

Carrying Infrastructure Capacity Planning for the Development of Losari Coastal Area in Makassar City

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Abstract Infrastructure planning in coastal areas will be effective when utilizing the potentials as a basis for the development. The results of research related to planning infrastructure carrying capacity for the development of Losari coastal area in Makassar City, indicate, among other things: (1). Availability of infrastructure in coastal areas is already quite complete in Losari Beach. But the unfortunate thing is the presence of some infrastructure functions still can not be utilized optimally and sustainably, (2). Mode of transportation is an important tool in social and economic activities of coastal communities to migrate. The utilization of transport modes coastal communities divided into two types: (a). Utilization mode of transportation between regions and (b). Utilization of internal transport modes territory. The recommendations can be given based on the results of this study are as follows: (1). As a baseline or reference by Makassar City Government to undertake infrastructure development of coastal areas to support the fisheries sector and trade in services with consideration of several aspects that have been planned, (2). Related determining infrastructure needs, the need for cooperation between the Government of Makassar City with a buffer area or hinterland region and (3). There needs to be further study of the coastal areas of infrastructure development to support the fisheries sector and trade in services.

Keywords Infrastructure and Regional Planning of Coastal Areas

1. Introduction

Infrastructure has a very broad role and includes a wide range of contexts in development, either in the physical context of the environmental, economic, social, cultural, political, and other contexts. This role certainly will experience the difference for each type of infrastructure, particularly the magnitude of the effect caused by the diversity of function of the infrastructure in each context. Infrastructure is a drive wheel of economic growth. In macroeconomic availability of infrastructure services affects the marginal productivity of private capital, while the micro-economic context, the availability of infrastructure services affects the reduction of production costs (Gie in Haris, 2009).

Regional planning is a concept that integrates with the development of the region. Regional development planning is defined as an application attempts a theoretical framework in economic policy and programs contained therein, the consideration of areas that combine aspects of social and environmental aspects in order to achieve optimal community welfare and sustainable (Dahuri, 2004).

In early 2010, an estimated 50-70% of the world

population live in coastal areas, and at the end of the 20th century, more than three-quarters of the world's population will live in coastal areas (Kodoatie and Sjarief, 2010). According RTRW South Sulawesi, Makassar City is included in RAC (Regional Activity Centers). Metro City area of Napier that have been classified as RAC has 3 service functions within the scope of the province. Meanwhile, in the direction of the development of coastal areas, Metro City Makassar aimed to develop supporting infrastructure communication among coastal areas in South Sulawesi province, improve the quality and quantity of infrastructure in coastal areas.

General policy plan urban system (urban system) Spatial Makassar City in 2012 to 2032, as the Regional Activity Center and the Center for Regional Development. (Strategic Area Development Masterplan in 2012). Referring Zoning Plan Coastal Zone Area in Makassar City, indicate utilization of zoning is directed to development activities tourism coastal ensure Activity Center Region, port development, the development of electrical energy, industrial development of coastal and business development of fisheries, seaweed cultivation, means catching fishing, industrial centers of culture and fish processing, and the development of aquaculture business. The coastal area development must be supported by adequate infrastructure.

Sufficient and adequate infrastructure will be the basis of development so that all programs can be develop optimally in this coastal region. In fact, the existing infrastructure in

coastal areas Losari is still not sufficient. According to the Master Plan for the Development of Strategic Coast Area of Makassar In 2012, there are problems, such as the level of the community's economy is still low, the inaccessibility of the entire community with clean water, still common coastal erosion due to drainage that is not permanent, the waste which still has not spread as well as the condition of the road network that still not good.

Therefore, it makes the infrastructure problems that exist in the Losari Coastal Zone in Makassar City, efforts to infrastructure development of coastal areas so that the utilization of coastal resources can be optimized and infrastructure needs can be fulfilled to support the communication among coastal regions between areas in South Sulawesi province and inter island located in eastern Indonesia.

2. Literature Review

1. Sustainable Coastal Zone Development

According to (Wiyana, 2014), an activity is said to be sustainable if it is in the nature of the sustainability of development activities, namely:

- Economically viable: a development activity should be led to economic growth, maintenance capital (capital maintenance), and the use of resources and efficient investment.
- Ecologically sustainable: development activities should be able to maintain the integrity of the ecosystem, maintain the carrying capacity of the environment and conservation of natural resources, including biological diversity (biodiversity).
- Sustainable social and political: the development activities that can equalize the results of development, social mobility, social cohesion, community participation, community empowerment (dekratisasi), social identity, and institutional development.

Furthermore, Redclift (1987) in Kay and Alder (2005)

reveals that sustainable development requires a broader outlook in terms of economy and ecology, compared to most practitioners of various disciplines that are ready to be recognized, which is accompanied by a guarantee policy to ensure that development is 'unsustainable'. According to Charles (2001) in the Satria (2009), the dimension of community empowerment refers to the concept of sustainability is as follows:

- Embodied ecological sustainability through the fisheries without harming the environment and utilization of coastal resources melibihi no environmental capacity.
- Social and economic sustainability Embodied by the achievement of socio-economic wellbeing of coastal communities
- Embodied community sustainability with social system stability, ensuring the community's role in development, and public access to the resource, either for the utilization and management.
- Sustainability is a prerequisite for the achievement of the institution the three dimensions of sustainability before. Covering political institutions (village bureaucratic capability), socio-economic institutions (financial institutions, markets, etc.), and institutional resources (institute resource managers).

