Ecotourism development in National Parks: A new paradigm of forest management in Indonesia

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Abstract. The forest management in Indonesia is currently using a new paradigm, one of which is the involvement of local communities. This paradigm applied throughout Indonesia, especially in state forest areas and customary forests. National parks are part of state forests where management involves the community. One of the management methods used is community-based ecotourism which has widely implemented to communities around the national park. This approach used to improve people livelihoods and to minimize forest encroachment, illegal logging, and illegal hunting. In this relation, this article aims to provide a description of the Indonesian research literature on ecotourism development program regarding forest management in the community around national park areas. It found that ecotourism plays a role in the forest management by improving forest management and maintaining biodiversity, including protection of endangered species and their habitats. Meanwhile, ecotourism also empowering local communities, providing direct and indirect economic benefits. Nevertheless, comprehensive management planning is needed to minimize the ecotourism impacts, such as wildlife behavior and morphological change. The previous studies give understanding about ecotourism development in national parks that can be useful to improve national park management programs. However, further studies are still needed to support sustainable national park management.

1 Introduction

Indonesia, as a country with the largest tropical rainforest area in Asia, has allocated 120.6 million hectares or about 63% of its land area as forest areas [1]. In term of forest management system in Indonesia, a new paradigm has been applied by involving the community and granting forest management access to the community [1]. The new paradigm started by the enactment of Minister of Environment and Forestry Regulation No. 83/2016 on Social Forestry. According to MoEF [2], social forestry is a system of sustainable forest management in state forest areas or customary forests carried out by local communities, or customary law communities to improve welfare, environmental balance and socio-cultural dynamics. One of the social forestry forms is forestry partnership.

In particular, the state forest area can be divided into three categories based on its function, namely production forest areas, conservation forests and protected forests [1]. Related to this, currently, 521 conservation areas have been established. These areas consist of 221 Strict Nature Reserves, 75 Wildlife Reserves, 50 National Parks, 23 Grand Forest Parks, 115 Nature Recreation Parks, and 13 Hunting Parks [3]. Within these types of conservation forests, forestry partnership can be implemented in all kinds of conservation forests [1]. Furthermore, from the six types of conservation areas, national parks are currently a priority for conservation area management. This priority supported by establishing a particular institution, namely the National Park Office, to manages the national park areas [3].

The policy of establishing national parks has been implemented for more than three decades. However, based on the Management Effectiveness Tracking Tool (METT) assessment, the management of the national parks was still ineffective. These things are due to rampant illegal logging, forest encroachment, poaching, illicit grazing livestock, and other land-use changes, which can lead to forest ecosystem degradation [3]. On the other hand, the management and utilization of forest resources are still considered uneven, only benefiting certain groups without taking sides with the communities around the forest areas. The government finds the national park as a forest resource that must be protected. Still, the communities adjacent to these areas see that national parks as economic resources that encourage them to use forest resources in the national park illegally [4].

Meanwhile, from MoEF [1] are known that there are 25,863 villages located inside and around the forest

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areas, within-population around 37,2 million people. Unfortunately, nearly half of this population are marginalized. Therefore, to achieve the goal of area conservation and to increase the local community economy, community support and participation is needed for the collaboration in the management of conservation areas [5]. This approach can be part of the forestry partnership. Regarding this, community involvement in forest management has been regulated for a long time in various government regulations [1]. Informally, the initiation of community involvement in several conservation forest areas was carried out before social forestry was established, such as community participation in the development of the Tangkahan Ecotourism Area in Mount Leuser National Park [6].

In order to improve local economies and be able to maintain the livelihoods of marginalized communities in line with conservation objectives, and also to protect wildlife and minimize conflicts, Ayivor *et al*. [7] recommend community development in forest management. Related to this, to overcome problems caused by the degradation of natural resources and poverty around conservation areas, ecotourism can be a development approach that can cover both difficulties [8].

