

POTENTIAL AND PROBLEMS IN DEVELOPMENT OF THE ECOTOURISM AREA (CASE IN THE PAGATAN BESAR MANGROVE FOREST, TANAH LAUT REGENCY, INDONESIA)

Potensi dan Masalah dalam Pengembangan Kawasan Ekowisata (Kasus di Hutan Mangrof Pagatan Besar, Kabupaten Tanah Laut, Indonesia)

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Abstract

Pagatan Besar Mangrove Forest can be utilized as an ecotourism area within the framework of Integrated Tourism Rural Areas in Tanah Laut Regency, Indonesia. This mangrove forest has not yet been fully revealed or has not been published properly and correctly, even though this is a basic requirement if this object will be an ecotourism area. This paper is a survey report containing the results of the identification of the potential and problems of the Pagatan Besar Mangrove Forest and the program and activity solutions that need to be carried out to exploit the potential and overcome the problem. Potential that can be utilized is the establishment of forests, the availability of infrastructure and facilities, the diversity of plants and animals, as well as the socio-economic and cultural benefits. The problems identified were unclear ownership or control of the additional land (*lahan oloran*), the people's ignorance of cleanliness and environmental health (household waste, livestock manure, especially cattle grazed in ecotourism areas), lack of knowledge and technology, especially young people to use mangrove forests and their potential as employment opportunities, as well as lack of awareness of tourists to environmental cleanliness, environmental beauty, and environmental risks (tides, animal bites). The solution to the problem that can be done is to study the strategies of other regions to deal with conflict in the additional land and develop new initiatives to overcome in accordance with the natural and cultural conditions of the local community, build self-awareness and always increase awareness of the local community for cleanliness and environmental health, open up youth insights to follow education and self-development and skills training, always remind tourists on environmental hygiene and health and personal safety, as well as encourage local governments to establish local regulations related to the use of plastic-based tools or equipment.

Keywords: ecotourism development, mangrove forests, problems, potential

1. INTRODUCTION

Pagatan Besar is a village in the administrative area of Takisung District, Tanah Laut Regency, Kalimantan Selatan Province. The village located on the coast (west of the South Kalimantan region) is directly adjacent to the Java Sea in the west. To get to this village there are 5 road routes from Banjarmasin as the capital of South Kalimantan Province or Banjarbaru as the city where Syamsudin Noor International Airport is located and currently as the city where the government office of South Kalimantan Province is located.

1. Banjarmasin/Banjarbaru, Gambut, Kurau, and Pagatan Besar.

2. Banjarmasin, Liang Anggang, Bati-bati, Pulau Sari, Kurau, and Pagatan Besar

3. Banjarbaru, Cempaka, Bati-bati, Pulau Sari, Kurau, and Pagatan Besar.

4. Banjarmasin, Liang Anggang, Bati-bati, Kota Pelaihari, Takisung, and Pagatan Besar.

5. Banjarbaru, Cempaka, Bati-bati, Kota Pelaihari, Takisung, and Pagatan Besar.

Pagatan Besar Village was included in the Integrated Tourism Rural Area by the Tanah Laut Regency Government (Figure 1). The area is so called because Pagatan Besar and seven other villages (Tabanio, Takisung, Telaga Langsat, Kuala Tambangan, Sumber Makmur, Gunung Makmur, Benua Tengah) are located in a stretch and a district with tourism potential supported by other

commodities, such as agriculture, plantations, and fisheries (DJKP 2017). As a coastal village, it is natural that the tourism potential highlighted in this village is mangrove forests.

