



The Development Model of Ecotourism Management in Gunung Botak, the South of Manokwari Regency, West Papua Province, Indonesia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The South of Manokwari Regency has many kinds of tourism objects with specifications characteristic of natural landscapes i.e., coastal ecotourism (marine ecotourism), and high land ecotourism (i.e., Gunung Botak areas and Arfak Mountains). This article is a review based on the research and the justification of scientific writing with purposed: to review and analyze the potential of Gunung Botak Ecotourism, the suitability and carrying capacity, the performance of regional of

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tourism social-economic in The South of Manokwari Regency that could be developed as the ecotourism object in national and international's class and to designed the Development Model of Ecotourism Management in Gunung Botak. The determination of the ecotourism object has done based on the exploration assessment about the object and attractions in a score determination. The assessment of suitability and carrying capacity with scientific justifications i.e. (1) natural ability to tolerate human disturbance or distress, and (2) standard the authenticity of natural resources. The quality of natural scenery (*lanscape*) there would be the degree of quality Gunung Botak Ecotourism categories scores >19 (Clas A, High Quality). Ecotourism activity in Gunung Botak consists of recreation, sports tourism in a natural hollow and camping, with wide areas is 5063.5 m². The projections of potential regional income in entrance fee tariff from foreign tourist is Rp. 35.550.000,-/day and domestic tourism is Rp.1.135.000,-/day. The management strategy of development Gunung Botak ecotourism in South Manokwari Regency could be done with determined the segmentation of ecotourism marketing.

Keywords: *The development model; ecotourism management; Gunung Botak; The South of Manokwari Regency; West Papua Province.*

1. INTRODUCTION

The South of Manokwari Regency has many kinds of tourism objects with specifications characteristic of natural landscapes i.e., coastal ecotourism (marine ecotourism), and high land ecotourism (i.e., Gunung Botak areas and Arfak Mountains). The Letters of Declaration Ministry of Forestry Republic of Indonesia, Number 783 in year 2014 stated that the Land of Forest Areas in West Papua Province in wide areas \pm 30.387.499 Ha. There are based on the function's areas consist of: The Sanctuary Areas and The Natural Conservation Areas, wide areas is \pm 2.640.258 Ha. The Gunung Botak areas is including in The Preserve Forest Areas of Momi Anggi [1].

The Potential of tourism in these areas must to develop in management to find out the resource's government income in The South of Manokwari Regency, and there would be improved the economics of local community who lived in the around of ecotourism areas. In the other hand, there would be expanded the opportunities open work and able to absorb manpower and reduce the number of unemployed. Tourism development will give good positive impact of the various effects and decreased of the negative impacts [2-7].

The Master Plans of the Utilization of Gunung Botak as Ecotourism Management needed the research that to find out the identification the potential and prospect of ecotourism management development that could be improved the regional economic so it would be designed the Strategy Development of Ecotourism Management These concepts would

be useful for the community and regional economic and the development of ecotourism management synergize and harmonize with the functions of Gunung Botak as Preserved Forest Areas of Momi Anggi [8,9].

This article is a review based on the research and the justification of scientific writing with purposed:

1. To review and analyze the potential of Gunung Botak Ecotourism Management in The South of Manokwari Regency.
2. To review and analyze the suitability and carrying capacity of Gunung Botak Ecotourism Management in The South of Manokwari Regency
3. To review and analyze the performance of regional of tourism social-economic in The South of Manokwari Regency that could be developed as the ecotourism object in national and international's class.
4. To designed the Development Model of Ecotourism Management in Gunung Botak the South of Manokwari Regency, West Papua Province.

The study is expected to provide input on how the development model of Gunung Botak ecotourism management as a tourism area in The South of Manokwari Regency, West Papua Province. There would be also as new information and updating data for the government of The South of Manokwari Regency and The West Papua Province to determine the policy formulation in tourism sector. Hopefully this articles would be add an scholarship in the tourism and useful for the researchers to examine about ecotourism management in Papua.

