SENJOp
http://senjop.ppj.unp.ac.id/index.php/senjop

Science and Environmental Journals for Postgraduate
Vol. 6 No. 1 (pp. 284-289) December 2023
p_ISSN 2655-5085
e_ISSN 2655-5239

Overview of Environmental Conditions from Land Use Changes in Pesisir Selatan

*Aisyah Amini, Abdul Razak, Nurhasan Syah, Skunda Diliarosta

Master Program of Environmental Science, Postgraduate School – Universitas Negeri Padang
*E–mail: aminiaisyah091@gmail.com

Received: 01 Oct. 2023, Revised: 12 Dec. 2023, Accepted: 15 Dec. 2023

ABSTRACT

Land use planning is the use of land for certain purposes. One issue that may arise during land planning is whether the land is appropriate or suitable for a particular purpose. For local governments, it is very important to know the income potential that exists through land use planning. One of the benefits of writing this article is to get an overview of environmental conditions and the efforts of the Pesisir Selatan Regency government in environmental management. With the increase in population, quality of life, and community welfare, land is needed to meet various needs and facilities. However, the amount of land is relatively fixed, which causes problems in land use in rural and urban areas. This study investigates the conditions of Land Use, Land Conversion, and Potential in Pesisir Selatan Regency. This research produces several conclusions, namely 1) Land in Pesisir Selatan Regency is very suitable for plantation cultivation because of its condition; and 2) Pesisir Selatan Regency has a lot of potential for mining, coastal and marine cultivation, mangroves, and coral reefs.

KeyWords: Land Use, Land Conversion, Environmental Conditions, Pesisir Selatan.

INTRODUCTION

Along with the increase in population, quality of life, and community welfare, land is needed to meet various needs and facilities. However, the amount of land is relatively fixed, which causes problems in land use in rural and urban areas (Zhong et al., 2020). At a time when the population was still relatively small, land use for various needs could still be done simply by selecting land that was suitable for a particular purpose. On the other hand, when the population increases and land needs change according to the demands of the times, it is no longer possible to allocate land traditionally, so it needs to be done rationally through natural resource evaluation activities (Yulius et al., 2014). This is very important so that the land in the limited amount can be optimized most rationally, according to the main characteristics and properties of the land, and by community needs. Suparno et al (2020) further explained, that apart from considering the suitability and availability of land, land allocation is also an art to meet the needs of various stakeholders, including the government, community, and private entrepreneurs.

The results of this land evaluation are very important as a scientific basis for regulating space in Regional Spatial Planning at the national, provincial, Sub-district, and city levels, both in rural and urban areas. In this way, the Regional Spatial Plan that is prepared will be very accurate and can be used as a guideline for sustainable and optimal use and utilization of land (Putra 2017). Land use planning is an activity that has been around for a long time.

Planning has many types, ranging from the simplest to the most complex, and uses various approaches involving many concepts. Firstly, discussing the history, definition, and objectives of land use planning and spatial planning. It will also address some fundamental questions about land use planning, as well as its scope and focus. Next, land use planning will be discussed in the context of the decision-making process. Then, we will discuss several reasons why land and land use must be managed efficiently in a spatial context, which will be discussed further in subsequent chapters in this book. At the end of this chapter, several aspects of international attention to sustainable development will be discussed. This will be discussed through conferences and the establishment of international bodies focused on land, environment, and people. Natural land resources have many benefits for meeting human needs. Due to the decreasing availability of land and the increasing push to convert agricultural land to non-agricultural land in various regions, both in rural and urban Indonesia and in various countries throughout the world, land use planning is currently receiving major attention for nature, characteristics, and quality of land resources.

Land use planning and land use planning are often interchanged because they have the same meaning (Nedd et al., 2022). These two terms are called land use plans in several scientific works. The only thing that differentiates the two is their focus on space. While land use is not explicitly emphasized, land use implicitly contains the meaning of space because it is related to the arrangement or regulation of use, both in the context of space and time.

Land use planning is also relevant, and is even the same as the concept of spatial planning. Land use planning must be seen comprehensively from the planning, use, and land aspects. In general, planning can be defined as the process of making and preparing a set of decisions for future actions intended to achieve goals with the best efforts (Bibri et al., 2020). In both the short and long term, decisions and actions are taken regarding the desired land use based on established considerations. Natural and planned land use is defined as land use. If we view planning as human intervention, land use can naturally continue to evolve without the need to plan. On the other hand, under planned conditions, land use will continue to develop through efforts to create spatial patterns and structures over a certain period. FAO (1993) considers land use planning as part of an intervention that aims to encourage and assist land users in managing land, by providing a simple definition.

