Kalibiru Ecotourism: The Implementation of Sustainable Development in Rural Kulon Progo, Yogyakarta

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Abstract: The purpose of the article is for evaluating strategies of the developing Kalibiru destination. Since has been established by communal forest farmers association in 2010, the visitor arrivals growing up until 2016. However, the performance tends to down in 2017. Therefore, the managing of ecotourism in Kalibiru needs to evaluate the competitiveness of attraction in the destination. SWOT and QSPM analysis were used to make the decisions and suggest strategies planning in ecotourism sector. The results find that the implementation of sustainable development in Kalibiru was frugal. Thus, to improve competitiveness, the manager should be able to use the output of SWOT and QSPM approach as a tool for managing destination and promoting sustainable development. Determining the strategies should not be in contradiction to regulation in Kulon Progo. The choice of decision must consider the priority of duration, with specialization in the short, medium, or long term. By using these strategies, the Kalibiru developers can pay attention to the stability of the triple bottom line strategy. Thereafter, they are able to maintain the competitiveness and to achieve target number of visitors at the Kalibiru destination.

1 INTRODUCTION

Ecotourism emphasizes conservation and natural resources as tourist attraction. Some prior studies have been conducted about Indonesia's tourist destination, such as Kelimutu National Park (Josef et al., 2016), Mount Leuser National Park (Patana, 2012), Habitat of Birds in Papua (Pangau-Adam, 2012), and development of sustainable rural tourism in Banyuwangi (Indarti and Munir, 2016). Other studies were done in Kaji Namaksar Wetland (Ghorbani et al., 2015), Todooreh National Park (Sayyed et al., 2013), Penang National Park (Hong and Chan, 2010), Etna Park (Patti, 2013). The shifting commitment happened in the 90s, Whight (1993) specified nine principles of fundamental sustainable ecotourism. Ross and Wall (1999) emphasized the balancing of biodiversity conservation and development.

Formerly, Elkington introduced triple bottom line as pillars of sustainable development (Taylor and Walley, 2004). Ideas were relevant to OECD's statements about sustainable development (Strange and Bayley, 2008). To develop the sustaining tourism growth creativities are required to synchronize the nature conservation commitment and local wisdom preservation. Thereafter, it will increase earning from tourism sector.

Kalibiru, as a tourist attraction, is located on the Menoreh Hills, Hargowilis Village, Kokap Sub-district, Kulon Progo Regency. The communal forest has been developed to Kalibiru and it has become famous since 2015 as one of the top self-photography spots in Yogyakarta. The people's commitment has successfully established a tourist attraction with the scenery of communal forest and local wisdom. The local government shows a high enthusiasm to expose the local wisdom and the nature biodiversity as assets to improve the economics while conserving culture and ecosystem. Being the icon of Wisata Menoreh makes Kalibiru as tourism village that gives a positive impact towards increasing micro-small businesses and job opportunities. In accordance with sustainable development, the study appreciates the collaboration of stakeholder to develop the potential of Kalibiru.

Generally, there are many challenges in managing the ecotourism community base. The effects of ecotourism are not always relevant to the sustainability. Excessive number of visitors increases the amount of waste in the area. The process of building infrastructure might cover the water absorption area. Visitors arriving irresponsibly

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might perturb the tradition of local community. Outside investors might trump the local business. Tourists and local people might not fully comprehend the importance of sustainability. The problems are as a depiction of unsustainable ecotourism activities that require strategy to build sustainable development on ecotourism. For the reasons, adjustments to environmental support, accommodation, facilities, and program with market perspective need to be done properly.

According to Local Regulation No. 1 of 2012 on Neighborhood Unit and Community Unit of Kulon Progo Regency from 2012 to 2032, the commitment towards development and conservation of culture is shown in the regulation. To appreciate the innovation and regulation, the article evaluates the potential of Kalibiru. The SWOT approach (Mondal, 2017, Ghorbani et al., 2015, Ganjali et al., 2014, Sayyed et al., 2013, Saeb et al., 2012) is performed to develop Kalibiru as tourist attraction based on sustainable development.

