

SUSTAINABLE DEVELOPMENT-BASED COASTAL MANAGEMENT POLICY DEVELOPMENT: A LITERATURE REVIEW

APRIZON PUTRA, INDANG DEWATA*, DEDI HERMON, ERI BARLIAN AND GENIUS UMAR

Doctoral Program of Environmental Science, Postgraduate School, Universitas Negeri Padang, Indonesia.

*Corresponding author: indangdewata@fmipa.unp.ac.id

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Abstract: This study reviews the implementation of policies regarding coastal management in Pariaman City. Coastal regions have huge potential to be developed and maintained through the utilisation of coastal resources and the use of functional regions in a planned, rational, responsible, harmonious and balanced manner. A descriptive qualitative approach was used for this study, focusing on coastal management policies and the impact of the implementation of those policies. The results of this review refer to the Regional Spatial Planning Regulation (RTRW) 2010-2030 for Pariaman City. With the implementation of the strategy for the development of coastal management in a sustainable manner listed in the RTRW 2010-2030 for Pariaman City, there are several positive impacts, including from an economic perspective, namely controlling the mangrove forest area. From a social perspective, there are three positive impacts, namely (1) increasing the spirit of cooperation/togetherness between communities; (2) the emergence of new mangrove farmer groups; and (3) stimulating the growing sense of community participation in the activities carried out by the government. From an environmental perspective, there are three positive impacts as well, namely (1) a wider area for mangroves, which increased from 29 ha to 31 ha; (2) the planting of mangroves that is carried out has a sustainable impact in the long term; and (3) prevent abrasion, and dampen waves.

Keywords: Policies, implementation, coastal management, sustainable, Pariaman.

Introduction

Indonesia is an archipelago that has 17,508 islands and coastlines of 81,000 km and sea regions of about 3.1 million km² (Cicin-Sain, 1993; Febriandi *et al.*, 2019; Alimin, 2022). The coastal regions of Indonesia, which have enormous wealth, must be preserved by utilising the functions of the region in a planned, harmonious, balanced, and responsible manner by taking into account environmental aspects to improve the people's welfare (Wong, 1998; Indrastuti & Prasetyo, 2020).

Planning, utilisation, supervision, and control are processes that must exist and cannot be separated in any area of natural resources management, and the management of coastal region must also be carried out through all these processes. The uniqueness of coastal regions, consisting of land and water areas, means that they cannot be managed separately, and there must be synergy between

the management of land and sea elements, and water elements (Carlson *et al.*, 2021). In addition to the physical conditions of coastal regions, community conditions, accessibility, infrastructure, and others also require good and efficient management (Siry, 2006). Neumann *et al.* (2017) stated that the sustainability approach in the management of coastal regions must consider the integration between components that cannot be separated. Suasti *et al.* (2020) and Li *et al.* (2022) stated that one of the biggest potentials of coastal region is marine tourism, where the main attraction is natural beauty itself.

The policy for regulating the spatial patterns of coastal and marine areas in Pariaman City has been provided for in the Regional Regulation (PERDA) of West Sumatra Province No. 2/2018 concerning "The Zoning Plan of Regions for Coastal and Small Islands in West Sumatra Province 2018–2038" and the Spatial Planning Regulation (RTRW) 2010–2030 for Pariaman

City, which divides the coastal and marine areas in Pariaman City into five categories, namely marine tourism areas, cultivation areas, settlement areas, cultural tourism areas, and turtle conservation areas, and also includes environmental services (Zamzami & Effendi, 2020).

Most of the coastal region and a small part of the small islands in Pariaman City are conservation areas managed by the Office of Maritime Affairs and Fisheries (DKP) of West Sumatra Province based on the Regulation of the Minister of Maritime Affairs and Fisheries (PERMEN KP) No. 23/2016 concerning “Management Planning of Coastal and Small Islands” (Yenida & Saad, 2018; Hermon et al., 2018 and Wei et al., 2021) stated that the coastal region and small islands are divided into four zones, namely the core zone, protection zone, utilisation zone, and residential zone. Furthermore, Hermon et al. (2019; 2020) explained that Pariaman City is one of the most densely populated cities on the coast of the western part of Sumatra Island and is one of the areas that are very vulnerable to tsunami

disasters. As a newly developing city, Pariaman City needs to plan a coastal area layout that takes into account the convenience of the local community and visiting tourists.

