



The optimization of the Tangguh Coastal Village Development Program as an effort to develop coastal areas

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Abstract. This study explores the optimization of the Tangguh Coastal Village Development Program to improve coastal areas. Empirical legal studies and normative law investigation are employed as methods in this study. The investigation stage consists of a) preparation; b) data acquisition; c) field survey; and d) classification of potentials and problems. The results prove that synergy can be achieved if the Tangguh Coastal Village Development Program and its communities are supported by various sectors, governments, and other related agencies. Based on the principle standards in judging villages to be categorized in Tangguh Coastal Village Development Program, Mangkang Kulon Village is proposed to execute arrangements concerning opportunity developments in the strategic economic areas (in villages, industries, trades, and offices areas) and vulnerable economic areas (low economic potential). Such anticipatory steps are expected to accommodate growth equalization and accelerate community economic development on the seashore.

Key Words: coastal community, economic areas, Mangkang Kulon, village development.

Introduction. Perceiving the evidence that Indonesia's sea area is far more extensive than land (McIlgorm & Campbell 2018), Indonesia has enormous potential in the fisheries and marine sectors. Such great possibilities should be optimally utilized to improve the community's welfare, especially for people in coastal areas. Unfortunately, coastal communities can only benefit from 20% of the existing potential (Folber 2020). The low level of communal absorption to the coastal resources is linked to the revealing situation that most Indonesian coastal communities still grapple against poverty, defend lives over coastal threats, have low independence in village organizations, and struggle due to poor coastal infrastructure. The above four problems nonetheless exacerbate the vulnerability of village society to natural disasters and climate change.

According to Rudiarto et al (2018), the top main problems faced by Indonesian coastal communities are (1) the high level of poverty, shown by the number of poverty in 10,639 coastal villages covering 7 million people in 2010; (2) severe damage to coastal resources; (3) low autonomy of village organizations in addition to the degradation of local wisdom; (4) the shortage of village infrastructure; and (5) the feeble well-being of the home environment. Such problems also weaken the status of coastal communities against natural disasters and climate change. Consequently, through the Directorate General of the Management of Coastal Areas and Small Islands, the Ministry of Marine Affairs and Fisheries (2017) launched an innovative program called the Tangguh Coastal Village Development Programs to offer new hope for better coastal villages in Indonesia.

With a coastline of 36.63 km and strategically located at the center point of the Java Island's North Coast route, Semarang City is a potential area for industrial, trade, and service activities (Giyarsih & Marfai 2017). The advancement of Semarang City as a capital city heading to a metropolitan one is characterized by the increasing population density in its coastal area.

By concentrating on the development of resilient coastal villages in Semarang City, this study elaborates on a coastal village profile by identifying village potential and problems. In the future, the data can be used as a basis for determining which villages are most likely to be targeted as a pilot project for the Tangguh Coastal Village Development Program.

Material and Method. Through administrative, participatory, and environmental-friendly development approach, the analysis is carried out in four steps: 1) regional analysis of the potential capacities and ecosystem functions; 2) analysis of local socio-economic problems; 3) analysis of the existing structural conditions and spatial patterns of the coastal areas; 4) conceptual analysis of spatial planning, land-use, and management. The results are expected to provide guidelines regarding the proper arrangement of coastal villages.

Mangkang Kulon Village, located in Tugu District, Semarang City, is chosen as the study site (Figure 1). Through a quantitative approach supported by existing literature as reference techniques (Cahillane & Schweppe 2016; Dobinson & Johns 2017), data collection was done through document review and field observations from October until December 2018.