Relevant to practices, the questions of the study as follows: (1) How is the result of the analysis of Kalibiru's potential as tourist attractions? (2) Which design strategy shall be shared with government and developer in Kalibiru destination? The benefit is to recommend strategies for developing sustainability in Kalibiru. The goals are to create equal welfare, minimize the risk of visitors degrading the nature of Kalibiru, and anticipate natural disaster risk on the safety of visitors.

2 MATERIALS AND METHODS

According to Koeman, ecotourism as a new idea in tourism sector and considered as a strength to preserve the sustainability of natural resources. Relevant to sustainable development, OECD defines Development as meeting current needs without reducing the ability of future generations to meet their own needs (Strange and Bayley, 2008). Ghorbani et al., (2015) respect the sustainable way, ecotourism becomes a noticeable strategy for protecting the environment and creating income for communities. A study conducted by Tomic and Bozic (2015) said that heritage attractiveness is related to choice destination. OECD required the natural resources, biodiversity, cultural and creative resources as the indicators for measuring the tourism competitiveness (Dupeyras and MacCallum, 2013). Considering in principles, Barua (2012) said that ecotourism focused on conservation, environmental education, ecodevelopment and rural employment. Tourism Act No. 10 of 2009 establish 10 goals where four of them are: (1) Improving economic growth, (2) General welfare, (3) Conserving nature, environment, and resources, and (4) Developing culture. The aim is to illustrate Indonesian's commitment to sustainable tourism and in line to UNWTO.

Primary data were collected by using observation, interview, and questionnaires which were related to SWOT of Kalibiru. Questionnaires were distributed to 100 visitors of Kalibiru in April 2018. Respondents included experts, public figure, visitors, and local residents. The profiles consist of 12% students, 25% business person, 15% civil servants, 25% private servants, and 13% others. 54% of the respondents were from Kulon Progo and other 46% from other regions. Those who got the information about Kalibiru from social media were 58% and other answers were 42%. There were 34% of respondents who were first-time arrivals in Kalibiru. More people (40%) have visited the site 2-3 times, and 26% visited more than 4 times.

Attributes of SWOT are developed with experts from tourism department, mass media, online media, and local regulation of Kulon Progo. Weights are determined based on the questionnaires with scores ranging from 1-5 from not too important to very important. Rating is determined by a 1-5 range from bad to good. Based on the SWOT analysis, the Internal Factor Analysis Strategy Matrix (IFAS) and External Factor Analysis Strategy Matrix (EFAS) are identified and calculated into Quantitative Strategic Planning Matrix (QSPM).

According to Ghorbani et al. (2015) if the total score value of IFAS was less than 2.5, it means that the strengths is smaller than weaknesses. The same criteria were required in EFAS. If the total score value of was less than 2.5, it meant that the opportunities were less than the threats. The analysis of QSPM provides the calculation of final score for each strategy, so the results of QSPM are used to make decisions or suggest strategies planning of ecotourism sector.

3 RESULTS AND DISCUSSION

3.1 Description of Kalibiru

Kalibiru Tourism Village is one of the 32 nature attractions in Kulon Progo offering attractions such as, photography spots, out bonds, flying fox, and trekking through 2-6 kilometers track of pine-hills. It is located 450 meters above the sea level and 35

kilometers from the west of Yogyakarta. Based on Indonesia Statistics, population of Hargowilis Village reached up to 5.737 people in 2016. The locals have been preserving several of traditional art communities. Prominent products of farms in the location are durian and mangosteen. Local community's activities are making palm or brown sugar. Kalibiru is managed by an independent communal forest farmers association which has been utilizing communal forest as tourism destination. The vegetation in the area includes sonokeling, cengkeh, jati, waru, duwet trees, and others. Therefore, the local community both conserves forest and gains earnings from it.

Numbers of tourists in 2015 reach 309.541 visitors, then 443,070 visitors in 2016, and 355.498 visitors in 2017. The condition serves as a challenge for management to achieve sustainable creativity in developing Kalibiru. Based on primary and secondary data, SWOT and QSPM were performed to assess the feasibility of sustainable in the destination. The results are used to determine priorities of strategy for the development of Kalibiru in line wit sustainable development. The mechanism can be used to achieve target number of visitors.