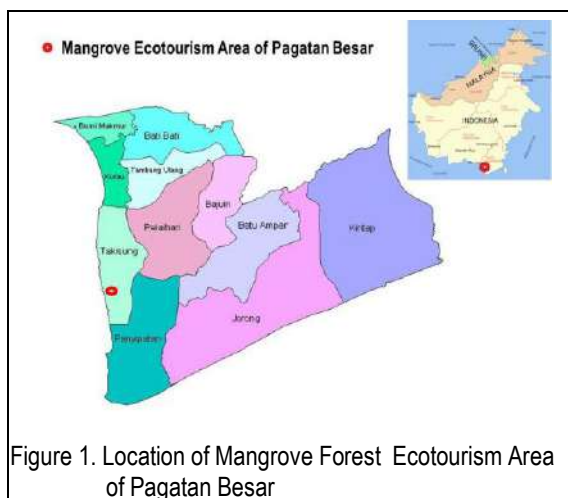


Figure 1. Location of Mangrove Forest Ecotourism Area of Pagatan Besar

But unfortunately, either the richness of this mangrove forest or the advantages of this forest compared to other village mangrove forests has not yet been fully revealed or has not been properly and properly publicized. If it is not immediately addressed, the wishes of the government - and it may be that for many years this has been responded to positively by the community - making the Pagatan Besar as one of the villages in the Integrated Tourism Rural Area is in vain. There is nothing different that can be proud of, relied on, and then offered as an attraction for tourists to flock to visit this village. On the other hand, the Tanah Laut Regency Government certainly does not want a case of non-existence of tourist visits due to the uncleanness of the sandy beach, the inconvenience of the beach scenery, and the damage and neglect of the beach tourism infrastructure (in this case are more than ten bungalow units) which has been built with state funds in Batu Lima, Tanah Laut Regency will be repeated (Soendjoto 2017).

This paper is actually a survey report containing the results of the identification of the potential and problems of the Pagatan Besar Mangrove Forest as well as program solutions and activities that need to be done to exploit the potential and overcome the problem. Thus, the mangrove forest can be utilized as much as possible as a mainstay ecotourism object, both by the village community and the Tanah Laut Regency Government in the framework of realizing Integrated Tourism Rural Areas.

2. MANGROVE FOREST POTENTIAL

Pagatan Besar is grouped into ecotourism villages because of the presence or condition of the mangrove forest. The condition concerns physical aspects, biological aspects, and socio-cultural aspects. Physical aspects related to the area and history of the formation of the mangrove forest. Biological aspects related to the diversity of plants (flora) and animals (fauna) found and made the mangrove forest as a habitat for survival. Socio-cultural aspects related to the relationship of mangrove forests and their contents or even the wider surrounding environment (ie coastal or sea) with humanitarian activities or community culture.

2.1 Establishment of Mangrove Forest

Pagatan Besar Mangrove Forest is relatively unique in terms of its formation. This uniqueness is truly a proud feature and can be used as information material to introduce mangrove forests as an ecotourism area to the wider community. On the other hand, the mangrove forest can also be used as a material or source of knowledge to preserve mangrove forests as a renewable natural resource, both for the economic interests of the community and for sustainable ecology.

Soendjoto (2003) suggested that the early history of the formation of the Pagatan Besar Mangrove Forest started from the tidal waves in 1985 which then cut off the river channel. The interruption of the river channel disconnected the village road that connected directly the Pagatan Besar Village with the Tabanio Village located to its north. Another impact was the formation of new river mouth in a river segment that was located more upstream or southward from the previous estuary. From the new river mouth to the south gradually the mangrove forest grows. This mangrove forest is preserved. The community benefits from this mangrove forest. Settlements are not attacked by storms coming from the sea. The tidal wave splits before reaching land.

Riefani et al. (2019) suggested that at present the area of mangrove forest stretching to 10.69 hectares with a length of about 1.5 km can be divided into two areas. The first area is the northern part of the mangrove forest where the natural boundaries are new rivers to the first ironwood walkway to the south. The forest area is estimated to be 5.97 hectares and the length is 825 m. Because of its natural regeneration, this mangrove forest can be called a natural mangrove forest.

Species that grow are more varied. The second area is the mangrove forest in the southern part of the border which starts from the first ironwood walkway, leads south, and to the fourth ironwood walkway. Forest area is estimated to be 4.72 hectares and 587 m long. Most of the individual plants that grow in this mangrove forest are api-api (*Avicennia marina*) and are intentionally planted. The height of the tree from the ground level to the very top (leaves on the branches that are at the top or the top) is around 3 m. Stem diameter at breast height is about 15 cm. Because of the presence of most of the individual plants due to planting, this southern mangrove forest is grouped in a mangrove forest plant.

2.2 Availability of Infrastructure and Facilities

It has been mentioned previously that the Pagatan Besar Village, including the mangrove forest, can be reached via 5 routes which all pass through asphalt roads. This route can be said to be the easiest route, when compared to other routes that can be utilized. The latter route is not widely accessed by the public because it passes through the Pagatan Besar River and or the Java Sea. Detail information about the route is not available. For those who like adventure, river routes and or sea routes can be awaited. Therefore, this alternative route must still be considered for publication when the government or community wants to make mangrove forests as an ecotourism area.