Coastal regions, which are rich in biodiversity, need to be regulated with policies that are sustainable, and the spatial planning implementation must, of course, take into account geographical and socio-cultural conditions, as well as other potential aspects. The results of this review on spatial planning arrangements are expected to realise sustainable development that can integrate the economic pillars, socio-cultural aspects, the environment, and equitable development in Pariaman City, West Sumatra Province, Indonesia.

Methods

The location of the study is the Marine Protected Areas (MPAs) in the coastal region of the administrative region of Pariaman City at coordinate 0°33'00”-0°40'43” South Latitude and 100°10'33”-100°10'55” East Longitude (Figure 1) (Aziz & Mira, 2019; Haryani et al., 2019).

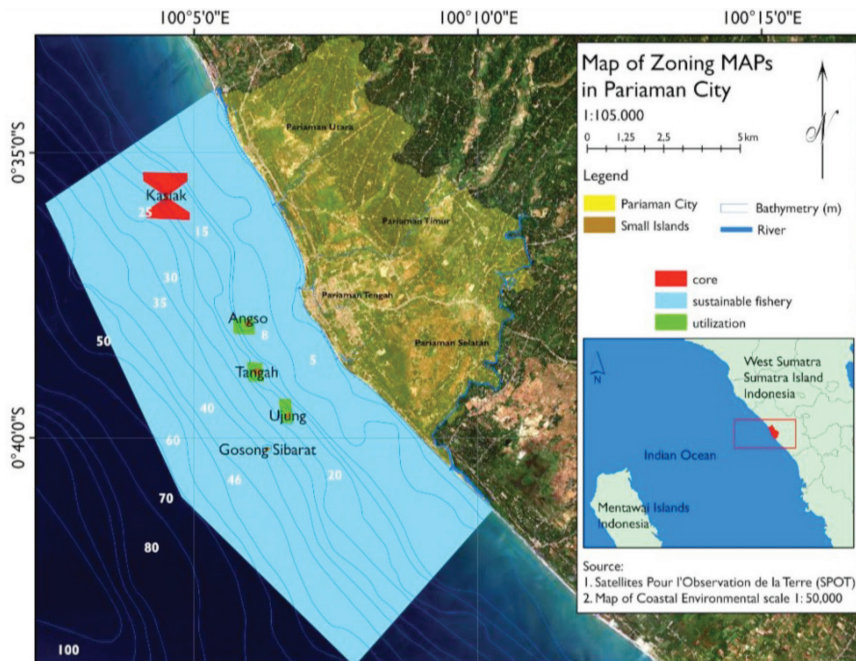


Figure 1: Map of the research location

This study uses a qualitative descriptive approach. According to Merriam (2012), a descriptive study explores and clarifies a phenomenon or social reality (hence it is often called an exploratory research). The focus of this study is the implementation of policies on sustainable development-based coastal management and the impact of the implementation of policies in Pariaman City, where the preparation of this review was carried out in March 2022.

Literature Review

Public Policies

According to Kono (2000), Suharto (2009) and Titmuss (2018), policies are always problem-oriented and action-oriented. Thus, it can be stated that a policy is a rule or provision that regulates ways of acting that are planned and consistent to solve existing problems and achieve a predetermined goal. The essence of the concept in public policies according to Young and Quinn (2002) are (1) authorised government action; (2) reaction to real-world needs and problems; (3) a set of goal-oriented actions; (4) The decision to do or not do something; and (5) Justification made by an actor or actors. Decisions that have been formulated in public policies can be made by a government agency, as well as by representatives of government agencies. Gong *et al.* (2021) added that public policies can be formulated based on existing issues, as well as decisions made by the government and community social institutions, or non-governmental organisations.

Decentralisation

Decentralisation is regulated in Article No. 18/1945. The word “decentralisation” is derived from the Latin language, namely “de”, which means away, and “centrum”, which means centre. So, decentralisation can be defined as “breaking away from the centre” (Simandjuntak, 2015). This shows the existence of authority provided by the centre to its subordinates to carry out something, but there is still a relationship

between the centre and its subordinates. Hudalah and Woltjer (2007) explained that in Law article No. 14/2004 concerning “Regional Autonomy”, local governments are given the authority to plan, utilise and supervise spatial planning. This is also regulated in Law No. 26/2007, which is an improvement of Law No. 24/1992 concerning “Spatial Planning”, which stated that each regency, city, or province has the authority to arrange and regulate spatial planning.