3.2 Internal Factor Analysis Strategy

Table 1 shows the matrix of internal factor analysis strategy that consists of six factors as the strengths and weaknesses in the Kalibiru destination. The weight allocated for these factors from 0.077 to 0.093 and the effective score ranged from 3 to 5. Inversely, the weight of weakness allocated for these factors from 0.068 to 0.087 and the effective score ranged from 3 to 5. The calculation of IFAS Matrix is summarized below:

Table 1: Internal Factor Analysis Strategy Matrix.

	Weight	Score	Final Score
STRENGTH			
Beauty and biodiversity of nature (S1)	0.092	5	0.460
Uniqueness of local culture (S2)	0.088	5	0.441
Attraction of the culture of local community (S3)	0.077	3	0.232
Promotion of nature attraction in social media (S4)	0.093	5	0.466
Tourist guide service provide (S5)	0.085	4	0.339
Photography service in tourist attractions (S6)	0.084	4	0.336
WEAKNESS			
Availability of social facilities (W1)	0.078	3	0.235
Availability of public facilities (W2)	0.084	4	0.334
Responses of local community (W3)	0.087	5	0.434
Availability of souvenir shops (W4)	0.068	4	0.271
Representative restaurants (W5)	0.077	4	0.309
Environmental hygiene (W6)	0.087	4	0.346
	1.000		4.204

Finally, the results identified on the highest score of strength is 0.466 on "Promotion of nature attraction in social media", then it was followed by 0.460 (S1), 0.441 (S3), 0.335 (S5), 0.336 (S6). Inversely, the smallest was 0.232, about "Attraction of the culture of local community". The highest score of weakness was 0.434 on "Responses of local community", which was followed by 0.346 (W6), 0.334 (W2), 0.309 (W5), 0.271 (W4). In the contrary, the smallest is 0.235, specially on "Availability of social facilities in the destination". According to final score of IFAS Matrix, the value of total final score (4.204) was more than 2.5. It meant strengths outweight the weaknesses. Therefore, the potential of Kalibiru is able to grow up by using sustainable tourism.

3.3 External Factor Analysis Strategy

Table 2 shows the matrix of external factor analysis strategy consist of 6 factors as opportunities and 5 factors as threats in the Kalibiru destination. The weight of opportunity allocated for these factors from 0.088 to 0.103 and the effective score ranged from 3 to 5. The calculation of EFAS Matrix are summarized below:

Table 2: External Factor Analysis Strategy Matrix.

	Weight	Score	Final Score
OPPORTUNITY			
Change interest in nature attraction (O1)	0.103	5	0.515
Development social media as promotional (O2)	0.101	4	0.404
Local regulation of *Bedah Menoreh* (O3)	0.099	3	0.296
Cooperation with travel agents (O4)	0.093	3	0.280
Cooperation with universities (O5)	0.088	4	0.351
Creating employment & earnings (O6)	0.099	3	0.297
THREAT			
Access to tourist attractions (T1)	0.082	3	0.245
Access to public transportation (T2)	0.067	3	0.200
Resemblance to other tourist attractions (T3)	0.095	4	0.380
Visitors' knowledge on sust. development (T4)	0.086	3	0.258
Risk of natural disaster (T5)	0.088	3	0.263
	1.000		3.490

Finally, the results identify on the highest score of opportunity is 0.515, specially "Change of interest in nature attraction" then are followed by 0.404 (O2) and 0.351 (O5). Inversely, the smallest is 0.280, specially "Cooperation with travel agents". The weight of threat allocated for these factors from 0.067 to 0.095 and the effective score ranged from 3 to 4. Finally, the results identify on the highest score of the threat is 0.380, specially "Resemblance to other tourist attractions", then are followed by 0.263 (T5), 0.258 (T4), 0.245 (T1). The contrary the smallest is 0.200, specially "Access to public transportation". According to final score of EFAS Matrix, the value of total final score (3.490) was more than 2.5. It meant the opportunities overweight than threats, so the management of Kalibiru able to

capture the new opportunities by implementing the sustainable tourism.