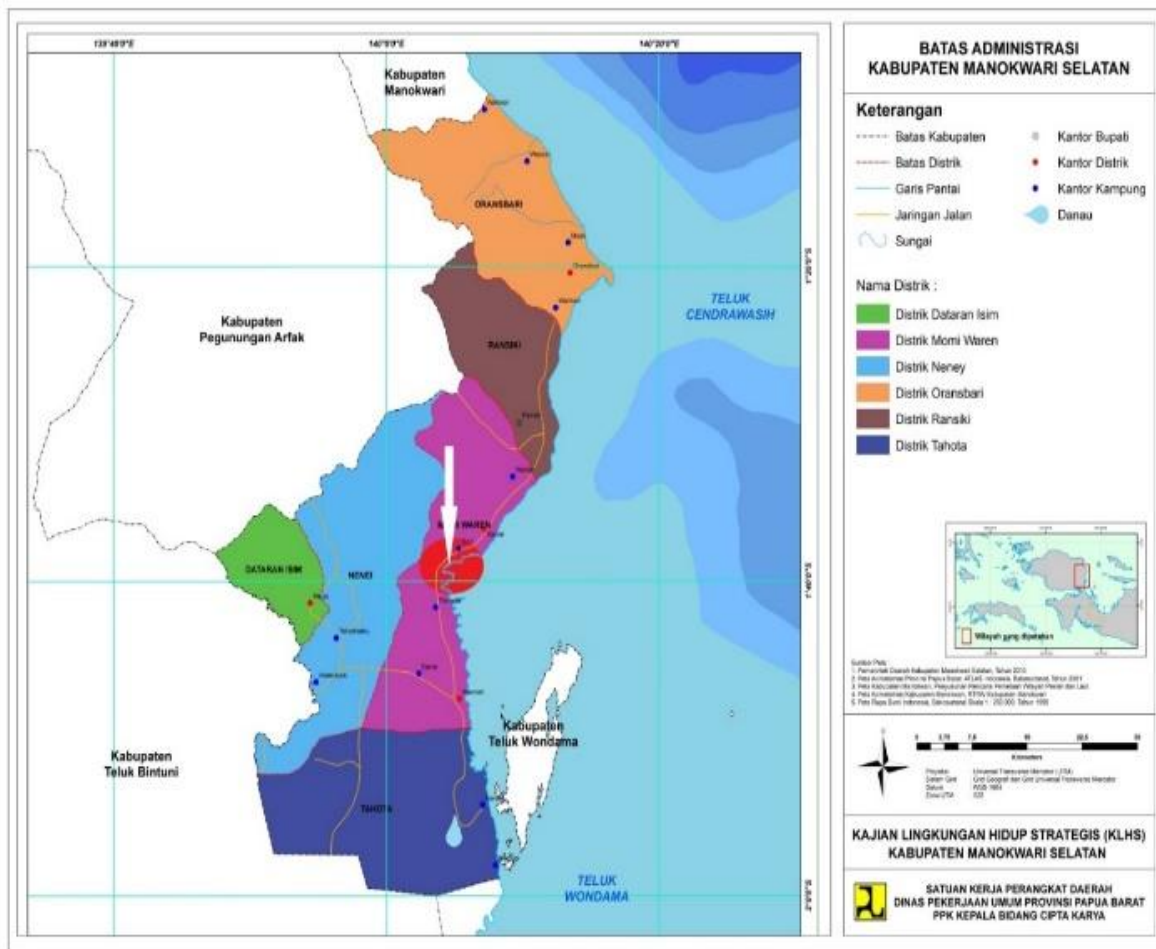


Fig. 1. The Map of Gunung Botak Ecotourism

2. METHODOLOGY

2.1 Review of the Potential of Gunung Botak Ecotourism

The determination of the ecotourism object has done based on the exploration assessment about the object and attractions of Gunung Botak Ecotourism in a score determination. Score would be determined with number value as 1 to 3. The criteria of determination consist of: a) How many attractions; b) How is the variations; c) How is the popularity of the attractions; d) How is the accessibility.

2.2 Review of the Suitability and Carrying Capacity of Gunung Botak Ecotourism

The concepts of suitability and carrying capacity based on [10-14]. The assessment builds on with scientific justifications i.e. (1) natural ability to

tolerate human disturbance or distress, and (2) standard the authenticity of natural resources. The method of assessment of carrying capacity the ecotourism Gunung Botak determined by Areas Carrying Capacity that means the maximum number of ecotourist who is physically could be in an area which provided at a particular time without causing disturbance or distress on the natural and man with the formula =

$$DDK = K \times \frac{Lp}{Lt} \times \frac{Wt}{Wp}$$

Descriptions:

- DDK = Area Carrying Capacity (DDK)
- K = Ecological potential of tourist per unit area
- Lp = Wide of area
- Lt = Unit area or for the specific category
- Wt = Area's available time for tourism attraction in one day
- Wp = Tourist's time for explore the object tourism in every object of tourism

Table 1. The Ecologic Potential of Tourist (K) and Wide of Tourist Activity's Area (Lt) in Gunung Botak Ecotourism

The type of activity	The number of tourists (people)	Unit Area (Lt)	Description
Recreation in a natural hollow	1	25 m	1 people in every 25 meter of length in hollow areas
Camping Ground Area	5	50 m	1 people in 100 m2
Sport Tourism in a natural hollow	1	25 m	1 people in every 25 meter of length in hollow areas

Source : Modified from Yulianda [10,11,13]

Table 2. The Ecologic Potential of Tourist (K) and Wide of Tourist Activity's Area (Lt) in Gunung Botak Ecotourism

The type of activity	The time required WP (hour)	The Total of Time in 1 day Wt (hour)
Recreation in a natural hollow	3	8 hour
Camping Ground	24	24 hour
Sport Tourism in a natural hollow	2	8 hour

Source : Modified from Yulianda [10,11,13]