The implementation of ecotourism in Indonesia has been regulated in the Ministry of Home Affairs Regulation Number 33 of 2009 concerning Guidelines for the Development of Ecotourism in Regions. Ecotourism is defined as natural tourism activities that prioritize education and support for efforts to conserve natural resources and increase local community income [9].

Another definition of ecotourism is a tourism model that rests on the concept of sustainable development which ensures that tourism is based on the experience of environmentally, socially, and economically sustainable natural environment [8]. Other than that, ecotourism is a strategy to synergize the interests of protecting conservation areas. In addition, ecotourism also used to meet the economic needs of communities around protected areas [10]. Furthermore, according to Wood [11], ecotourism as a form of business or natural tourism economic sector is part of sustainable development and puts forward the advantages of various small-scale natural tourism innovations with minimal impact. According to Meilani *et al.* [8], in developing countries, including Indonesia, ecotourism development is a top priority for protected area management that can act as a bridge between nature conservation and rural economic development. Based on the previous information above, the objective of this article is to advance knowledge of the community-based ecotourism development around national parks in Indonesia from the perspectives of forest management.

2 Material and methods

The literature review study carried out by selecting studies that concern on community-based ecotourism, especially in communities around the national park area which published from 1995 to 2020. Since the regulation enactment of social forestry in November 2016, the publication year review divided into two sections, 1995-2015 and 2016-2020. The main the criteria for the inclusion and exclusion studies in the reviews are as follows; the articles discussed the community-based ecotourism development studies in the communities around the national parks in Indonesia. From the Scopus database, a systematic search is performed using keyword combinations to identify candidate articles. The authors preferred to use Scopus database because of its features as a collection of databases not only from one journal but also from various journals, as well as providing conference proceedings. Therefore, the result of articles obtained will be more represented. The keyword used for the literature search included: "Indonesia" AND "National Park" AND "Ecotourism". Within these keyword searches, 30 articles were found. The suitability of these candidate articles was measured by skimming and identifying the keywords that appear in the articles. The results of this process selected 13 articles to be used in the study.

The following aspects were systematically identified including study location, study perspectives (e.g., conservation; rural development), study focus, and any other significant findings, such as possible positive or negative impacts within this development program. All of the 13 studies are further divided into several categories based on the perspectives (e.g., conservation; rural development), focus, and the publication year (1995-2016; and 2017-2020). Furthermore, the study locations are also divided into three regions to identify the spreading of the community-based development studies in Indonesia region. This categorization refers to Region 1 as western Indonesia (including Sumatera and Jawa), Region 2 as central Indonesia (including Kalimantan and Sulawesi), and Region 3 as eastern Indonesia (including Nusa Tenggara, Maluku, and Papua). However, in the identified literature could not be found any relevant study in Papua, although it is one of the largest areas that have an extensive forest, apart from the Papua New Guinea region. In Papua itself, there are three national parks, namely Wasur National Park, Lorentz National Park and Cenderawasih Bay National Park. Therefore, Papua still has great potentials for the development of community-based ecotourism which requires further study.

3 Result

The focus of the study consists of six topics. The most frequent issue is wildlife conservation that appeared four times in three different regions, followed by economic impact and community participation appeared three times. Meanwhile, the rest topics, namely gender empowerment, local attitude, and carrying capacity, are only once appearance per issue. See Table 1 for further detail information.

Table 1. The proportion of reviewed studies based on study focus, location and publication period.

	Study Focus	Study Location			Publication Year	
		Region 1	Region 2	Region 3	1995-2015	2016-2020
1	Wildlife Conservation	1	2	1	2	2
2	Economic Impact	1	-	2	2	1
3	Community Participation	2	1	-	-	3
4	Gender Empowerment	-	-	1	-	1
5	Local Attitude	-	-	1	1	-
6	Carrying Capacity	-	-	1	-	1
	Total	**4**	**3**	**6**	**5**	**8**

Moreover, from table 1 can be interpreted that the studies mostly were conducted in Region 3 (Eastern Indonesia) with a total of six studies, while in the Region 1 (Western Indonesia) recorded four studies, whereas for Region 2 (Central Indonesia) found only three studies. Furthermore, most of the research studies were carried out between 1995-2015 as many as five studies. While the rest, eight studies, was conducted in 2016-2020. Based on this information, it can be assumed that there are increasing trends for ecotourism development studies after social forestry regulation launched.