3.4 Strategy Development

After calculating the IFAS and EFAS Matrix, the information are used to determine the priorities of strategy for development in Kalibiru destination. Table 3 summarizes 20 items strategic development consist of SO, ST, WO, WT. Totally, priorities of strategies will be calculated by using the QSPM. The detailed computation for strategy are illustrated in appendix. The QSPM analysis provides the calculation of final score for each strategy, so results of QSPM are used to make decisions in development competitively in Kalibiru destination.

Table 3: The Priority of Strategic Development.

	STRENGTH	WEAKNESS
	SO Strategy	WO Strategy
OPPORTUNITY	S4-O1 : (0.240) = SO1	W3-O1 : (0.224) = WO1
	S1-O1 : (0.237) = SO2	W6-O1 : (0.178) = WO2
	S2-O1 : (0.227) = SO3	W3-O2 : (0.176) = WO3
	S4-O2 : (0.188) = SO4	W2-O1 : (0.172) = WO4
	S1-O2 : (0.186) = SO5	W3-O5 : (0.152) = WO5
	ST Strategy	WT Strategy
THREAT	S4-T3 : (0.177) = ST1	W3-T3 : (0.165) = WT1
	S1-T3 : (0.175) = ST2	W6-T3 : (0.132) = WT2
	S2-T3 : (0.168) = ST3	W2-T3 : (0.127) = WT3
	S5-T3 : (0.129) = ST4	W5-T3 : (0.118) = WT4
	S6-T3 : (0.128) = ST5	W3-T5 : (0.114) = WT5

Refer to computation as in appendix, are identified the ranking of 5 items of the priority strategies. The priorities consist of SO1 (5.511), SO5 (5.141), SO2 (5.093), SO3 (5.064), SO4 (4.235), which strategies suggested for management are:

1. **SO1:** Arranging campaign programs to preserve nature biodiversity and local genius in ecotourism destination with involving visitors, students, researchers, and environmental activist such as *Wahana Lingkungan Hidup*.
2. **SO5:** Upgrading promotion to explore the nature of Menoreh Hill with involving the social media.
3. **SO2:** Collaboration with other ecotourism destination around the Kalibiru Tourism Village for developing the other type of ecotourism.
4. **SO3:** Involving the local culture such as traditional art show as attraction in the destination.
5. **SO4:** Creating website system to update the news of ecotourism attractions, nature of biodiversity and local genius in Kalibiru destination.

With same computation the priorities of strength-theath consist of ST1 (4.503), ST5 (4.416), ST3 (4.260), ST2 (4.085), ST4 (3.729) which strategies suggested for management are:

1. **ST1:** Developing and improving the information tourism networking and service in Kalibiru destination.
2. **ST5:** Training programs for photographer and arranging the photography competition for exploring the Kalibiru ecotourism destination.
3. **ST2:** Maintaining the greening and naturally of the forest as ecotourism asset in Kalibiru, including expose the durian, mangosteen, and other for visitors
4. **ST3:** Empowering community and keeping the naturally of local genius in Kalibiru Tourism Village.
5. **ST4:** Providing the training about foreign languages, the cultural knowledge, and good character for tourist guides in ecotourism destination.

With same computation the priorities of weakness-opportunity consist of WO2 (5.316), WO1 (5.310), WO5 (4.955), WO3 (4.953), WO4 (4.295), which strategies suggested for management are:

1. **WO2:** Developing the managing of ecotourism based on eco-friendly destination in Kalibiru, including encouraging people to respect environment impact from tourism.
2. **WO1:** Increasing the role of local community for preparing services, local culinary, souvenir, homestay, and attraction in the Kalibiru Tourism Village.
3. **WO5:** Collaboration with university for developing program to accompany the activities of local community in the Kalibiru Tourism Village.
4. **WO3:** Increasing the content of the roles local genius or wisdom when promoting the destination through social media.
5. **WO4:** Increasing the quantities and qualities of public facilities, including people with special needs.

With same computation the priorities consist of WT1 (4.308), WT2 (4.308), WT5 (4.230), WT3 (4.148), and WT4 (3.790), the strategies suggested for management are:

1. **WT2:** Increasing the utilization of simple technology for trash recycling in the tourism destination.
2. **WT1:** Arranging the training program for entrepreneurs, craftman, and artists for

developing creativities in local economic or becoming an art-entrepreneurs profesionally.