2.3 Review of Performance of Socio Economic and Cultural of Ecotourism Management in Gunung Botak

- a. The marketing of Gunung Botak Ecotourism [15,16]:
 - Selling
 - How is the institution or organization selling the ecotourism product to tourist.
 - Marketing
 - The concept of marketing is transaction process inter institutions/organization with the tourism market so the tourist would be going to the tourism areas.
- b. The Promotion of Gunung Botak Ecotourism
- c. Institution/organization of Ecotourism in Gunung Botak
- d. Ecotourism Marketing Analysis
- e. The Strategy of marketing [17]
 - Target.
 - Segmentation.
 - Positioning.
 1. The quality of ecotourism product
 2. How is the product of Gunung Botak ecotourism well known in the public society
 3. The image of tourism destination
- f. The cost of Gunung Botak Ecotourism Development

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 The potential of gunung botak ecotourism

Based on the characteristic, uniqueness, and the quality of flora and fauna to determine the character, uniqueness, scarcity, and quality of biodiversity [18,19,20] showed that the criteria of biodiversity's quality of flora categories is moderate. The flora in rare species categories that founded in around Gunung Botak areas is "kantong semar" (*Nepenthes* sp.) The criteria of fauna biodiversity categories is moderate, too. The assessment of the view of natural lanscape quality base on a parameter from *Burew of Land Management* adopted from [19], there are reviewed in aspects : the formation of lanscapes, vegetation, water, colour, the view around the areas, and the modification of structure, sekitar dan could be describe in Table 3.

Based on the scoring in every aspects assessment, the quality of natural scenery (*lanscape*) (whole of item valuable in every item) there would be the degree of quality Gunung Botak Ecotourism categories scores >19 (Clas A, High Quality).

3.1.2 The suitability and carrying capacity of Gunung Botak ecotourism

Natural tourism activity be conducted through various activity.

Table 3. Landscape assessment of Natural Tourism

Unsur Lanskap	Skor	Kriteria
a. Formation of landscape	5	High vertical of relief that showed the existence of the top, indicated the presence of rock outcrop a giant or variations of a surface that is amazing
b. Vegetation	1	There is a difference in little or no
c. Water	3	Flowing with quiet but it is not so dominant in a landscape
d. Colour	5	The combination of its diverse or vivid colors or contrariety of a color ground beautiful , vegetation , water or other
e. The scenery	5	Nearby scenery for fear of a massive scenery a whole

Sources: Inden[21]

Table 4. The assessment of carrying capacity areas in Gunung Botak Ecotourism

No.	Areas/The station of observation	Wide of areas/m ²	Tourist carrying capacity (people/day)
1	Station 1 (Spot observation 1)	103	10
2	Station 2 (Spot observation 3)	270.5	29
3	Station 3 (Spot observation 4)	175	19
4	Station 4 (Spot observation 5) A Thousand Stairs	397	63
	Station 4 (Spot observation 5) A Thousand Stairs	397	42
5	Station 4 (Area <i>Camping Ground</i>)	3721	74
	Total	5063.5 m ²	237 (people/day)

Sources: Inden [21]

Table 5. The justification of Ecotourism activity assessment in Gunung Botak Ecotourism Areas

No.	Nama Area	Jenis Kegiatan
1	Stasiun 1 (Spot observation 1)	Recreation in a natural hollow
2	Stasiun 2 (Spot observation 3)	Recreation in a natural hollow
3	Stasiun 3 (Spot observation 4)	Recreation in a natural hollow
4	Stasiun 4 (Spot observation 5) A Thousand Stairs	Recreation in a natural hollow Sport Tourism in a natural hollow Camping

Sources: Inden [21]

4. CONCLUSION

The result of review analysis of these research, there would be concluded that:

1. The potential of Gunung Botak ecotourism in South of Manokwari Regency based on the characteristic, uniqueness, and the quality of flora and fauna showed the quality degrees of Gunung Botak ecotourism scorer > 19 (Class A High Quality)
2. Ecotourism activity in Gunung Botak consists of recreation, sports tourism in a

natural hollow and camping, with wide areas is 5063.5 m². The allocation of recreational activity and sport tourism in a natural hollow is 1342.5 m² with carrying capacity number of tourists is 173 people/day. The wide areas of camping ground is 3721 m² with carrying capacity number of tourists is 74 people/day.

2. Performance of Socio Economic and Cultural of Ecotourism Management in Gunung Botak based on the carrying capacity areas is 237 people/day.

3. The projections of potential regional income in entrance fee tariff from foreign tourist is Rp. 35.550.000,-/day and domestic tourism is Rp.1.135.000,-/day.
4. If we designed the management with 50 % foreign tourist and 50% domestic tourist the total of regional income from Gunung Botak ecotourism entrance fee tariff is Rp.18.445.000,-/day.
5. The management strategy of development Gunung Botak ecotourism in South Manokwari Regency could be done with determined the segmentation of ecotourism marketing. There are consists of :
 - a. Low Class - student and graduated student – low class staff – low class community – foreign tourist backpackers
 - b. Middle Class – manager and middle staff – the student of internasional school – staff in middle class with his/her families – youth executive – foreign tourism inbound
 - c. High Class - community – the executive of company- expatriates – foreign tourism inbound

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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