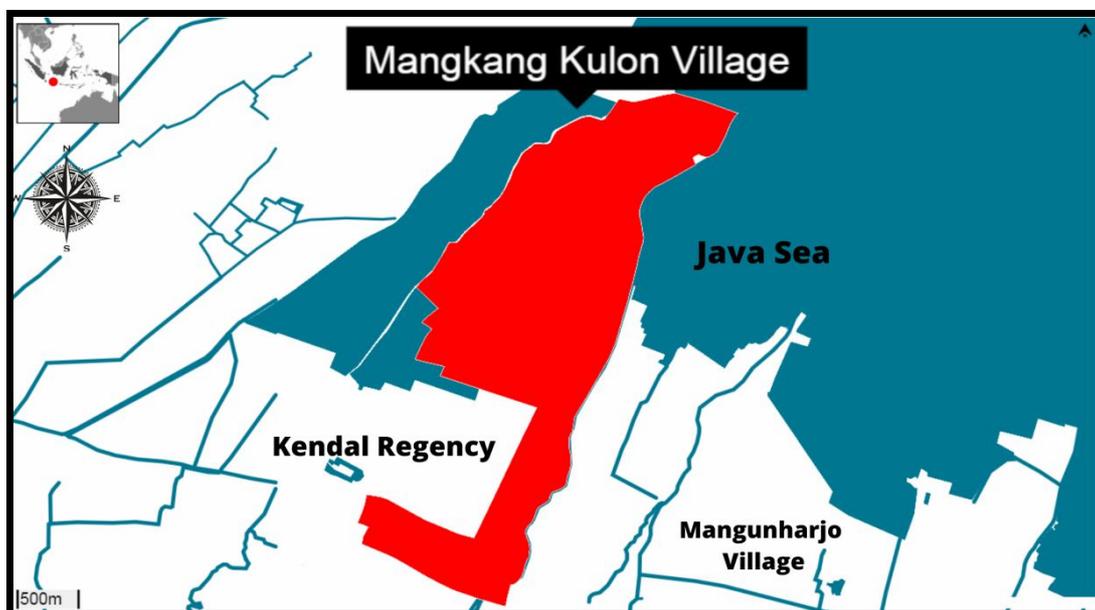


Figure 1. Mangkang Kulon Village.

Four stages are done in compiling a resilient coastal village profile: the drafter team's coordination and preparation, stakeholder investigation, methodology determination, and work plan execution. In the second stage, secondary data from related agencies were collected and processed. Then a field survey was carried out for data correction and validation on the third stage. The fourth stage as the final step was done by identifying village potentials and problems based on seven indicators. The detailed breakdowns of the said stages are as follows:

a). Preparation began with the formation of a general profile by preparing the drafter team. The team understood the methodology for the work implementation, the preparation of work plans, the distribution of tasks for composing a coastal village profile, and the procedures for dealing with stakeholders;

b). Collected data were categorized into two types: primary and secondary data. Primary data taken during the survey were regional documentation, interview notes, tracking results, and maps-tags using the Global Positioning System (GPS). Secondary data were obtained from related agencies;

c). The field survey aims to ensure data accuracy and validate the collected secondary data;

d). All the villages studied were villages directly adjacent to the North Coast of Java Island. Identification of potentials and problems is made based on seven predefined indicators: social and demographic aspects, facilities and infrastructure, local economy power, local organizations, natural resources, environmental conditions, village vulnerability to coastal hazards.

The listing of priority coastal villages is based on the assessment and ranking results. The scoring analysis facilitates villages' grouping and finds similarities in potential and problems according to the seven predefined indicators. The ranking was done by scaling the results of the assessment over the village.

Results and Discussions

Coastal region. According to Levin et al (2018), coastal areas are estuary regions that serve as barriers between terrestrial and marine ecosystems. Some of the difficulties closely related to coastal areas encompass social, economic, ecological, and administrative aspects. Therefore, coastal areas have complex functions and formations that are not suitable for stringent spatial rules. Unlike watersheds, there are no definite boundaries that delineate the coastal zones (Ayyam et al 2019). Geologically, there are two types of continental margins: active margins where the continental margins are on the edges of oceanic plates and inactive margins where the transition from the continental lithosphere to the oceanic lithosphere is within the plate (Lubis et al 2016). According to Law Number 27 of 2007 concerning the Management of Coastal Areas and Small Islands, coastal areas are transitional zones between terrestrial and marine ecosystems influenced by fluctuating phenomena both on land and sea. Coastal regions are affected by marine characteristics such as tides, waves, salinity, and water infiltration. Furthermore, coastal areas also include parts of the sea that are still affected by sedimentation, freshwater streams, and other activities caused by humans (Korakandy 2005).