3. **WT5:** Involving and training the local people as a team of search and rescue in the destination areas. Program to encourage people to respect the safety of visitors from environmental tourism.
4. **WT3:** Increasing the public facilities, such as parking areas and health care centers in the destination.
5. **WT4:** Collaborating with investors or CSR for creating the representative restaurants and prototyping the sustainable entrepreneurial in culinary sector.

The priorities of the strategies for developer the ecotourism Kalibiru are: SO1, WO1, WO2, SO5, SO2, SO3, WO5, WO3, ST1, ST5, WT1, WT2, WO4, ST3, SO4, WT5, WT3, ST2, WT4, and ST4. The determining strategy should not conflict with the development rgulations in Kulon Progo Regency. Moreover, the decision must be in accordance with duration priorities, with specialization in the short, medium or long term. The special program of Bedah Menoreh will support the performance of ecotourism along the Menoreh Hill. Therefore, the management requires strategy to utilize the facilities. By using these strategies, the developer in Kalibiru can concern about the stability of the triple bottom line strategy.

For managing destination, the local government and communal forest must collaborate with stakeholder. Priorities of action consist of (1) Identify people's traditions and maintain the local wisdom which is relevant to the current situation. The goal is to reduce the potential conflict among communities. (2) Involve the cultural observers in Yogyakarta for preparing the cultural and environmental events in national or international scale. (3) Increase the social or public facilities and safety in the location. Therefore, visitors are more interested to stay in the destination. (4) Immediately design the standards operation procedure for managing the waste in the destination. Implementation of standards will protect the environment in Kalibiru.

Although in practices there are still many limitations in the implementation of sustainability in the managing of Kalibiru, the commitment among communities and developer to defend the continuity of the communal forest is strong. To improve competitiveness of ecotourism, the manager should able to use the output of SWOT and QSPM analysis for managing destination in line with sustainable development.

4 CONCLUSIONS

By using the SWOT analysis, the matrix of IFAS and EFAS can be identified and then are calculated by QSPM analysis for the value of final score. The combination among strengths, weaknesses, opportunities, and threats are directed to become the strategies suggested for developing the destination. The results find that the implementation of sustainable development in Kalibiru was still frugal. Moreover, to improve competitiveness of ecotourism, the manager should able to use the output for managing destination in line with sustainable development.

The results calculated 20 alternative strategies for developing the destination. The determining strategies should not be in contradiction to regulation and must be appropriate to duration priorities. To pursue the sustainability progress, the management of Kalibiru ecotourism can collaborate with government, company's CSR, university, NGO, or other private institution. The willingness to adopt these strategies will improve the competitiveness of attraction in destination. Finally, the implementation strategies in developing attraction involves the triple bottom line aspects which relevant to sustainable development.

As a suggestion, we need to find the risk perception among visitors. Because the place is located 450 meters above the sea level, there is a perception of risk that may occur, such as landslide disaster, specifically in the rainy season. So, to reduce or overcome the potential of risk, the management needs to inform about the change of climate and weather, including when the rain falls, around the destination areas. To make it true, it requires cooperation with the Meteorological, Climatological, and Geophysical Agency to observe the nature phenomena and inform about the risk potential in every moment. In addition, it needs to inform the tourists about the assembly point in the areas of Kalibiru, in case of emergency.

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APPENDIX

The ilustration of the computation of QSPM:
In Table 3, SO1 is identified as priority of development strategy. SO1 is developed from Strength (S4) and Opportunity (Q1). The final score of SO1 is computed by weight x effective score, then the value of each indicator are summed up. Therefore, the total value of SO1 is 5.511. The computation is summarized below: The other items of QSPM are computed with same process, using the data from Table 1 and 2.

Indicators	SO1 (S4 – O1)		
	Weight	Effective Score	Final Score
S1	0.092	5	0.460
S2	0.088	5	0.441
S3	0.077	5	0.386
S4	0.093	5	0.466
S5	0.085	5	0.424
S6	0.084	5	0.420
O1	0.103	5	0.515
O2	0.101	5	0.505
O3	0.099	5	0.493
O4	0.093	5	0.466
O5	0.088	5	0.439
O6	0.099	5	0.496
		Total	5.511