Pesisir Selatan Regency is one of the regencies in West Sumatra Province with an area of 5,749.89 km², which extends from north to south with a beach length of 234 km. Pesisir Selatan Regency has 47 islands fruit and 27 rivers consisting of 20 large rivers and 7 small rivers. These islands have great potential as tourist attractions, both natural tourism and marine tourism. 15 Sub-district are extending from north to south, with 182 nagari and 480 villages. The area of Pesisir Selatan Regency, according to its use, consists of 4.73 % rice fields, and 92.27 % non-rice fields. The forest area reaches 73.12 %, and 61.88 % of it is dense forest. Meanwhile, the land used for plantation crops is only 11.2 % of the area. The topography of the Pesisir Selatan Regency area is mountainous and hilly which is an extension of Bukit Barisan with a sea level height ranging from 0 – 1000 m (Agustian et al., 2019; Triyatno et al., 2020).

METHODS

The research method used in this research is qualitative (Oktorie et al., 2019; Fadhilah et al., 2019). The data collected in this research is secondary data obtained from the Pesisir Selatan Regency Regional Environmental Management Performance Information Document. by using studies of relevant journals to strengthen the material. In qualitative research, theory is defined as a paradigm. A researcher in his research activities, whether stated explicitly or not, applies a certain paradigm so that the research becomes focused. The sources or literature of this study are based on previous national and international journals which are considered relevant and by the topic to be discussed which is still related to the topic of this study.

RESULTS

3.1 Land use

Land is a complex environment consisting of climate, relief, soil, hydrology, vegetation, and all living creatures that play a role in its use. Therefore, land evaluation is an assessment of the diversity (performance) of land for specific use purposes. Land use is a manifestation of socio-cultural and socio-economic activities to utilize the potential of existing natural resources. In cyclical form, these activities again influence the land both in terms of quality and quantity. The land conditions in Pesisir Selatan Regency are very suitable for the development of plantation cultivation, namely oil palm as the main commodity, rubber, hybrid coconut, coffee, cocoa, and other commodities which include gambier, nutmeg, cloves, sugar cane, areca nut, patchouli, candlenut, garda munggu and Medicinal plants and so on are included in commodities local excellence. For marketing, it is sold to neighboring areas.

Management and development of plantations are carried out by various parties, both private and community spread throughout the Sub-district. Oil palm plantations are the largest plantations when compared with other commodities. The area of oil palm plantations is 10,716.00 Ha with a production of 42,108.29 tonnes, rubber 7,703.50 Ha, with a production of 5,089.43 tonnes, coconut 5,807.75 Ha with a production of 4,347.99 tonnes and garda munggu an area of 131.00 ha with a production of 25.63 tonnes. tons. The plantation area includes Sub-district: Lengayang Sub-district, Ranah Pesisir, Linggo Sari Baganti, Pancung Soal, Basa IV Balai Tapan, and Lunang Silaut. Plantation management is carried out both by plantation companies and by the community/people. Potential land resources for food crops and horticulture include paddy fields and non-rice fields consisting of yards, fields, and moors/gardens. Of the existing potential of 116,549 Ha, only 109,847 Ha has been utilized, around 94.25%, and the remaining 6,702 Ha, around 5.75%. untapped. The size of the forest area in Pesisir Selatan Regency is based on the Decree of the Minister of Forestry No. SK.35/Menhut-II/2013 dated 15 January 2013, covering an area of 401,936 ha (69.90% of the administrative area of Pesisir Selatan Regency), which includes the Kerinci Seblat National Park (TNKS) and Tourism Nature Reserve Forest (HSAW) area 295,581 ha, Protected Forest (HL) 19,567 ha, Limited Production Forest (HPT) 53,778 ha, Production Forest (HP) 4,381 ha and Conservation Production Forest (HPK) 28,629 ha. The distribution of Limited Production Forest (HPT)

covers all sub-Sub-district areas except Koto XI Tarusan Sub-district, Bayang Sub-district, Bayang Utara Sub-district, IV Jurai Sub-district, Batang Kapas Sub-district, and Sutera Sub-district. The distribution of Production Forest (HP) covers the Lunang Silaut Sub-district. The distribution of Convertible Production Forests (HPK) covers the Linggo Sari Baganti sub-Sub-district except the Sub-district of Koto Forest products in the form of forest wood are still in demand for various development purposes. This condition will affect forest sustainability in Pesisir Selatan Regency. In 2015 there were around 3,135.37 m^3 of round wood (logs) produced from forest areas in Pesisir Selatan Regency.

