

The Economic Value of the Sebangau National Park Area in Supporting Sustainable Livelihoods in the Buffer Area

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Abstract This study aims to: calculate the economic value of the Sebangau National Park area in Central Kalimantan Province. The method used in this study is calculating the economic value of the Sebangau National Park area using an economic valuation approach. The study results show that the area's economic value in the Sebangau National Park, Central Kalimantan Province, is as follows: The value of the benefits derived from the flora in the Sebangau National Park is Rp 35,247,655,099,086.40 or around 35 trillion rupiahs, with the types of flora that are taken into account, including medicinal plants, ornamental plants, rattan plants and carbon storage (trees). The value of the benefits obtained from the fauna in Sebangau that are taken into account are orangutans, other large mammals, and birds; The total value of the benefits of flora and fauna in Sebangau National Park is Rp 35,984,764,454,951.40 or the equivalent of 36 trillion rupiahs; Based on the results of calculating the value of hill and lake tourism benefits in Sebangau National Park, it can be seen that the total tourism valuation or the total value of tourism benefits in Sebangau National Park. The following is the total tourism valuation of the Sebangau National Park Rp. 107,195,000.00.

Keywords Economic value, Benefit value, Sebangau National Park

1. Introduction

The existence of the carrying capacity of forests for all aspects of life is primarily determined by the level of public awareness of the importance of forests to be utilized and managed. Forests become a medium for mutual relations between humans and other living things with natural factors, which consist of ecological processes and are a cyclical unit that can support life (Reksohadiprojo, 2000). Utilization in national parks can be done based on RI Government Regulation No. 28 of 2011 concerning Management of Nature Reserve Areas and Nature Conservation Areas in Article 1, namely the use of wild plant and animal species and their environmental conditions while still paying attention to the potential continuity, carrying capacity and diversity of wild plant and animal species. Currently, the value of forests is still being reviewed by many parties from a perspective based on the value of timber and other forest products. Of course, the value is not comparable to the economic benefits of oil palm plantations. However, forests also have ecological, social, and cultural benefits that are often not taken into account but have a significant contribution to the balance of human life. As a living habitat for various flora and fauna, reduced forest area will result in

biodiversity loss in these ecosystems. Several wild and rare species unique to Indonesia will be threatened with extinction. This research attempts to calculate the area's economic value from several more comprehensive aspects.

One of the Natural Conservation Areas (KPA) in Central Kalimantan, which has protected flora and fauna, is the Sebangau National Park. The Sebangau area has been designated the Sebangau National Park since 2004 through the Minister of Forestry No Decree. SK. 423/Menhut/II/2004 on 19 October 2004. Sebangau National Park contains tropical peat swamp forests and is the only remaining swamp forest in Central Kalimantan Province (Sebangau National Park Management Plan 2007-2026). Therefore, the designation of the Sebangau area as a national park is expected to save peat ecosystems, biodiversity, and natural uniqueness (landscape) by improving the quality of human life for present and future generations (Mahin, 2011). The Sebangau area has provided community benefits long before its designation as a national park. Thus, it is hoped that the designation of the Sebangau area as a national park will still be or even more beneficial for the ecology and the people living around the national park. Environmental services formed in the biodiversity community managed in the Sebangau National Park conservation area system have not entirely been able to provide optimal economic value and protection for both the Core zone and other zones, including the buffer zone. Planned utilization in the long term requires support for the economic development of natural resources, active involvement of the community around the area, and

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environmental systems that are. These three factors are interrelated as part of management and utilization parameters. Therefore, studying the governance of the Sebangau National Park buffer zone in Central Kalimantan Province is necessary.

The economic value of the Sebangau area in the timber industry sector based on the low dependency scenario alone has reached 1.6 times the potential revenue value of timber. Even the economic value of commercial wood is still lower when compared to non-timber forest product extraction in the form of using jelutong sap by communities around the area. However, the economic value of the Sebangau area can only be maintained if commercial timber in the area is not exploited, either through business permits for the utilization of forest products (IUPHHK) or illegal logging practices). Fisheries and river transportation sector show that only in the low scenario, the economic value of fisheries (including the monetary value of fish consumption) and river water transportation that depends on the hydrological role of the Sebangau area (DAS) reach a present net worth of IDR. 361.45 billion (for 55 years at a discount rate of 10%).