In addition to asphalt roads, there are other infrastructures that are already available in the Pagatan Besar Mangrove Forest and can be used by tourists, both individuals and groups.

1. Two huts or gazebos measuring around (3 x 4) m or an area of around 12 m² (Figure 2). Most of the materials of these huts are ironwood (*Eusideroxylon zwageri*), a wood species that is famous for its durability. Groups of tourists, for example families can relax in these huts while looking at or observing the surrounding environment.
2. A hut measuring approximately (6 x 9) m or an area of approximately 54 m². The huts, which are mostly composed of ironwood, can also be used mainly for tourists whose members are large enough (more than 30 people) or for groups of students who want to learn mangrove forests.
3. Four 1.5 m ironwood walkways, approximately 100 m long that extend from the shoreline (hard

land boundary and mud land) to the sea (Figure 3), and are about 1.5 m above the mudflat. From this walkway, tourists can see or observe the sea, mud land under the walkway, and plants and forests in mangrove forests. At the end or mid of the walkway there is a small hut covering an area of approximately 9 m² as a place to rest or rather a shelter from the heat of the sun.



Foto: MA Soendjoto

Figure 2. Two huts for relaxing



Foto: MA Soendjoto

Figure 3. Ironwood walkway stretches from the edge of the Pagatan Besar Mangrove Forest towards the Java Sea

4. A grassy field or sandy field that can be used as a playground or for sports activities, such as volleyball, soccer, or takraw (Figure 4).
5. Information boards, sign boards, and prohibition boards that are useful for reminding and directing mangrove forest tourists or providing knowledge related to the potential of mangrove forest.

2.3 Plant Diversity

Soendjoto & Arifin (1999) mentioned 6 species of woody plants and non-woody plant species in the Pagatan Besar Mangrove Forest. Included in woody plants are api-api, bakau (*Rhizophora mucronata*), buta-buta (*Excoecaria agallocha*), nyiri batu (*Xylocarpus granatum*), rambai padi (*Sonneratia*

caseolaris), and rambai bogam (*S. alba*), while non-woody plants are bakung (*Crinum asiaticum*), jarak merah (*Jatropha gossypifolia*), jaruju (*Acanthus illicifolius*), and piai (*Acrostichum aureum*). Plant species are recorded in the northern mangrove forest.



Foto: MA Soendjoto

Figure 4. The grassy field where tourists can play or conduct sports activities

There has been no official report related to plant species found or living in the southern mangrove forests. However, surveys show that api-api is the dominant species. This species is most often used for mangrove forest planting by government agencies, companies, educational institutions, and communities in South Kalimantan, such as the Office of Fisheries and Marine, Marine and Air Sea Police Unit, PT Indofood Sukses Makmur, Lambung Mangkurat University, and Tanah Laut Polytechnic and under the coordination of Samdiani, Head of Pagatan Besar Village who was retired in 2019 (Figure 5). Other species are rambai padi, rambai bogam, bintaro (*Cerbera manghas*), tanjang (*Bruguiera* sp.), bakung, and jeruju.



Foto: Banjarmasin Post – Tribunnews.com

Figure 5. Samdiani, Head of Pagatan Besar Village, who has completed his assignment in 2019 with a background of api-api

2.4 Animal Diversity

Various animal species, both vertebrates and invertebrates, are also found in the Pagatan Besar Mangrove Forest. In these conditions the mangrove forest actually does not merely function as a protective belt for the settlements on the land behind it, but also functions ecologically as an animal habitat and at the same time a fauna conservation area.

The group of animals that are most easily found in this forest are birds (*Aves*). Riefani and Arsyad (2019) reported that 60 species or 29 bird families use the Pagatan Besar Mangrove Forest as their habitat. Of these birds, there are 6 protected bird species by the Minister of Environment and Forestry of the Republic of Indonesia Number P.92 / MENLHK / SETJEN / KUM.1 / 8/2018 concerning Protected Plants and Animals (those are Black-winged Kite, Brahminy Kite, White-bellied Fish-eagle, Little Tern, Great Crested Tern, and Far-eastern Curlew), 13 migratory bird species (family Scolopacidae, Laridae, and Charadriidae), 35 species are easily found every day (resident), and 12 species are not always present or only as visitors in the area (local visitors).

