Ecotourism implementation for tropical forest resource conservation in Indonesia: Legal aspects

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Abstract. In developing countries, including Indonesia, ecotourism can potentially be a strategy to conserve forests as well as generating local income and thus alleviating poverty. This concept is applicable to accommodate tourism development in this country, preventing negative impacts of mass tourism. Due to its potential resources, the government had long been established sets of regulations to accommodate the implementation of ecotourism in forest areas. However, it is important to measure whether these regulations are consistent with ecotourism principles to ensure sustainability aspects. This study aims to evaluate several regulations in Indonesia related to ecotourism implementation in terms of their consistency in applying ecotourism principles. The research method was a desk study and content analysis. Results showed that the Ministry of Environment and Forestry had enacted regulations to encourage the implementation of the ecotourism concept in managing tourist destinations located in forest areas: production, protected and conservation forests. However, several ecotourism principles were not regulated, such as environmental and local education culture to visitors and local people, conservation planning in the tourist destination, and control mechanisms. In conclusion, it is essential to elaborate ecotourism principles in the regulations to ensure the sustainability aspects of ecotourism implementation in state forest areas.

1. Introduction
In Indonesia, ecotourism is considered as an effective strategy to conserve forests as well as generating local income and thus alleviating poverty. Local people are expected to promote and sustainably manage some forest areas, which can potentially be developed as a tourist destination. As a consequence, visitors are attracted to visit and spend money to enjoy the beautiful natural scenery of forests and other interesting attractions. On the other hand, local people can derive economic benefits from visitors. Meanwhile, from the government’s perspective, the implementation of ecotourism can potentially decrease the number of people who live below the poverty line in this country by creating local income. Several studies reported that ecotourism had improved the local economy of several regions in Indonesia, for example, Karimunjawa Island [1], Kepulauan Seribu [2], South Sulawesi [3], and Komodo Island [4]. Therefore, the implementation of ecotourism has benefited the local people, the government and the environment.
Ecotourism implementation in forest areas can also potentially reduce deforestation and forest degradation in Indonesia. Mainly, poverty is blamed for the main cause of illegal logging and forest encroachment in this country. There is a large number of people around the forest areas who are living below the poverty line. Based on a survey conducted by the Indonesian Statistics Center Agency [5], there were about 32 million people live near to forest areas in this country, which most of them were categorized poorly. Meanwhile, several studies reported that ecotourism could reduce mangrove conversion to other land uses [6, 7]. Therefore, when ecotourism is implemented, forest areas would be protected by local people from illegal logging and encroachment.

There are some regulations related to the implementation of ecotourism in forest areas in Indonesia. Of the total about 120 million hectares of forest (Mha) areas in this country, ecotourism can be implemented in almost all categories of forest areas. Based on Forest Law No. 41/1999 (Law No. 41 1999 about Forestry), forest areas are divided into three categories based on their main functions: (1) conservation forest for flora and fauna conservation purposes; (2) protected forest for protection of life support systems, such as water regulation, flood prevention, erosion control, seawater intrusion prevention and soil fertility protection; and (3) production forest for timber production. However, there are limited studies on whether the set of regulations related to ecotourism implementation in Indonesia has satisfied ecotourism principles.

In ensuring forest biodiversity conservation, regulations related to ecotourism implementation in Indonesia need to be consistent with ecotourism principles. This is because principles of ecotourism are strongly mandating sustainable management of eco-tourist destinations. A study revealed that of the total 111 studies, there are only 17 eco-tourist destinations that had positive impacts on forest biodiversity conservation [8]. This indicates that ecotourism implementation needs to be well regulated, including in Indonesia. Therefore, if these regulations are not consistent with ecotourism principles, forest conservation purposes might not be achieved, affecting conservation programs to the large area of forests in this country. This study is conducted to evaluate and to give insights to the existing regulations related to the consistency of ecotourism implementation in Indonesia with ecotourism principles.