Sustainability socially related economic activities of coastal communities that are identical to the utilization of marine resources so that the needs of the infrastructure should be linked to the activity of the coast, such as facilities and infrastructure (infrastructure), including planning and provision of fisheries infrastructure such as ports, ice plants, cold storage, infrastructure in the industrial centers, 19 procurement and distribution of the means of production (such as fuel, seed, machinery and gear, as well as system information about new technologies and management systems efficient business by (Wiranto, 2004) is one of the interrelated components in the development and management of coastal resources a comprehensive and integrated.

Table 1. Carrying capacity development and Coastal Areas

Development Of The Region	Coastal Development
Pay attention to internal and external conditions. The internal factors include: <ol style="list-style-type: none"> 1. Patterns of human resource development 2. Market Information 3. The resources of capital and investments 4. Policies in investments 5. Development of infrastructure 6. Development of local institutional capacities and governance 7. Various cooperation and partnership. 	The are three components of sustainable coastal development, which consists of: <ol style="list-style-type: none"> 1. Social Economy. Realized with achievement of socio-economic wellbeing of coastal communities. 2. Ecological. Realized through the fisheries without harming the environment. 3. Community social system stability, ensuring the community's role in development, and public access to the resource.
In the process of development of the area of infrastructure development is one factor that determines the elaboration of related infrastructure an important role in development of the region is transport infrastructure, energy, communication and information. (Herry Darwanto, 2003)	The need for infrastructure should be linked to the coastal activities, such as facilities and infrastructure, including planning and provision of fisheries infrastructure such as ports, ice plants, cold storage, the infrastructure in the industrial centers, procurement and distribution of the means of production.

Source: the comparison theory in 2015

2. Infrastructure Role

The role of infrastructure can be explained in the diagram that shows that an ideal natural environment is a supporter of the system infrastructure, and economic systems are supported by the system infrastructure. Social systems as objects and objectives are supported by the economic system. The relationship between systems in the role of infrastructure is presented in the figure below.

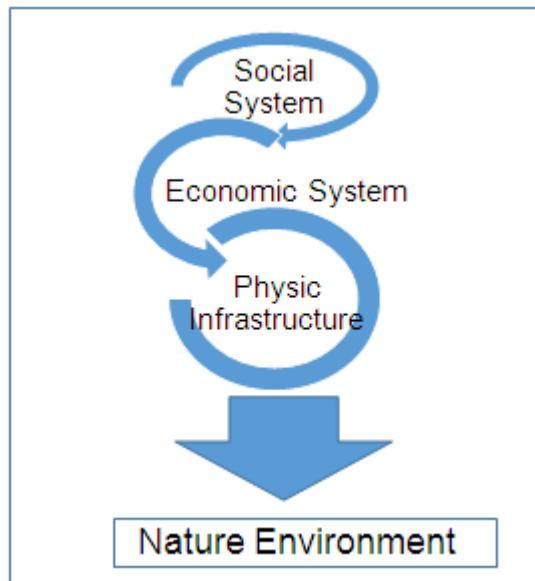


Figure 1. The relationship between social systems, economic, infrastructure and natural environment of harmony (Grig, 1988)

Explanation linkage role of infrastructure above has also supported the statement Acheson in Mulyadi (2005), which states that the economic characteristics of coastal communities dependent on the physical environment and the social environment surrounding full of risks and uncertainties in the process of economic activities in the use of natural resources (especially marine and coastal) based on the characteristics of the economy, not only in the form of coastal communities fishing activities (fishing), but also as fish farmers, fish processors, traders and even fish (Knight, 2004).

3. Research Methods

Three elements are selected as stakeholders in participatory mapping activities related to the carrying capacity of infrastructure planning studies on developing this coastal region are:

- The government, namely: Development Planning Agency (Bappeda) Makassar City, Department of Culture and Tourism, Department of Marine and Fisheries, and Environmental Control Office (Kapedal).
- Private parties: Fishermen Group, Society of

businesses Losari restaurant, Resort owners and cottage associations, small businesses and non-formal.

- Parties society: Tourism Awareness Group Losari Beach, Community environmentalists.