Other animal groups are fish, reptiles, amphibians, snails, and crabs. The muddy beach in the forest is a habitat for 4 mudskipper species of Gobiidae (the people of Kalimantan Selatan call this timpakul) namely *Boleophthalmus boddarti*, *B. pectinirostris* (Figure 6), *Periophthalmodon schlosseri*, and *P. novemradiatus* (Figure 7). The first three species were subjected to research by Kadarsah et al. (2019). Reptiles that are often found are monitor lizards (*Varanus salvator*) and sometimes on the sidelines of the leaves or on the ground under the forest there are snakes. Snails (*Gastropods*) are included as residents consisting of 16 species or 7 families (Nugroho et al. In press). Crabs found are various species of violin crab that have not been identified properly yet.



Foto: MA Soendjoto

Figure 6. *Boleophthalmus pectinirostris*



Foto: MA Soendjoto

Figure 7. *Periophthalmodon novemradiatus*

The animal group that has not yet been discovered is mammal. Proboscis monkey (*Nasalis larvatus*) that used to use mangrove forests as habitat is often found on the banks of the Pagatan Besar River. It was also in a deplorable condition because most of its habitat, especially in Tanah Laut Regency had been converted into oil palm plantations.

2.5 Socio-Economic and Cultural Benefits

Most of the villagers are fishermen whose lives cannot be separated from the beach or the sea as a whole. From this a culture that shows the relationship between humans and nature or human dependence on nature then grows and develops. When somebody gets something from nature, humans naturally have to treat it kindly. To show that nature is an important resource in supporting human survival, for example, the community organizes sea salvation. Sea salvation is a form of culture that is commonly held by the people of the Pagatan Besar in the month of Muharam every year (Pelaihari Post 2016).

Another form related to culture is the use of marine resources as food or consumed materials. The realization is in the form of culinary made from fish or other seafood (shrimp, crab, small crab, mussels). Although developing in the community, there is no restaurant that provides special culinary from Pagatan Besar Village. However, in daily life the culinary is prepared by mothers or women to be consumed by members of their respective families. At a certain time, culinary which may be unique to the family or even has been absorbed by the wider community with various variations is easily found and observed when the public welcomes important anniversaries, such as RI Independence Day of August 17, Islamic New Year of 1 Muharram, and

Mawlid of the Prophet Muhammad of 27 Rajab, or organized celebrations, such as wedding receptions or akikahan.

In the development of ecotourism areas, mangrove forests and their potential can be used as sources of learning or sources to improve science, technology, and art; in the world of education, the term cognitive domain is recognized. Students ranging from early childhood education (PAUD) to high school and equivalent, students of various universities, or anyone, either individually or in groups can observe various species of animals that ecologically live on the coast, such as mudskippers, crabs, arboreal birds, and waterbirds from the walkway.

In addition, mangrove forests and their potential can be used as infrastructure or facilities to develop skills (psychomotor domain). Skills in this regard can be related to the development of hobbies, such as photography, painting, sports, games and athletics, or more broadly related to the development of science, technology, and arts such as training in research methods (Figure 8), birdwatching, training as a tour guide, forest inventory training, or training in the economic value of mangrove forests.



Foto: MA Soendjoto

Figure 8. Observing or photographing animals (violin crabs, mudskipper) that live in the mud from the ironwood walkway

In turn, mangrove forests and their potential can be used as a source, infrastructure, or means to raise awareness or motivation in environmental preservation and conservation (affective domain). Over time, awareness and motivation are expected to lead to changes in people's behavior from damaging the environment to protecting or preserving the environment.

3. PROBLEMS ENCOUNTERED

The development of mangrove forest as an ecotourism area is meaningless without problems. This happened in almost all regions of Indonesia. Specifically for Pagatan Besar, the following four prominent problems were identified. A brief discussion of the problem is as follows.

1. **Unclear ownership or control of the additional land.** Additional land (lahan oloran) is not new matter in the mangrove forest. Oloran is defined briefly as land arising on the beach. Based on the process of this land is the result of erosion on land (inland) which is then transported by river flow or sea water flow so that it is sedimentated (deposited, piled up) for a long time in a certain location or area on the coast. In its development, this additional land causes vulnerability or conflict, as happened in Sidoarjo Regency, East Java (Susilo and Sumardjono 2002), Pasuruan Regency, East Java (Muryani 2010), and Surabaya City, East Java (KJPL 2011, Ula 2016). Additional land occurs also in the Pagatan Besar Mangrove Forest (Figure 9). On the surface or among the community at a glance it is not apparent whether this land is a source of conflict or not among community members or between community members and the government. However, the additional land as a source of conflict in the village was stated by Soendjoto and Arifin (1999).