2. Research method
2.1 Data collection
This study is a desk study. Research data collection and analysis were conducted from May to June 2019. In Indonesia, the term ‘ecotourism’ is one of the features in environmental service and nature tourism. Therefore, this study was conducted by reviewing three regulations of environmental service and natural tourism set by the Ministry of Environment and Forestry (MoEF) (Table 1). These regulations govern forest utilizations in terms of environmental services in three categories of forest areas based on their main functions, i.e., production forest areas, protected forest areas and conservation forest areas. These regulations provide more detailed procedures for forests’ environmental services utilization related to environmental services and nature tourism, which were mandated in government regulations (Table 2). In the hierarchy of regulations in Indonesia, the ministerial regulations are under the government regulations.

Although there is a regulation about ecotourism set by the Ministry of Home Affairs: Regulation No. 33/2009 about Ecotourism Development Guidelines in Regional Areas, this regulation is mainly set to assist the local governments (provincial and district governments) in developing ecotourism in their areas by creating a plan, providing budget and stimulating investment. Moreover, based on land typology in Indonesia, local governments can only manage areas for other purposes (APL/Areal Penggunaan Lain), while the MoEF manages the forest areas. Therefore, this study focused on regulations set by the MoEF and other related regulations.
### Table 1. Ministry of Environment and Forestry regulations related to ecotourism in forest areas.

| No | Regulations                                                                 | Forest area to govern                                                                 |
|----|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1  | Ministry of Environment and Forestry Regulation No P.31/2016 about Guidelines for Nature Tourism Environmental Services Business Establishment in Production Forests | Production forests: Forest areas allocated for logging companies for timber production |
| 2  | Ministry of Forestry Regulation No P.22/2012 about Guidelines for Nature Tourism Environmental Services Business Establishment in Protected Forests | Protected forests: Forest areas allocated for protection of life support systems, such as water regulation, flood prevention, erosion control, seawater intrusion prevention and soil fertility protection. |
| 3  | Ministry of Environment and Forestry Regulation No P.8/2019 about Nature Tourism Establishment in Wildlife Reserve, National Parks, Grand Forest Parks and Tourist Nature Parks | Conservation forests: Forest areas allocated for flora and fauna conservation |

### 2.2 Data analysis

Each of the regulations related to ecotourism was qualitatively analyzed by using content analysis. Content analysis is one of the research techniques aiming to make replicable and accurate inferences from texts [9]. Meanwhile, the other study reported that content analysis is a procedure to obtain and organize information from written or recorded materials, which is then systematically reviewed and analyzed to generate conclusions [10]. The written materials can be a set of regulations, documents, transcribed materials, or evaluation results. In this study, each of the regulations is systematically analyzed whether ecotourism principles were mandated in these regulations.

There are three main principles of ecotourism, and the first is that tourist destinations are nature tourism [11]. This means that tourist destinations applying ecotourism concepts must be natural-based tourism, or the main attractions are a natural beauty. Here, visitors who visit the tourist destination are motivated to enjoy the beautiful sceneries which are naturally available. However, there are discussions on how much modifications by humans are allowed in tourist destinations. Nevertheless, human modifications are allowed as long as the other principles are fulfilled [11]. Since forests are nature-based tourism, in this study the regulations were analyzed whether human modifications are allowed or prohibited.

The second principle of ecotourism is the implementation of environmental education for visitors and local people. This means that tourist destination managers are obliged to educate visitors and local people to change their perceptions, attitude and behavior to be more aware of the environment. Environmental education would focus on conservation and local culture. In this study, the regulations would be analyzed whether environmental education is mandated for tourist destination managers. The third principle of ecotourism is the sustainable management of tourist destinations [11]. There are two essential things in this principle; first, local people are encouraged to play a major role in managing the eco-tourist destination sustainably and; to get economic benefits. Therefore, there is a causal relationship between local people and forest conservation programs where the local people obtain economic benefits from tourism by preserving the forest as the tourist destination. There is another principle of ecotourism; control over the negative impacts of ecotourism activities to the tourist destinations [12]. Here, ecotourism managers need to establish a system or regulation to prevent staff or officers from harming the eco-tourist destination.
Table 2. Principles of ecotourism used in this study.