Indonesia, surrounded by two giant continental blocks (Asia and Australia) and two vast oceans (Indian and Pacific oceans), has a high vulnerability to climate change. A study conducted by the Ministry of Environment in 2017 found a rise in sea surface temperature of 1°C during the 20th century. The risk of climate change in every sector is threatening, and the impact of climate change is one of the biggest hurdles against the national development program. Therefore, the Indonesian government in 2011 through the National Development Planning Agency (BAPPENAS), published a climate change mitigation plan known as National Action Plan for Adaptation for Change for all sectors in 2014 (Nasional 2014).

The management of coastal areas needs collaboration between the community and the government and requires the private sector and academic support. The government functions as a policy controller related to coastal area management (Suharso et al 2018). In this circumstance, the Indonesian government is represented by the Regional Planning and Development Agency, the Environment Agency, the Marine and Fisheries Agency, and the Agricultural Agency. Besides, higher education researchers also contribute to the preparation of studies, and their research results can be used as a recommendation in making decisions and planning management.

The preparation of an adaptation program for the coastal villages and small islands refers to the roadmap concerning Indonesia's climate change sector (Setiadi 2018). The program is carried out with five main strategies: maintaining life's stability of coastal and small islands communities from climate change, improving the quality of the coastal environment and small islands, implementing structure-development adaptation in coastal areas and small islands, adjusting urban spatial planning against climate change, and optimizing research and climate change information systems in coastal areas and small islands. Such strategies could be accomplished through Environmental Management and Land-use clusterization, where the action plan is directed at developing Coastal Resilience Village (Suarma et al 2018).

The Ministry of Marine Affairs and Fisheries of the Republic of Indonesia, through the Directorate General of Coastal Zone and Small Islands 2017, has initiated an

innovative program to encourage new hope for coastal villages in Indonesia. Through the Resilient Coastal Village Program that is later known as the Tangguh Coastal Village Development Program, five main problems must be addressed by coastal villages in Indonesia: poverty levels in coastal communities, severe damage to coastal resources, low autonomy of village organizations in addition to the degradation of local wisdom, poor village infrastructure, and the feeble well-being of the home environment. Therefore, to participate in the Coastal Tangguh Village Development Program, the Semarang City government must prepare the necessary documents as a requirement for preparing a village profile.

Since the Tangguh Coastal Village Development Program functions to improve coastal communities' life-quality, several local pearls of wisdom should be well perceived in terms of infrastructure, socio-economic facilities, environment, community, institutional capacity in participatory decision-making processes, and disaster readiness (Azahro & Ardi 2017; Purnaweni et al 2018). Furthermore, the implementation of the Tangguh Coastal Village Development Program should coexist with the Government Work Plan (RKP), Strategic Plan (Renstra), and Long-Term Development Plan (RPJP).

Based on coastal and small island management framework according to Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands, the Tangguh Coastal Village Development Program is a developed-program adapted from the district management plan; and synergy can only be achieved if the program is supported by all sectors, governments, and other related agencies.

The Tangguh Coastal Village Development Program is linked to the Hyogo Framework for World Disaster Risk Reduction 2009-2011 (BNPB 2011). The risk of disaster in a specific area will increase if events with high potential hazards befall concurrently and exacerbated further if social, economic, and environmental conditions are not organized to encounter the disasters. If these components are adopted to view the condition of Indonesia's coastal villages, the Indonesian coastal areas face a significant threat. Apart from geological and meteorological factors, disasters that happen in Indonesia are also intensified by unorganized environmental and ecosystem conditions, low social independence, degradation of local wisdom and culture, and low quality and quantity of infrastructure; all those problems lead to a high poverty rate in coastal areas.

