with protected forest authority to drawn the proper scenarios of infrastructure development [3].

In Ijen crater, several important aspect of tourism in area with high biodiversity and cultural value need to incorporated several issues bellow:

1. Enhance the regulation to decrease and minimize illegal logging, human disturbance to conservation area, illegal hunting, and illegal collection of biodiversity from protected area.
2. Increase effort to countermeasure forest fire, especially control tourism potential to trigger forest fire;
3. Increasing management strategy of conservation program;
4. Protenting key species and increasing capaicty of biodiversity conservation;
5. Increasing tourism revenue, number of labour and local community revenue from tourism bisniss;
6. Incresing organization management capacity of Protection Management Office and incresing coordination among conservation body and agency to enhance the optimal and efficnet conservation planning, programs and implemenattaion.

## CONCLUSION

The proper management and ecotourism principles application in Ijen Crater need to be implemented to enhance the sustainability and competitiveness Ijen crater as sustainable and competitive tourism destination. Improving tourism facility and infrastructure was important aspect. The ecotourism principles is important as a key to increase tourist interest to visit Ijen crater. The development and improvement of tourism facility and infrastructure, however, should be incorporates ecotourism principles. The conservation, local people and community development is crucial aspect. Involvement of stakeholder and local community in facility and infrastructure will increase the quality and sustainability of infrastructure and tourism facility.

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