| Ecotourism principles | Criterion                                                                 |
|-----------------------|---------------------------------------------------------------------------|
| Human modification    | How many operators can modify the eco-tourist destination?                |
| Environmental education| The obligation for operators to construct environmental education         |
| Sustainable management | Carrying capacity to limit visitors                                       |
| Conservation efforts  | Budget allocation for conservation programs                               |
| Local participation   | Suggestions to involve local people in management                         |
| Control               | The use of low environmental impact tools                                 |

3. Results and discussion

3.1 Results

The results showed that the MoEF Regulation No P. 31/2016 had fulfilled five out of six principles of ecotourism, while the Ministry of Forestry (MoF) Regulation No P.22/2012 had only fulfilled one and MoEF Regulation No P.8/2019 had fulfilled four. In the MoEF Regulation No P.31/2016, where ecotourism can be implemented in production forest areas, restrictions to human modifications of the tourist destination are regulated in several articles. In the general overview article 1 sub-article 5, it is stated that forest utilization for environmental services in the production forest should not change the landscape, damage the environment and destroy its main functions. The other restriction to human modification is stated in article 7 sub-article 2, the area allocated for nature tourism should not be more than 10% of the total utilization areas in the production forest. In article 28 sub-article (a), it is also stated that the buildings for nature tourism facilities should be consistent with conservation principles.

Restrictions to human modification are also stated in the MoF Regulation No P.22/2012 in several articles; article 1 sub-article 2; 24 (1, 3c), which similar to MoEF Regulation No P.31/2016. Therefore, tourism activities, including ecotourism, should also not change the protected forest functions significantly. Meanwhile, human modifications are also restricted in the conservation forests. In the MoEF Regulation No P.8/2019, in article 2 (1), it is stated that nature tourism in wildlife reserves, national parks, grand forest parks, and tourist nature parks should be consistent with nature conservation principles. In article 9 (1), the allocated area for tourist facilities is a 10% maximum of the total areas.

Environmental education is also mandatory only in the MoEF Regulation No P.31/2016, which is stated in article 4 (2). It is stated that learning and education activities need to be conducted to improve visitors’ understanding and roles in forest conservation and the environment. However, environmental education to local people is not stated in the MoEF Regulation No P.31/2016. Nevertheless, environmental education is not stated in both regulations, MoF Regulation No, P.22/2012 and MoEF Regulation No P.8/2019. As a result, there will be no obligation for tourism operators to implement environmental education in protected and conservation forests.

Obligation related to carrying capacity in tourist destinations is only found in production forests regulation in the MoEF Regulation No P.31/2016. It is clearly stated in article 7 (2) that the allocated area for nature tourism should not be exceeds the limit of the carrying capacity area. On the other hand, the obligation related to carrying capacity in tourist destinations is not regulated in both protected forest and conservation forest. Meanwhile, the obligation to allocate money for conservation activities is not found in all three regulations.

Local people are encouraged to be involved in the nature tourism in all regulations P.31/2016, P.8/2019 and P.22/2012. In article 10 (2) of P.31/2016, it is stated that the individuals who want to apply for renting the production forest areas for nature tourism are prioritized for local people. Meanwhile, in the article 53 (h) of P.8/2019, it is stated that nature tourism permit holders must involve conservation and nature tourism experts and local people in running the nature tourism in
conservation forests, a similar statement in the P.22/2012 in the article 16 (2i). Meanwhile, supervision as one of the ecotourism principles is regulated in P.31/2016 and P.8/2019. In article 28 (b,d,g) of P.31/2016, it is stated that the buildings and facilities for supporting tourism activities need to be environmentally friendly, space-efficient and energy-efficient. Meanwhile, similar regulation is also stated in the P.8/2012 in the article (b,d,g).