Based on Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands, the Tangguh Coastal Village Development Program follows the objectives of government policies, including RKP, Renstra, RPJP, Coastal Zone and Small Islands Zoning Plan (RZWP3K), and the 20-Year Integrated and Independent Coastal Village Plan. Hence, if the processed village profile has resulted in implementation, the community and government are expected to supervise the ongoing process continually. Besides, the adoption of technological and management concepts from countries that have successfully implemented their Coastal Village Development Programs needs to be carried out. Throughout these considerations, the government is also expected to expand the objective of resilient coastal villages through clearer familiarization of knowledge on the official website concerning Tangguh Coastal Village Development. Easy access to information for all people will increase the community's understanding concerning the importance of resilient villages, especially in coastal villages.

With a total of 37,366,838 ha, Semarang City has a coastal area of 5,039.17 ha or about 0.02%. From a total of 25 km, the length of the Semarang City coastline is spread across Tuwu District (3.5 km), North Semarang District (5.56 km), West Semarang District (8.94 km), and Genuk District (7 km) (Ridlo & Yuliani 2018). Community livelihoods in the above four areas are homogeneous since most of them are working as fishermen. The majority of people living below the poverty threshold have to survive in shanty neighborhoods. In 2002 alone, 13 slums settled in the said area (Ridlo & Yuliani 2018). Since those areas have great opportunities and potential to be developed, investors started to target them for housing, industry, and tourism projects by doing land reclamation.

The priority-cluster decision for coastal villages is based on scoring and ranking results (Yustika & Goni 2020) as the scoring analysis ease in grouping villages with similar potential and problems based on the seven predefined indicators.

One of the main requirements for a village to participate in the Tangguh Coastal Village Development Program rests on the profile's recommendation quality. The compilation of village profiles in Semarang City sees eight criteria: planning areas, slum environmental data, total unemployment, community income, coastal environmental degradation, data on disaster-prone coastal areas, ecological services data, and levels of infrastructure services to support business activities. Those eight criteria are used as the basis for determining the village's compatibility in joining Tangguh Coastal Village Development Program.

Moreover, based on the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia Regulation Number 10/Permen-Kp/2014, general implementation guidelines for Tangguh Coastal Village Development Program include disaster-prone areas, location distribution, climate change, the prospect of the local economy, poor coastal communities but powerful and are motivated to improve their lives, environmental conditions, vulnerability to coastal disasters, and quality of essential services. So as the villages could be labeled as Tangguh coastal villages, they at least must satisfy three of the above general guidelines.

The factual data presented by the government based on these general guidelines are quite complete and accurate, complemented by an investigation of strategic issues related to financial analysis, production surplus, and analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT). Although the investigation on coastal disasters is less specific, their presentation is considered sufficient to meet the guidelines of the Tangguh Coastal Village Development Program. Under the Tangguh Coastal Village Development Program initiated by the Ministry of Marine Affairs and Fisheries, the preparation of a substantial village profile requires detailed standard guidelines and should be filed in a profile document. Since the guidelines that have been published online are still too universal and cause many misperceptions, the Tangguh Coastal Village Development Program requires synergy between the Ministry and other stakeholders to eliminate the individualistic preoccupations and unite everyone in favor of creating a robust coastal village.

Mangkang Kulon village. Mangkang Kulon is one of the villages located in the Tugu district. Positioned approximately 15 km from the heart of Semarang City, Mangkang Kulon Village has a high level of accessibility as it sits on a strategic intercity route. Mangkang Kulon has an area of 346,510 ha, which is divided into several areas as follows:

- Northside: Java Sea;
- Southside: Jalan Jend Urip Sumoharjo;
- Westside: Sumberejo Kendal;
- Eastside: Mangunharjo Village.

The land-use of Mangkang Kulon Village is dominated by fish ponds covering 111,165 ha, while rice fields and yards are 40,543 ha and 65,374 ha, respectively.