4. Research Result

Availability of infrastructure in coastal areas is already quite complete in Losari Beach. But the unfortunate thing is the presence of some of the infrastructure that functions still can not be utilized optimally and sustainably. It thus expressed by some stakeholders of the Department of Tourism and Bappeda Makassar City with the following statement:

"The condition of the parking area is not able to accommodate capacity during peak seasons, transporting waste less quickly during holidays, wastes fish are often seen on the back of the stall / retsoran cause environmental visibly dirty (Head of Head of Sub-Division of Land and Spatial Agency Urban planning and Development Makassar City). "

Aspects of this infrastructure availability leads to the condition of existing facilities and infrastructure relating to the potential and problems associated with the carrying capacity of the environment in the study area, the following explanation:

- Restaurants considered adequate (permanent) and the supply side is still cater for the number of visitors that much. But the issue is the environmental problems often arise because of solid waste such as garbage. Other problems are associated with eating stall trader in coastal areas, which led to the impression of an increasingly crowded.
- Supply of clean water. Abundant supply of clean water, which is 10,800 liters / second, so it can be used to meet the tourism activities. To the above mentioned respondents who were in Bappeda peneiti Metro City Makassar further disclosed through the following statement:

"The condition of good clean water supply. Their water treatment processes and purifies water down the river to be sterile and then duct to the homes of residents. But the name of the underground river water would have been mixed with the bacteria. (Head of Sub-Division of Land and Spatial Planning, Bappeda of Metro City Makassar). "

Existing condition of infrastructure in the coastal area of Losari Beach in Makassar as an instrument carrying capacity for the development of coastal areas. The process of identifying the existing condition of infrastructure is done by using descriptive method where variables are obtained from the literature review will be blasted with policy and legislation related. Variables that are similar are grouped together and will form some infrastructure. The results of the identification of infrastructure carrying capacity of the coastal region of Losari Beach as follows:

Table 2. Existing Condition of Infrastructure in the Losari Coastal Zone

No.	Variables	Condition	Results Analysis
1	Road network	- The collector network has been good primer - Secondary collector road network a lot of holes (Liaison between the District)	It takes the development of road networks that span the entire sub-region as supporting open access, boost economic development and accelerate the coverage towards the city center and surrounding areas or other areas.
2	Modes of transportation	- The use of land transport modes that are predominantly used motorcycle more often for internal mobility area. - mode of transport in the form of pickups and trucks used by the community as a mode of transport facilities result of coastal resources among regions.	Mode of transportation is an important tool in social and economic activities of coastal communities to migrate. The utilization of transport modes coastal communities divided into two types: a. Utilization of the mode of transportation between regions b. Utilization of internal transport modes territory
3	Supporting facilities of transportation	- Coastal communities are underserved by transportation facilities is still uneven	- Coastal Losari is still not supported by the service support facilities convenient public transport and adequate.
4	Clean Water Network	- Most of the coastal area already covered by a network of water services - Utilization of clean water is used in the settlement. - Utilization of clean water on the activities of coastal resources such as fish processing and TPI has been fulfilled	- The need for clean water network into one of the critical infrastructure in the coastal Pasean utilization. Seen in exploiting the direct influence on the economic and social activities
5	Electric network	- The use of electrical energy in the coastal utilized in social activities as the main lighting settlements. - The utilization of the fishery and other resources are still limited to the principal that has been fulfilled supply	- Electrical energy needs in coastal Losari are met equitably. - Development can be done to keep track of the types of activities needed
6	Drainage	- Drainage facilities in coastal areas Losari Beach are unequally distributed in every zone and not a standard as the primary scale drainage	- Drainage needs development to prevent flood water caused flooding
7	Waste management systems and Sanitation	- There has been no sewage treatment and sanitation integrated in coastal communities Losari Beach. - On fisheries management has not found an integrated waste management. Waste management is still conventional and collected at one point	- Waste management and sanitation needs development to prevent environmental pollution caused by dirty water and sewage wastewater settlements from the management of coastal resources.
8	Telecommunication	- The use of telecommunications facilities have been dominated by means of a wireless network of cellular base stations	- Optimal utilization of telecommunication networks already. Existing network services are already spread evenly in coastal Losari Area
9	Solid Waste	- Losari coastal waste generation is still dominated by trash result of the settlement, market and TPI. - Waste management in the coastal Panatai Losari is still relatively conventional manner dumped, burned or collected at some point.	- Means of waste management has not provided adequately and evenly. - Waste management facilities required to mencegah environmental pollution

5. Conclusions and Suggestion

The results of research related to planning infrastructure carrying capacity for the development of coastal areas in the City Losari Makassar City, indicate, among others, namely:

1. Availability of infrastructure in coastal areas is already quite complete in Losari Beach. But the unfortunate thing is the presence of some of the infrastructure that functions still can not be utilized optimally and sustainably, Priority development and management of coastal areas in Losari Beach against the three sectors that have existing use is (1). beaches, (2). fisheries, and (3). mariculture.
2. Mode of transportation is an important tool in social and economic activities of coastal communities to migrate. The utilization of transport modes coastal

communities divided into two types: (a). Utilization mode of transportation between regions and (b). Utilization of internal transport modes territory.

The recommendations can be given based on the results of this study are as follows:

1. As a baseline or reference by Makassar City Government to undertake infrastructure development of coastal areas to support the fisheries sector and trade in services with consideration of several aspects that have been planned.
2. Related determining infrastructure needs, the need for cooperation between the Government with a buffer area or hinterland region.
3. There needs to be further study of the coastal areas of infrastructure development to support the fisheries sector and trade in services.

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