3.2 Discussion
Restrictions to human modification have been mandated in production forest, protected forest, and conservation forest. As a result, negative impacts related to the establishment of building facilities to support tourism activities can be reduced. However, in the conservation forests where some endangered plants or animals are inhabited, the restriction might need to be improved. For example, proboscis monkey, locally known as *Bekantan*, is one of the endangered animal species endemic in Kalimantan. Meanwhile, on this island, there are about 5.17 million hectares of conservation forests.

Environmental education is only stated in the MoEF Regulation P.31/2016, but it is not either in the MoF Regulation P.22/2012 or in the MoEF Regulation P.8/2019. As a consequence, there is no obligation for tourist operators to educate visitors in both protected forest and conservation forests, where environmental education should be conducted. Environmental education should be part of ecotourism because it increases conservation ethic and positive environmental attitudes [13]. Based on a study [14], environmental education is essential in supporting sustainable development in the tourism sector. Moreover, a study showed that environmental education could support conservation programs of marine wildlife [15]. This can potentially have positive impacts on biodiversity conservation in both protected forest and conservation forests.

In both protected forest and conservation forests where the MoF Regulation P.22/2012 and the MoEF Regulation P.8/2019 are implemented, the absence of an obligation to measure the carrying capacity of the tourist destination might lead to an uncontrolled tourist influx. A study depicted some negative impacts of the massive tourist influx visiting a national park in Brazil [19]. Moreover, another study reported that nature tourism has some negative impacts to an endangered animal species, the Capercaillie (*Tetrao urogallus*) and their habitat in Europe, suggesting to the tourist destination managers to allocate areas where there is limited human contact [20]. In addition, uncontrolled tourism has resulted in land-use changes to establish tourist facilities in the Turkish Mediterranean.

In Indonesia, there are limited studies related to the impact of uncontrolled tourist influx in some tourist destinations in forest areas. A study reported that a significant increase in tourism activities in some forest areas in North Sulawesi Province has resulted in negative impacts on biodiversity, such as exotic species invasion, lake sedimentation and eutrophication [21]. Meanwhile, a study reported that tourist visit to a tourist camp in Gunung Ciremai National Park was below its sufficient carrying capacity, in which the daily average tourist visit was only 179 visitors compared to its effective carrying capacity, 192 visitors per day [22]. The other study also reported that the average tourist visiting Grojogan Sewu Natural Park, Central Java was 940 visitors per day, which was below its effective carrying capacity, 1002 visitors per day [23]. On the other hand, instead of forest areas,
massive tourist influx occurred in Gili-Trawangan beach, which resulted in negative impacts on the environment [24].

Explicitly, there is no statement to allocate budget for managers for conservation purposes in all the three regulations studied in this research. This is important to ensure that conservation would be conducted in the forest areas. A study reported that budget allocation for conservation purposes in the eco-tourist destination could be implemented by using various ways: solid waste treatment, sewage treatment, or electric and water conservation [25]. However, managers are mandated to rehabilitate their areas if the tourism activities damage the tourist destination. This mandatory is stated in article 21(e) of the MoEF Regulation P.31/2016, article 53 (e) of the MoEF Regulation P.8/2019 and article 16 (e) of the MoF Regulation P.22/2012. Nevertheless, conservation is broader than just rehabilitation. In fact, it seemed that tourism activities are “allowed” to create some negative impacts on forest areas as long as rehabilitation would be conducted.

Local participation as one of the ecotourism principles is regulated in all MoEF Regulations in this study. However, to what extent local people can involve in tourism activities is not regulated. As a result, the involvement of local people might only be limited as the workers in the operation of the tourist destinations. Local people might not be able to involve in planning or decision-making of tourism activities. However, there are some limitations related to local people’s involvement in ecotourism. A review revealed that local people might lack of financial resources, management skills, and infrastructure to be involved in ecotourism development [26]. On the other hand, the government might prefer large tourism enterprises rather than local people to develop ecotourism [27].