The economic value still exceeds the monetary value of potential revenue from commercial timber utilization in the Sebangau area (for 55 years), which is IDR 4.55 billion. The economic value apparently still exceeds the economic value from the potential receipt of commercial timber utilization in the Sebangau area, which is IDR 4.55 billion. Based on this, it can be seen if the Sebangau area has provided benefits to the community. From the various facts and problems that have been described in the background, the purpose of this study is to measure the economic value of the Sebangau National Park area, Central Kalimantan Province.

2. Research Methods

The approach used in this study is a rationalistic approach that considers something real if empirical and rational schemes is coherent (Muhadjir, 2000). This type of research is a combination of quantitative and qualitative descriptive. Quantitative descriptive is used to assess qualitative data to make it easier to interpret (Kusmayadi and Sugiarto, 2000). The collection techniques used were secondary and primary surveys in the form of field observations and interviews with informants so that the data obtained was based on facts. Data was collected using several techniques, including in-depth interviews with key informants consisting of members of fishing households, communities, and government figures. (Focus Group Discussion/FGD) is intended to gather information, agreements, and shared perceptions at the district or community level. To calculate the economic value of Sebangau National Park using the economic value obtained from the direct use of a resource / ecosystem.

3. Results and Discussion

Value Benefit Flora

1. The Benefit Value of Medicinal Plants

Medicinal plants were identified to determine the number and density of plants in Sebangau National Park. Sebangau National Park is a young secondary forest compared to other national parks in Indonesia, so the diversity of medicinal plant species in Sebangau National Park tends to be low compared to other national parks. Based on data from Sebangau National Park in 2009, the types of medicinal plants identified in the secondary forest at km 10 had uniform stands. Following existing secondary data, assuming the distribution of medicinal plants are evenly distributed throughout the area of Sebangau National Park, the result of the value of benefits multiplied by the size of the national park, the location of Sebangau National Park is 465,834 Ha, so that the total benefit value of medicinal plants is = IDR 11,683,349,637,000.00 or around IDR 11.7 trillion. According to Siam Romani (2006), the ODTWA assessment was carried out on these five objects. The evaluation results showed that the Aek Manitik object had the highest score, namely 3080, then the Medicinal Plants Demonstration Plot (3050).

2. Value of Benefits of Ornamental Plants

Ornamental plants can be interpreted as attractive plants in specific shapes, colors, and uniqueness. So there is no particular limit in determining whether a plant is ornamental. According to information from the Sebangau National Park, ornamental plants are dominated by orchids and pitcher plants, while a few others are Sri Fortune plants and ferns. The species identified are considered to represent forests in the Mangkok Resort area. This is because identification was not carried out at other resorts. The reason for choosing this resort was that research conducted by LIPI and WWF (2007) also focused on Resort Mangkok. The area of Resort Mangkok is 170,000 ha with different plant density variations. So that according to the site and the results of calculating the value of the benefits, the total benefit value of the ornamental plants is 170,000 ha x IDR. 45,030,000.00 = IDR. 7,655,100,000,000.00 or around 7.6 trillion rupiahs.

3. The Benefit Value of Rattan Plants

Rattan plants have a very high density in the Sebangau National Park area. This is a benchmark that this plant is an abundant resource in the Sebangau National Park. Types of rattan plants are often found in riparian areas. The total benefit value of the rattan plant is based on the location of the plant's distribution. Based on information from the management of the Sebangau National Park, rattan is commonly found in riparian areas, generally located on the right and left of the river with a buffer of approximately 1 km from the river. So, based on these estimates, the total riparian area is assumed to be 10% of the total area, namely 46,583.4 ha. So that the real benefit value of the rattan plant is: IDR. 18,511,078,575,000.00 or around 18.5 trillion rupiahs. According to Lis Nurrani, and Supratman Tabba (2013), Non-timber forest products utilized are rattan, pandan, woke, sago, nutmeg, vegetables, fruits, and traditional medicinal

plants, as well as wild animals. And the results of the research by Gusti Mahendra, Harnios Arief, and Tutut Sunarminto (2018) show that these NTFPs are used to meet subsistence needs or are sold to meet family economic needs. The economic value of using NTFPs at the Padali Resort in UKNP is IDR 262,460,702.25 per year, with petal as the highest contributor of monetary value, reaching 57.35%.