Sustainable Development

According to Chakraborty (2020), development is a process of activities planned to increase economic growth, social change, and modernisation of a nation to achieve an increase in the quality of human life and people’s welfare. Meanwhile, sustainable development according to Pearce *et al.* (2013) is a development process that optimises the benefits of natural resources and human resources sustainably by harmonising human activities according to the capabilities of the natural resources that support them, be it inland, at the ocean, and on water, as one unit.

Spatial Arrangement

The regulations related to spatial arrangement and planning by the Government of Indonesia are namely (1) Law No. 26/2007 concerning “Spatial Planning”; (2) Regulation of the Minister of Public Works (PERMEN PU) No. 20/2007 concerning “Technical Guidelines for Analysing Physical and Environmental, Economic and Socio-cultural Aspects in the Preparation of Spatial Planning”; (3) PERMEN PU No. 40/2007 concerning “Guidelines for Coastal Reclamation Spatial Planning”; and (4) Government Regulation (PP) No. 8/2013 concerning “Accuracy of Spatial Planning Map”. Tarigan (2004) and Rahma *et al.* (2019) suggested that spatial planning is a process that involves many parties with the aim that the use of a space provides the greatest possible prosperity for the community and guarantees a sustainable life. Izahsyah and Lubis (2020) added that spatial structure is the composition of

the centres in the management of land use, and that the infrastructure network system functions as a support for the socio-economic activities of the community, which hierarchically has a functional relationship with the regional environment.

Coastal Region

The coastal region is a transitional area between the land and sea. In Law No. 27/2007 (hereinafter PWK-PK), in Article 1 Paragraph (2), it is stated that coastal regions are transitional areas between terrestrial and marine ecosystems that are affected by changes in land and sea (Darmawan & Lingga, 2021). Prarikeslan *et al.* (2019; 2020) concurred with Dahuri *et al.* (1996) in that a coastal region in Indonesia is defined as the area where the land and sea meet. The land coastal region covers the land, both dry and submerged in water, that is still influenced by tides, waves, wind, and currents. Meanwhile, the sea includes parts that are still affected by natural processes on land, such as sedimentation and freshwater flows, as well as those caused by human activities on land, such as deforestation and pollution.

Discussions

Policies Regarding Sustainable Management of Coastal Development

The regional government of Pariaman City, in this case, the Agency of Development Planning Sub-National Level (BAPPEDA) established the RTRW for Pariaman City 2010-2030. According to Senastri *et al.* (2019), this planning is a form of effort made by the government to regulate or organise a spatial area that is limited. Several policies have been formulated to achieve the spatial planning objectives of Pariaman City, which are policies on spatial structure, spatial patterns, and strategic areas. From these policies, four strategies were then formulated. The policy and strategy for spatial planning for the region of Pariaman City are called the sustainable development policy for the coastal region, with the strategies including:

- Planning zoning coastal region for the use of marine resources in Pariaman City, which must be harmonised, and balanced with the RTRW. The regulation is in the form of Law No. 27/2007, in which it is mandated for the regional government to plan its marine area. The regional government receives technical assistance from the Director-General of Marine, Coastal, and Small Islands (DITJEN KP3K) through the Coastal and Marine Resources Management Centre (BPSPL), which was established in 2010. This aims to provide a reference for the central and regional governments in preparing and implementing programmes for medium- and long-term developments. The source of funds for this programme comes from the regencies' or cities' Regional Income and Expenditure Budget (APBD), provincial APBD, and the National Income and Expenditure Budget (APBN).
- Controlling mangrove areas in the southern coastal area of Pariaman City. The regulation for this is in the form of Law No. 41/1999 concerning "Forestry", PERMENHUT P.70/MENHUT/II/2008 concerning "Technical Guidelines for Forest and Land Rehabilitation", as well as Perpres No. 73/2012 concerning "The National Strategy for Mangrove Ecosystem Management (SNPEM)". The programme is in the form of "Protection and Conservation of Forest Resources". Its activities include the preservation and development of mangrove forests, namely rehabilitation and planting of mangroves in the coastal region of Apar and Padang Birik-Birik Villages. Supporting resources are in the form of human resources, natural resources (land), funds (APBD and APBN), mangrove seeds, bamboo or culverts, and crowbars. The actors are from the Forestry and Plantation Service, which are included in the Regional Mangrove Working Group (KKMD) team, the Apar Village, and Padang Birik-Birik Village mangrove farmer groups. The SOP is in the form of a Budget Work Plan (RKA), and Budget

Implementing Document (DPA), and an implementing organisation has just been established.