Control, as one of the ecotourism principles, has been regulated in both the MoEF Regulation No P.31/2016 and P.8/2019, but it was not regulated in P.22/2012. Unlike carrying capacity, control is an important aspect for tourist operators in running their tourism activities in forest areas. This is because some forest areas are fragile. Therefore, ecotourism activities should not have or minimize adverse impacts.
Table 3. Principles of ecotourism regulated in the three Ministry of Environment and Forestry regulations in this study.

| Regulations                                                                 | Restrictions on human modifications | Environmental education | Sustainable management (carrying capacity) | Budget allocation for conservation efforts | Local participation | Control |
|----------------------------------------------------------------------------|-------------------------------------|-------------------------|--------------------------------------------|-------------------------------------------|---------------------|---------|
| Ministry of Environment and Forestry Regulation No P.31/2016 about Guidelines for Nature Tourism Environmental Services Business Establishment in Production Forests | √                                   | √                       | √                                          | x                                         | √                   | √       |
| Ministry of Forestry Regulation No P.22/2012 about Guidelines for Nature Tourism Environmental Services Business Establishment in Protected Forests | √                                   | √                       | √                                          | x                                         | √                   | √       |
| Ministry of Environment and Forestry Regulation No P.8/2019 about Nature Tourism Establishment in Wildlife Reserve, National Parks, Grand Forest Parks and Tourist Nature Parks | √                                   | √                       | √                                          | x                                         | √                   | √       |

Additional information:

✓: mandated in regulation
X: not mandated in regulation
3.3 Recommendations for ecotourism management in Indonesia

Based on data from Forestry Statistics, MoEF has already given a total of 260 permits for private sectors to use some forest conservation areas for nature tourism across Indonesia [28]. The total number of tourists visiting forest conservation areas in this country was about 7.7 million visitors in 2016. The total conservation forest areas in Indonesia is about 27.3 million hectares, consisting of several forms of forest management. Those are 54 national parks, 118 tourist nature parks, 219 nature reserve, 72 wildlife reserve, 28 grand forest parks, 11 hunting parks and 54 nature conservation areas (Kawasan Pelestarian Alam) across Indonesia up to 2016. These forms of conservation areas are directly managed by MoEF, except grand forest parks, which are managed by the local government. However, national parks and tourist nature parks are the most popular for visitors among the other forms of conservation forest areas. On the other hand, similar information on how many permits are given for tourism-related activities in production forests and protected forests are not found. Production forest areas are allocated for timber production, while the local provincial government manages protected forests.

There are mainly two actors who manage tourist destinations in forest areas, and those are government and private sectors or companies. For the government, in this case, is the Ministry of Environment and Forestry (MoEF), it is recommended to set regulations to mandate conservation forest managers to apply ecotourism principles in managing the tourist destinations. This form of regulation is set to support the existing regulations, the MoEF Regulation P.8/2019, for instance, by introducing general directorate regulations. The general directorate regulations can also be designed to create standard operating procedures for private companies that have been given license to use forest conservation areas as a tourist destination. These standard operating procedures have mandated the private sectors to apply ecotourism principles in managing tourist destinations. As a consequence, the government might also need to create a monitoring and evaluation system to ensure that ecotourism principles are appropriately applied.

4. Conclusions

In conclusion, the MoEF Regulation No P. 31/2016 had fulfilled five out of six principles of ecotourism. Meanwhile, the MoF Regulation No P.22/2012 had only fulfilled one and the MoEF Regulation No P.8/2019 had fulfilled four out of six ecotourism principles in this study. These three regulations had restricted human modification and encouraged local participation when implementing ecotourism in the production forest, protected forest, and conservation forest. However, the budget allocation for conservation efforts is not regulated in the three ministerial regulations.

In the conservation forests where some endangered plants or animals inhabit, the restriction might need to be improved to prevent adverse impacts from tourism activities. Meanwhile, the revision of the ministerial regulations in this study can be conducted by setting directorate general regulations to complete unregulated aspects.

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