Based on the review of the study perspective (e.g., conservation; rural development), it can be identified that there are positive and negative impacts of the ecotourism implementation. Some of the studies discussed both of these perspectives, conservation and rural development. The number of positive impacts on conservation and rural development perspective is 9 and 8 studies, respectively. Interestingly, from a conservation perspective, there are three negative impacts, while from a rural development perspective is not enough information to identify as negative impacts, as represented in Table 2.

Table 2. The proportion of reviewed studies based on the impacts of the perspectives.

Impact	Conservation	Rural Development
Positive	9	8
Negative	3	n.a.

As mentioned in Table 2, most of the studies discussed the positive impacts of ecotourism implementation both on conservation and rural management perspectives. According to Meilani *et al.* [8], the community becomes one of the stakeholders who have an essential role in the development of this ecotourism in Sebangau National Park. They realize the need for a balance between ecological and economic goals, in addition to the functions of other stakeholders. Other than that, the community also involved in ecotourism activities, like provide tour guide services, boat rentals, homestays/guesthouses, and food stalls/restaurants. Despite that, they were also expected to improve their understanding, employment and distribution, acceptability, behaviour and skills, towards ecotourism. People who benefit economically from tourism have a more positive perception of tourism than those who do not have such benefits [12]. Within these economic benefits, the community can invest more in environmental conservation, infrastructure, and financial wealth, as stated in Purnomo *et al*., and Sadikin *et al*. [12,13]. In this case, the community also plays a role in reinforcing the carrying capacity of the social or physical environment [13,14]. Aside from that, ecotourism also includes gender participation that affected the economic benefit for the community [15].

Other studies also showed positive impacts of ecotourism on wildlife conservation, as discussed in Wanger *et al*., and Balen [16,17]. According to Wanger *et al.* [16], who researched herpetofauna in Lore Lindu National Park, the community are involved as tour guides and equipped with basic knowledge of local biodiversity data will significantly support the understanding of the importance of local species conservation. The same thing was also stated by Balen [17], for the sake of preserving the Green Peacock in Java, ecotourism is one of the recommended programs, in the form of a community awareness program that can improve law enforcement.

However, the negative impacts of ecotourism activities also found in a few studies. One of this case regarding the research by Ardiantiono *et al.* [18], the high visitation tourist number to the ecotourism area of Komodo National Park has resulted in natural behavioural and morphological change of the Komodo dragons. Another study from Kinnaird and Brien [19] also showed a similar result in Black macaques research. The behavior of this animal appeared to be negatively influenced by a large group of tourists, that become more aggressive and the foraging and feeding behaviour significantly reduced. Within this fact, it is crucial to minimize these impacts by implementing and developing good governance of tourism management plans, as well as implementing strict rules and regulations towards biodiversity and wildlife conservation [19,20].

Furthermore, from the rural development perspective, most of the ecotourism impacts showed positive values, as mentioned in [21–23]. These studies discussed economic benefits from ecotourism activities to the community. One of them focussed in willingness to pay from the tourists towards ecotourism activities. Within this scheme, the community can get benefits either directly or indirectly, including by providing tour guide services, opening food stalls or souvenir shops, and renting out lodging [21,22]. Therefore, people can have an alternative livelihood, which can influence people to leave their previous livelihoods, such as illegal loggers, poachers, and animal hunters. By this means, one of the conservation goals can be achieved.