Foto: MA Soendjoto

Figure 9. Additional land which is then planted with tanjang

2. **Indifference of the population to cleanliness and environmental health.** This can be seen from the piles of household waste in several corners that are not immediately handled and livestock manure scattered in the grassy field.

Animal dung comes from cattle that are herded freely in ecotourism area.

3. **Lack of knowledge and technology in the community, especially young people (in this case, youth groups and tourism awareness groups).** This is reflected in their knowledge related to mangrove forests or the non-optimization of the potential utilization of mangrove forests. This problem has a negative impact. The community is not able to develop the maximum mangrove forest which is basically a village natural richness as a source of knowledge in improving intelligence and at the same time as a source of income, both community and village in economic development.
4. **Lack of awareness of tourists to the cleanliness and beauty of the environment and the dangers of the environment.** This can be seen from the jumble of plastic waste consisting of, among others, bottles/cups of used mineral water bottles and plastic bags which are no longer used and discarded by tourists. This condition is exacerbated by the absence of local regulations (peraturan daerah) on the prohibition of the use of disposable plastic tools and equipment. Tanah Laut Regency is one of the cities/regencies in Kalimantan Selatan Province or even in Indonesia that has not banned yet the use of disposable plastic tools and equipment.

4. PROBLEM SOLVING

All the problems as mentioned above, of course, must be solved so as not to drag on and subsequently cause unrest among the people. If so, the solution becomes not easy. On the other hand, the development of the ecotourism region is disrupted.

Regarding the additional land, there is nothing wrong if then this land cases and strategies taken in many areas in order to overcome the land problem become a lesson or consideration for all parties, both local governments and local communities. Susanto (1978) stated the legal liability of this land in the Bengawan Solo River. Suratman and Afany (2004) suggest a strategy for developing agriculture and soil conservation in Segara Anakan, Central Java. Zahro et al. (2011) reported the direction of land use in Gresik, East Java based on the soil conservation approach. Furthermore, from these lessons initiatives can be developed to establish strategies that could be different from those that have been carried out in other regions due to



differences in natural conditions and the culture and mindset of the community.

The local community should continue to build self-awareness and always raise awareness of environmental hygiene and health. Slowly but surely, environmental hygiene and health have a positive impact on the cleanliness and health of its citizens. It is not impossible then, the community outside the village visits Pagatan Besar Village not just a tour of the mangrove forest, but more than that it makes the synergy of tourism and clean behavior of the community as a model. The positive impact is of course the increase in local people's income.

Young people should open up insights and develop themselves to participate in or if possible organize their own motivation development, tour guide education, entrepreneurship training, ethical and responsible publicity training, or other positive value education and training. Motivation development reduces or avoids youth from insecurity or inconfidence. The education of tour guides not only enhances the love of the village's potential, but also directs the love to share knowledge, technology, and art with fellow youth. Entrepreneurship training encourages youth to utilize the potential of the village to create jobs and increase family or community income. Youth, for example, can sell special food and drinks based on the potential of mangrove forests or souvenirs in the form of t-shirts or other forms with distinctive images of forests or potential mangrove animals. Publication training invites and directs young people to make the potential of the village as a publication material which is then displayed politely, periodically, and systematically through print or electronic media. This publication provokes people, especially from the surrounding villages and villages outside the district and even abroad to visit the Pagatan Besar.

Regarding tourists, it is necessary to remind the manager of the ecotourism area that visitors or tourists are valuable capital so that their presence must be maintained and even must be increased. In the development of ecotourism, especially community-based (local), the number of tourists and the cleanliness and environmental health are indicators of the sustainability of mangrove forests. Conversely, tourists should also be reminded that the ecotourism area can be enjoyed sustainably, if the tourists do not damage the beauty of the environment, such as throwing trash in its place and not doing vandalism or other negative actions. In addition, tourists must also be reminded to behave carefully and pay attention to environmental risks

(the phenomenon of tidal floods, animal bites). Cases that occur in Batu Lima tourism object, Tanah Laut Regency (Soendjoto 2017) or the risks that lurk during a tour in a wetland environment (Soendjoto 2018) should be made a lesson.