4. Carbon Storage

Sebangau National Park is an area dominated by peat swamp forests. The secondary peat swamp area is 465,834 ha. This area is going through a succession period due to forest management (HPH) activities and forest fires. As a result of this event, the Sebangau National Park area has a reasonably high productivity of carbon sequestration. This is because the dominance of the sapling level still characterizes many young trees, so the role in carbon sequestration is enormous. Through the results of observations, it is known that the characteristics of the plants in the two locations have the same type and number of species. The difference between the two locations is that at location I, the diameter of the plants is more extensive, so the density of plants is low. Whereas in location II, the diameter of the plants is smaller, so the density between plants is relatively high. This will affect the amount of carbon absorption capacity in each area.

Calculations show that the carbon value in the study year is IDR. 832,198,614,124.85. Meanwhile, assuming there is growth in tree diameter, it is assumed that every year there is an average diameter growth of ± 1 cm. So if it is projected for carbon storage for the next 20 years, the value of carbon storage will reach IDR. 5,053,226,887,086.38 or around 5 trillion rupiahs. Ikhsan Anshori (2016), Economic value.

Fauna Benefit Value

In addition to the diversity of flora, Sebangau National Park is known as the center of various fauna species. One species of fauna has become an essential icon of this area, namely the Orang Utan (*Pongo pigment*). In addition, there are also several other wildlife species found in this area, including proboscis monkeys (*Nasalis larvatus*), deer (*Cervus unicolor*), deer (*Muntiacus muntjak*), mouse deer (*Tragulus javanicus*), monkeys, forest cats (*Felix sp*), bears, pigs forest (*Sus scrova*), clouded leopard, and various bird species such as black eagles (*Spizaetus sp*), king prawns, fans, golden kingfishers, hornbills, and turtledoves. In addition, it is not uncommon to find reptile species such as monitor lizards (*Varanus salvator*), box or spiny turtles, and various types of snakes such as pythons and other kinds of water snakes. The Sebangau National Park area is also affluent in multiple types of fish.

Concerning the evaluation of the benefits of fauna in Sebangau National Park, only a portion of the existing fauna species can be assessed based on primary observations in the field and secondary data information. Based on all the information collected in this assessment activity, the fauna species considered included orangutans, other mammals, and birds.

1. The Benefit Value of Orangutans

Sebangau National Park has orangutans as a keystone species. Orangutans are very dependent on the forest ecosystem around them. Orangutans consist of two species: the Sumatran orangutan (*Pongo Abelli*) and the Bornean orangutan (*Pongo pygmaeus*). To calculate the value of the benefits of orangutans, the number of orangutans in the Sebangau National Park area and the value or price of each orangutan are needed. Through identification from the interview results, it was found that the number of orangutans in Sebangau National Park is 4500 individuals. This number has shrunk compared to 2010 of 6,000. The value of each orangutan can reach IDR. 150,000,000.00. based on the results of interviews with the manager of the forest people rescue center, it is known that the costs incurred to save one forest person from disturbed locations to initial treatment. So based on the identification results, the value of the orangutans in Sebangau National Park is $4500 \times \text{IDR. } 150,000,000.00 = \text{IDR. } 675,000,000,000.00$ or around 675 billion.