The total population of Mangkang Kulon Village in 2010 was 3,569, consisting of 1,764 men and 1,805 women. The productive age portion reaches 55% of the total population and is quite potent in developing Mangkang Kulon as a Tangguh Coastal Village. The main livelihoods of the Mangkang Kulon community are farmers, service providers, employees, and traders. Even though Mangkang Kulon is a coastal area, oddly enough, the number of fishers accounts for only 3% of the total population; it can be said that people still depend on agriculture rather than sea products.

With the agricultural sector's dominance, the largest agricultural commodities in Mangkang Kulon are rice and secondary crops. Agricultural commodities such as rice and secondary crops contributed 98% of the total commodity, while vegetables and fruits account for 1% each. Although agricultural commodities prevail, as a coastal area Mangkang Kulon also has fishery products. The fish catch in Mangkang Kulon village was around 12 tons/year (Ambriyanto & Sugianto 2012), where the main potential was shrimp paste, tofu production, and crab fattening.

Permanent housing dominates community settlements, and only 77 units are made of wooden platforms. There are six Integrated Healthcare Centers (*Posyandu*), a

doctor, and a certified midwife giving service to the community health facilities. Other supporting facilities are 27 kiosks and eight food stalls. The Mangkang Kulon industrial area has six large and small industries, and the presence of factories in the area helps the livelihoods of people working as industrial laborers.

Based on educational background, as many as 868 people have not graduated from primary school, 495 have graduated from junior high school, and 114 have graduated from university. Besides, Mangkang Kulon Village has a coastline of 1.04 km but zero well-established mangrove ecosystems.

The implementation of the resilient coastal village program in Mangkang Kulon includes five focus activities on community development in order to increase community resilience and responsiveness to disasters in coastal areas: human resource development, business development, local resource development, environmental/infrastructure development, and climate change/disaster preparedness.

External and internal factors should support the success of the program, and factors supporting the implementation of a Tangguh Coastal Village Development Program in Mangkang Kulon include:

- 1) The availability of human and natural resources that has the potential to be developed. Village officials and program implementers who have a strong commitment to making Mangkang Kulon resilient are expected to become active supporters so that the program can run efficiently. This participation is reflected in the close cooperation of all elements, consisting of the village head, village officers, the village empowerment team, and the Training for Community Surveillance Group (*Pokmaswas*).
- 2) The involvement of other stakeholders who support the enforcement of the implementer. The stakeholders' involvement comprises knowledge familiarization, training, workshops, and seminars from the Office of Fisheries and Marine Affairs in Central Java Province.
- 3) Collaborative community participation that accepts information and provides opinions, ideas, and thoughts to improve the community's welfare and resilience through physical and non-physical improvement.

On the other hand, factors that hinder the implementation of the Tangguh Coastal Village Development Program in Mangkang Kulon Village as follows:

- 1) Conflict of interest. The coastal area that was initially developed is under the superintendence of PT. Perhutani (State Owned Enterprises) and local governments. The opposition has occurred between Law Number 41 of 1999 concerning Forestry and Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands. Since the above two laws collectively regulated coastal areas, the program implementation is likely to be less flexible in developing existing coastal resources.
- 2) Limited time and funds. Any development of programs will not be successful if the time allocation is not determined definitely. Another impediment weighing down this program is the limited funding that restrains the expected proper-empowerment activities.

Conclusions. Tangguh Coastal Village Development Program that sets village communities acting as the driving force for equitable development should be supported by various sectors, governments, and other related agencies. Based on criteria settings for the Tangguh Coastal Village Development Program, Mangkang Kulon is recommended to execute key development arrangements as follows:

- restrictions in strategic economic areas (settlements, trade industries, and offices);
- extra support in vulnerable economic areas (have not much strategic economic potential).

The above anticipative steps are expected to strengthen the growth equality and accelerate the economic development in the coastal villages.

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