3.2 Land conversion

There has been conversion of productive agricultural land into built-up/non-agricultural areas, use of forest areas for non-forestry activities, and encroachment on protected forests and forest fires. This has implications for the regional economy and decreases the carrying capacity of the environment. The use of forest areas for activities outside of forestry on a large scale, such as mining and plantations, needs to be addressed wisely so that there are no conflicts of interest between sectors. 4 Sub-district in Pesisir Selatan Regency have the potential for land conversion. The average occurrence of land conversion is 12.60%. The distribution of land conversion for each land use can be seen in the following figure. Conversion of forests and land into plantation areas covering an area of 3,543 ha spread over two Sub-district, namely Basa Ampek Balai Tapan SubSub-district and Ranah IV Hulu Tapan SubSub-district, which is a proposal to release Forest Area (HPK) for Palm Oil plantations in the name of PT. Agro Success Plantation.

Based on Pesisir Selatan Regency Regional Regulation No. 7/2011 concerning National Regional Spatial Planning Pesisir Selatan Regency 2010-2030, protected areas including peat areas are in Basa IV Balai Tapan and Lunang Silaut Sub-districts covering an area of 14,000 ha and water catchment areas in Koto XI Tarusan and North Bayang Sub-districts covering an area of 295,629 ha. Other protected areas are coastal areas of 468 ha, river border areas of 15,691 ha, green open areas of 381,725 ha, and marine conservation areas of 16,286 ha. The plantation area includes Sub-district: Lengayang Sub-district, Ranah Pesisir, Linggo Sari Baganti, Pancung Soal, Basa IV Balai Tapan, and Lunang Silaut. Plantation management is carried out both by plantation companies and by the community/people. The land that can be used for plantation crops is only 11.2% of the Sub-district's administrative area. There are 7 (seven) large-scale plantations with an area of 80,487 ha.

These large-scale plantations are dominated by oil palm plantations which are equipped with palm oil processing factories. Apart from that, there is also 1 (one) medium-scale plantation with an area of 1,200 ha. The plantations carried out by the community have a total area of 116,099 ha, in the form of coconut plantations, nutmeg, secondary crops, and agarwood cultivation. In Pesisir Selatan Regency, besides dry land, there are also wetlands and peat. Areas including peat areas that have a thickness of ÿ 3 meters are in the Lunang and Silaut areas. This area is designated as a protected area because of its ability to store/contain carbon dioxide (CO2) and is related to global warming. Almost all of this area has peat It has become an oil palm plantation spread across the Basa IV Balai Tapan and Lunang Silaut Sub-district. It is feared that this will affect the existence of peat. For this reason, peatlands, especially those with a thickness of 3 m, need to be protected and designated as protected areas. As stipulated in Presidential Decree No. 32/1990 concerning the Management of Protected Areas and PP. No. 26/2008 concerning National Regional Spatial Planning.

3.3 Potential

Pesisir Selatan Regency has rich coal, gold, and iron ore mines. Currently, there are 15 mining permits. Among them, were two gold mining permits and 12 coal mining permits. These 12 coal mining permits include 3 permits in IV Jurai Sub-district, 2 permits in Batang Kapas Sub-district, 2 permits in Sutera Sub-district, 3 permits in Basa IV Balai Tapan Sub-district, and 2 permits in Lunang Silaut Sub-district. Mining of metallic minerals such as primary gold has been carried out and PT has an environmental study document. Dempo Gold Seeds, PT. Prima Perkasa Abadi and PT. Atoz Mining is coal mining. Meanwhile, non-metallic mineral mining, such as iron sand mining, is spreading in coastal areas. The problem faced is that the location of the mining business is in a protected forest area which needs to be preserved, while the mining method is generally carried out openly which can threaten the existence of the surrounding protected forest. The physical condition of this Sub-district requires protected forest areas to maintain a sustainable environment and prevent natural disasters (floods and landslides).