- Strengthening cooperation between the government and local communities in developing and maintaining coastal ecosystems. The local government has a programme to increase community education in the environmental sector, with activities in the form of establishing an appeal board with the community regarding mangroves in 2012. Supporting resources for this programme/activity are human resources (the peoples of Apar and Padang Birik-Birik Villages, and Environmental Service), and the actors involved are the community and mangrove farmer groups.
- Increasing the economic value of protected areas in terms of mangrove and coral reef use. This is an effort to increase the value of a protected area so that it can be useful. The activity programme of this strategy does not yet exist and has not been implemented as it requires a medium long-term process.

The Impact to Sustainable Development

- Economic aspect: The strategy issued by BAPPEDA in controlling mangrove forests in the southern coastal region with a programme of protection and conservation of forest resources through mangrove forest conservation and development activities has an indirect positive impact from an economic perspective, namely the increase in catch for fishermen in Padang Birik-Birik and Taluak Villages. Mangroves themselves have many benefits, including providing protection from coastal abrasion, acting as absorbers of waves and winds, being a place for marine biota to grow, and serving as a barrier to intrusion of seawater into the land. Mangrove areas' function as a place to grow marine life has a positive impact from an economic perspective. Dewata and Putra (2020) added that with the growing of mangrove plants, the shrimp and fish

populations will be able to stand and develop, leading to an increase in fishermen's catch. There are several positive impacts from an economic perspective, including North Pariaman and East Pariaman experiencing an increase in gross regional domestic product. This is an indirect impact caused by the strategy carried out by the Pariaman City government, namely controlling the mangrove forest area in the coastal region.

- Social aspect: The conservation and development activities of the mangrove area carried out by the regional government encourage the people of Apar and Padang Birik-Birik Villages to work together in ecosystem conservation activities and control of mangrove areas (Figure 2). Also, the community can learn to organise with the formation of mangrove farmer groups. From a social perspective, there are three positive impacts: (1) Increasing the spirit of cooperation and togetherness between communities in villages; (2) the emergence of new mangrove farmer groups in Apar and Padang Birik-Birik Villages, North Pariaman Sub-district; and (3) stimulating the growing sense of community participation in the activities carried out by the regional government.
- Environmental aspect: Zoning planning for coastal regions helps the government determine existing zones on the coast of Pariaman City so that it is more. The strengthening of cooperation between the government and local communities in developing and maintaining coastal ecosystems in Apar and Padang Birik-Birik Villages, and controlling mangrove forest areas in the northern coastal region also have a positive impact, including protecting against coastal abrasion, absorbing waves and wind, and serving as a place for marine biota, such as fish and shrimp, to grow, as well as containing the intrusion of seawater into the land. In addition, according to Oktorie *et al.* (2019), the planting of mangroves in Apar and Padang Birik-Birik

Villages in the North Pariaman Sub-district has expanded the existing mangrove area in Pariaman, where it can serve as a natural land cover that protects Pariaman City from the impacts of climate change. The increase in land cover outside the mangrove region is mainly directed at increasing green open spaces as Pariaman City does not have a natural forest that is vulnerable to changes in land cover because of its high population density. From an environmental perspective, there are also three positive impacts, including (1) a wider area for mangroves, which increased from 29 ha to 31 ha; (2) the planting of mangroves having a sustainable impact on the long-term on survival of mangroves; and (3) in the long term, it can prevent abrasions, dampen waves and winds, and contain seawater intrusion into the land.

Conclusion

Based on the results of the review, it can be concluded that the coastal region of Pariaman City has the potential to be developed further, but also be preserved by utilising marine resources through planned and rational use for regional functions. The regional government of Pariaman City is expected to plan more varied programmes and activities related to policies for developing the coastal region in Pariaman City in a sustainable manner, as well as accelerate the drawing up of regulations that specifically monitor coastal areas, considering that Pariaman

City does not have such special regulations. Therefore, for convenience, in terms of managing the coastal region of Pariaman City, it is necessary to prioritise activities so that they can run with a mature and sustainable plan. Activity priorities must be based on the level of urgency.

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Figure 2: Location of the mangrove management park in Apar Village in Pariaman City

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