4 Discussion

This review study found that implementation of ecotourism gives positive and negative impacts to the conservation, while in rural development, ecotourism performed positive impact. Regarding the conservation perspective, the emergence of positive and negative impacts simultaneously cannot be avoided. Ecotourism development formed community participation in every process including planning, implementation and evaluation so that people can develop their social capital and increase awareness of the importance of preserving the area and protection for endangered species [17,24].

Commitment and understanding to protect the environment from the community are one of the main elements that have a positive impact in the context of conservation of the area, and it is also one of the essential aspects to influence policy-making towards biodiversity conservation [17].

However, the increasingly developing ecotourism that attracting many tourists will undoubtedly have an impact on the environment, such as the construction of tourism supporting facilities and infrastructure including lodging/guesthouses, restaurants, souvenir shops, the building of tourist attraction areas, and other structures for transportation access to location [8]. This infrastructure development will trigger the land-use change. Although indirectly, it has an economic impact on the community. Many development planning includes land use planning management needs to be considered to minimize the damage to the area [24]. Likewise, with wildlife conservation, it needs to be considered that with the number of tourist visits, it is endeavored to have the least possible impact on the existence of wild animals, both in terms of morphology and behavior [18,19]. Therefore, ecotourism areas should be considered the carrying capacity to minimize ecotourism resources damages [14].

Meanwhile, the implementation of ecotourism in this literature review has a positive impact on rural development perspective in the community adjacent to the national parks. This is partly due to the existence of ecotourism, the community gets economic benefits, either directly as providers of ecotourism services such as tour guides, boat rentals, lodging and restaurants, or indirectly by the willingness to pay mechanism of tourists [21–23]. However, regarding the number of economic benefits obtained, there are often inequalities between ecotourism actors. This is especially true for ecotourism managed by outsiders, getting more profit distribution than local residents [23]. Therefore, to increase the economic benefits to the local inhabitants, community development is needed with the participation of other stakeholders, one of which is the government [13], and it can also be done through gender empowerment [15].

The distribution of these benefits needs more consideration to minimize inequality and improve the welfare of the community. The study conducted by Walpole and Goldwin [23], can be a reflection that the distribution of the benefits of ecotourism has not been able to provide adequate services to the community. Other than that, Walpole *et al.* [22], mentioned that appropriate pricing strategy also plays an important role that affects on both sides, forest management by national park authorities and local communities. Lower fees with a high frequency of tourists may be able to cover total costs, and sharing the economic benefit to the communities. Nevertheless, the higher visitation of tourists correlated with the carrying capacity of the environment, that can affect wildlife existence and natural resources depletion. It is like a close-loop that never ends. Therefore, a comprehensive study that is more focused is needed to solve the dilemma of forest management, particularly in national park areas.

Although not all implementations can be said to be successful in the perspective of conservation and rural development, there is still hope that ecotourism in good governance can achieve the goals of conservation and rural development. The strategies that can be applied to improve ecotourism management include involving local communities through awareness so that they can enhance their interest in the policy and consider themselves as part of the stakeholders. Besides, increasing environmental education to tourists about conservation can contribute to the implementation of conservation policies. Apart from that, another important role is that of the government through proper monitoring and evaluation of ecotourism sites. Adequate management of ecotourism areas and considering sustainability aspects in every economic, social and environmental field can help achieve long-term conservation goals [25].

5 Conclusion

The implementation of ecotourism around national parks in Indonesia is closely related to its impact from a conservation and rural development perspective. The results of the study show that the existence of ecotourism activities increases public conservation awareness, preserves and protects biodiversity, and improves resource management. Besides, ecotourism also empowers local communities, provides direct and indirect economic benefits as well as educates and raises awareness of the importance of preserving natural resources. Nevertheless, the inequalities of benefit distribution are needed further consideration. Although ecotourism is not the only way to achieve conservation and rural development goals, these findings can be useful for improving the management of protected areas and increasing the effectiveness of rural development in Indonesia. However, further studies are still needed to support sustainable national park management.

6 Acknowledgement

The authors gratefully thank the Ministry of National Development Planning in Indonesia

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