There are at least 7 (seven) mining businesses with a total area of 66.76 ha with production of 699,753.68 tons/year. This activity has an impact on river and river border morphology and river water quality. To minimize the impact of this mining activity, the Pesisir Selatan Regency Government carries out supervision carried out by the relevant agencies in an integrated manner. Coastal and marine potential is large and tends to decline due to limited management and utilization. The sea area of Pesisir Selatan Regency is ± 84,312 km², with a coastline length of around 247 km. The fisheries and marine potential is very large, around 35% of which is exploited. The potential for mangroves is 622.82 Ha in coastal areas, which are spread throughout coastal waters in locations protected from big waves and strong winds including Carocok Tarusan, Teluk Betung, Air Haji, Lowong, Pancung Soal, Batang Kapas, other small and large islands, mangrove forest areas and along the coast. The highest mangrove forest cover is in Koto XI Tarusan Sub-district, 37.3 %, the lowest is in Jurai IV Sub-district, 10.17 %. This condition requires monitoring and management of mangrove forest reforestation so that its existence is not threatened. The coral reef ecosystem area is ± 521.57 Ha spread across coastal waters which experienced 25.85% damage in Sutera Sub-district and 82.1% in Koto XI Tarusan. Judging from these conditions, more than 85.25% was damaged, this is almost found in coastal areas. The condition of coral reef cover in good condition was found at the locations of Cingkuak Island and Turtle Island.

CONCLUSIONS

Conclusions that can be drawn based on the discussion in this research are: 1) The land conditions in Pesisir Selatan Regency are very suitable for the development of plantation cultivation, namely: oil palm as the main commodity, rubber, hybrid coconut, coffee, cocoa, and other commodities which include gambier, nutmeg, cloves, sugar cane, areca nut, patchouli, candlenut, gardamunggu and other medicinal plants are included in local superior commodities; and 2) Pesisr Selatan Regency has the potential to mine coal, gold and iron ore and currently has 15 mining permits. Among them, two gold mining permits and 12 coal mining permits, about 35% of the coastal and marine areas are exploited, and the potential for mangroves and coral reefs is 622.82 ha.

REFERENCES

Agustian, C. H., Kamal, E., Mustapha, M. A., & Putra, A. (2019). Land Cover of Mangrove Ecosystem in Marine Tourism Integrated Mandeh Sub-District Koto XI Tarusan, Pesisir Selatan Regency. Sumatra Journal of Disaster, Geography and Geography Education, 3(2), 191-195.

Bibri, S. E., Krogstie, J., & Kärrholm, M. (2020). Compact city planning and development: Emerging practices and strategies for achieving the goals of sustainability. Developments in the built environment, 4, 100021.

Bert, I., Hermon, D., & Putra, A. (2020). Hazards and morphometry to predict the population loss due of landslide disasters in Koto XI Tarusan-Pesisir Selatan. GEOMATE Journal, 19(76), 98-103.

Fadhilah, L. T., Kamal, E., Mustapha, M. A., & Putra, A. (2019). Land Cover Change Mangrove Ecosystem in the Coastal Area of Bungus Teluk Kabung Padang City. Sumatra Journal of Disaster, Geography and Geography Education, 3(2), 165-169.

Nedd, R., Light, K., Owens, M., James, N., Johnson, E., & Anandhi, A. (2021). A synthesis of land use/land cover studies: Definitions, classification systems, meta-studies, challenges and knowledge gaps on a global landscape. Land, 10(9), 994.

Oktorie, O., Rusdi, R., Heldi, H., Barlian, E., Putra, A., & Ramadhan, R. (2019). Disaster Mitigation Based on Environmental of Coastal Area Communities in Pariaman City Indonesia. Sumatra Journal of Disaster, Geography and Geography Education, 3(2), 202-207.

Putra, A. (2017). Evaluasi Kesesuaian Pemanfaatan Ruang Pada Kawasan Pesisir Teluk Bungus Kota Padang [Tesis]. Pascasarjana Universitas Andalas.

Suparno, S., Arlius, A., Efriyeldi, E., & Putra, A. (2022). Marine Spatial Allocations of the Coastal and Small Islands Zoning Plan in West Sumatera Province. Sumatra Journal of Disaster, Geography and Geography Education, 6(2), 22-30.

Yulius, Tanto. T.A., Ramdhan, M., Putra, A., & Salim, H. L. (2014). Perubahan Tutupan Lahan di Pesisir Bungus Teluk Kabung, Sumatra Barat Tahun 2003-2013 Menggunakan Sistem Informasi Geografis. Jurnal Ilmu dan Teknologi Kelautan Tropis, 6(2), 311-318.

Zhong, Y., Su, Y., Wu, S., Zheng, Z., Zhao, J., Ma, A., ... & Zhang, L. (2020). Open-source data-driven urban land-use mapping integrating point-line-polygon semantic objects: A case study of Chinese cities. Remote Sensing of Environment, 247, 111838.