It is time for the Tanah Laut Regency Government to issue a regional regulation on the use of food/beverage packaging or plastic-based bags. This regulation can reduce the accumulation of plastic waste, especially in coastal areas such as the Pagatan Besar Mangrove Forest adjacent to the sea. Banjarmasin City, the capital of Kalimantan Selatan Province along with three other cities in Indonesia (Bogor, Balikpapan, and Denpasar) can be used as examples. The city has banned the use of disposable plastic tools and equipment (such as plastic bags) through Mayor Regulation Number 18 of 2016, March 28, 2016 concerning Reducing the Use of Plastic Bags.

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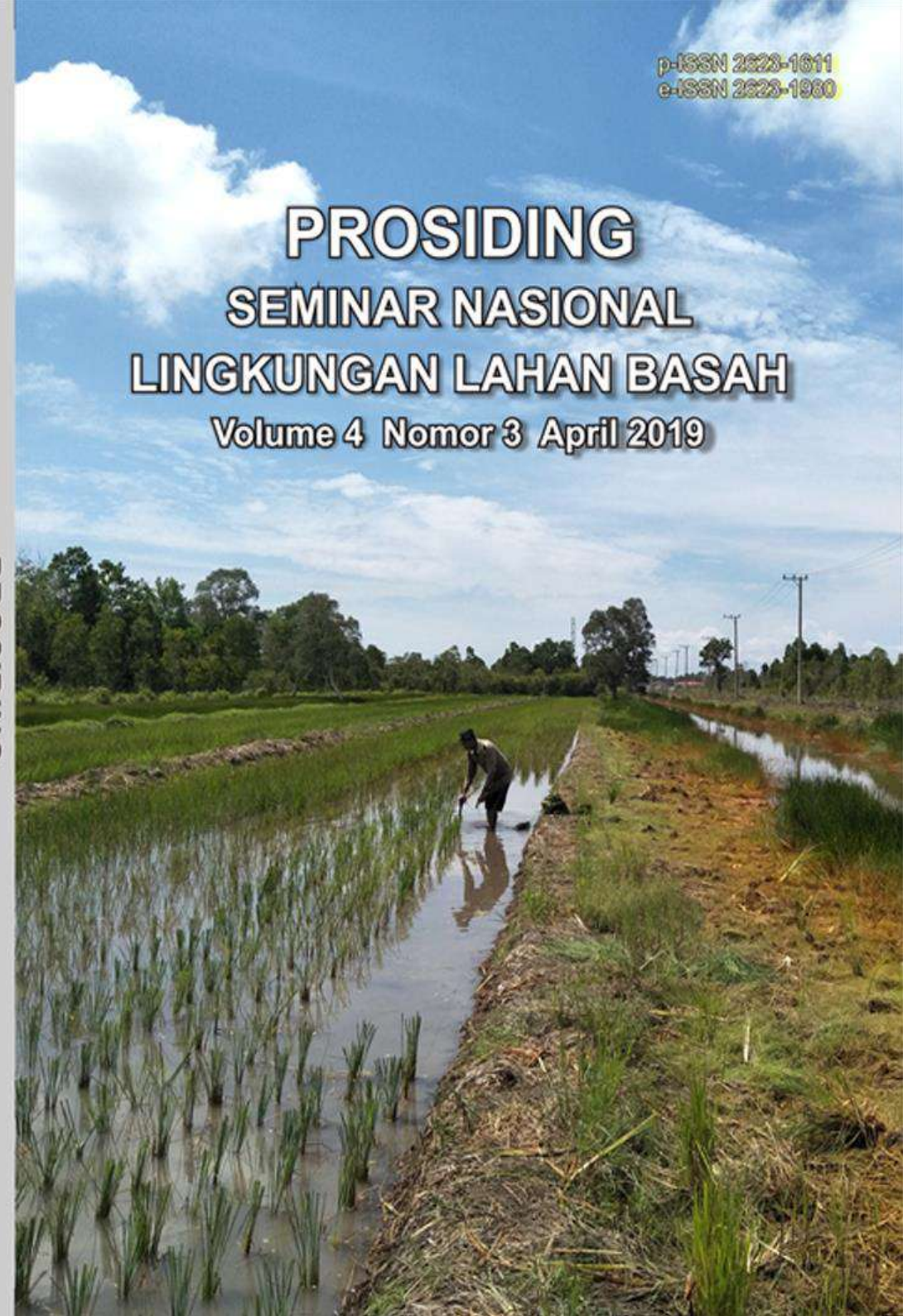
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