2. Value of Benefits of Other Large Mammals

There are many cases of illegal logging and forest fires in the Sebangau National Park area. This incident resulted in a decreased variety of large mammals other than orangutans (CIMITROP Palangkaraya University, 2002). The combination of large mammals found in Sebangau National Park can reach up to 35 species of mammals in 1996. These types are challenging and can only be found in specific locations. The large mammals other than orangutans identified were deer, masu bears, forest cats, clouded leopards, wild boars, and mouse deer. The pricing and value of large mammal fauna show that large mammals have a value of around IDR. 7,910,000,000 or around 7.9 billion rupiahs. There is an assumption that there are still other mammals that cannot be identified and a number of mammals that are not necessarily present in the entire Sebangau National Park area. According to research by Mustaria. H., Surono H., Fatimah D.N., Setiawan A., and Febria R (2016), mammal biodiversity in the Sebangau National Park was conducted in August 2010. Forty-six mammals were recorded during the study, and 37 species have been protected by Indonesian Government Regulation 7 of 1999. They are listed as endangered species by the IUCN, such as orangutans and gibbons.

3. The Benefit Value of Birds

Indonesia has around 1500 species of birds, and 381 of them are endemic species. Through this number, Indonesia is ranked fourth as a country rich in bird species and first in the richness of endemic bird species. So that through this, birds are one of the faunas that describe biodiversity in Indonesia. CIMTROP in 2002 reported that 150 species of birds were found in the Sebangau National Park area, most of which are insect or insect predators. There are around 106 bird species found on peatlands, while the rest are found in shrubs and open areas.

Limitations in collecting data on bird species in Sebangau National Park limit the perfection of the research conducted. The approach taken to identify birds in Sebangau National Park is to carry out an inventory at locations deemed appropriate for bird watching, such as in open areas along canals and peat forest areas in the form of shrubs. Based on the observation results, 11 bird species were found in the canal-side area and 21 in the swamp thicket area. Based on the results of calculating the value of benefits carried out in canal and shrub areas in Sebangau National Park for fauna with bird species, the benefit value is IDR 54,199,355,865.00 or the equivalent of 54.2 billion rupiahs.

Tourist

1. Potential tourism objects

Another tourist attraction that attracts tourists to Sebangau National Park is the existence of several lakes with different characteristics. Baun Bango Village is the main stopover to enjoy the panoramic beauty of lake tourism in Sebangau National Park. This is because there are several lakes around Baun Bango Village, such as Bulat Lake, Punggualas Lake, Jalan Pangen Lake, and Panjang Lake. The lake is a tourist attraction within the Sebangau National Park area. Still, tourists can also enjoy objects in lakes around Sebangau National Park or in the buffer zone. The variety of tourist objects that are part of the Sebangau National Park can attract more tourists to visit the Sebangau National Park. Based on the results of calculating the value of the benefits of hill and lake tourism in Sebangau National Park, it can be seen that the total value of tourism benefits in Sebangau National Park. The following is the total tourism valuation of Sebangau National Park. IDR 39,665,000.00 + IDR 67,530,000.00 = IDR 107,195,000.00.

4. Conclusions

The economic value of the area in the Sebangau National Park, Central Kalimantan Province, is as follows:

- a. The value of the benefits obtained from the flora in the Sebangau National Park is IDR 35,247,655,099,086.40 or around 35 trillion rupiah, with the types of flora that are taken into account, including medicinal plants, ornamental plants, rattan plants and carbon storage (trees).
- b. The value of the benefits obtained from the fauna in Sebangau National Park is IDR. 737,109,355,865.00 or around 737 billion rupiahs, with the types of fauna considered are orangutans, other large mammals, and birds.
- c. The total value of the benefits of flora and fauna in Sebangau National Park is IDR. 35,984,764,454,951.40, equivalent to 36 trillion rupiahs.
- d. Based on the results of calculating the value of the benefits of hill and lake tourism in Sebangau National Park, it can be seen that the total tourism valuation or the total value of tourism benefits in Sebangau

National Park. The following is the total tourism valuation of Sebangau National Park IDR 107,195,000.00.

- e. The value benefits in Sebangau National Park has tremendous value. This shows that Sebangau National Park has a valuable ecosystem, so this environment needs to be preserved from illegal logging, forest fires, and other forest exploitation.

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