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# **The university's role in coastal resources management for achieving sustainable development**

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## **Abstract**

This study aims to investigate the role of the university in achieving sustainable development explicitly relating coastal resources management via a qualitative approach and document analysis. As a result, to budget support from the central government to improve higher education, the local government has to make a policy to strengthen the role of universities in the local area, especially in the

research area to develop an excellence center. In conclusion, the university must be an active and intensive development actor to help solve the problems of development and to improve the welfare of the community.

**Abstract:** Coastal, Resources, Sustainable development, Management.

## El papel de la universidad en la gestión de los recursos costeros para lograr el desarrollo sostenible

### Resumen

Este estudio tiene como objetivo investigar el papel de la universidad en el logro del desarrollo sostenible que relaciona explícitamente la gestión de los recursos costeros a través de un enfoque cualitativo y análisis de documentos. Como resultado, para presupuestar el apoyo del gobierno central para mejorar la educación superior, el gobierno local tiene que hacer una política para fortalecer el papel de las universidades en el área local, especialmente en el área de investigación para desarrollar un centro de excelencia. En conclusión, la universidad debe ser un actor de desarrollo activo e intensivo para ayudar a resolver los problemas de desarrollo y mejorar el bienestar de la comunidad.

**Resumen:** Costero, Recursos, Desarrollo sostenible, Gestión.

### 1. INTRODUCTION

Entering the globalization era the changes in social, economic, political, security, defense, ideological and technological have been very intense. Changes in all development sectors are a challenge for the government and society. In the Good Governance perspective (EFENDI, 2005), the key actors in the development of a country or region are Government, Community Groups, Entrepreneurs

and Universities. The purpose of good governance is to have good government management to achieve better public services and public welfare. (DWIYANTO, 2005; AHMAD & AHMAD, 2019). In strategic interests, governance is not merely the realization of excellent public service or a matter of how to respond to market needs, but it must be placed on a philosophical framework, as one of the pillars of the civilization of a society or nation (BUNAKOV, et al, 2019),

Other than the government, which is always demanded to play its role, we often forget, or less concern about the role of Higher Education in a strategic position and role during social development and reform. We must dare to criticize the old paradigm, which sees the development initiatives as only the domain of the government. Even though the discourse in public the role of civil society and the private sector is important. In reality, the role of other actors, besides the State, are not yet significant. It includes the role that universities; As a result, if the government makes a mistake, no one makes corrections, especially those related to conceptual and development formula at the central and regional levels. It is also the case in understanding the management policies of the potential development of coastal areas (MARTYNOV et al, 2019).

## **2. METHODOLOGY**

The issue of coastal resources management for marine development is one of the very prominent development issues. Given

the poverty, the area is generally found in coastal areas. For instance, Banten Province is among the poorest areas on the western tip of the java island Java and Aceh province in the western tip of the island of Sumatra; even though the coastal potential is quite large and very promising. According to Dahuri (1999), the potential of coastal resources generally divided into four groups, namely (1) renewable resources, (2) non-renewable resources, (3) marine energy and (4) environmental services.

Renewable resources consist of various types of fish, shrimp, seaweed, seagrass bed, mangrove, coral reefs including coastal aquaculture and marine aquaculture. The availability of coastal land is one of the potencies that can be developed for fisheries activities. Likewise, the coastal waters can be developed for various aquaculture activities, especially marine aquaculture. Non-renewable resources include minerals, mining/quarrying materials, petroleum, and gas. Energy resources consist of OTEC (Ocean Thermal Energy Conservation), tides, waves and so on. Whereas, those that include marine environmental services are tourism and sea transportation. The non-renewable resource is a sector that requires a readiness to develop since it is not easy and very challenging

In the international seminars organized by the Faculty of Social and Political Sciences, Teuku Umar University, the author focuses more on fisheries as one of the most prominent potentials of coastal resources and is a mainstay of livelihood sources for people living in coastal areas. It does not mean ignoring the other potencies of coastal

areas. Also, the author has limited time in preparing materials. The case of the fisheries sector, which is one of the resources for developing coastal areas, can be used as a sample to explain the problems and at the same time look for models of coastal resource development and more importantly is the strategic role of universities in developing coastal resource management sector. University's role is in terms of the vision of regional development as well as the characteristics of the scientific development of a university, especially the UTU University in West Aceh.

It is a classic problem that regulation problems are one of the factors that disrupt the acceleration of regional development. Aceh province is no exception; it encounters obstacles in accelerating development. Fisheries sector development will involve several ministries and institutions, directly or indirectly, at both Government Level I and Level II. At the central level, it involves at least Ministry of Home Affairs, Ministry of Fisheries and Marine Affairs, Ministry of Trade, Ministry of National Development Planning, Ministry of Rural Development and Transmigration, At the Province, level and the District level will involve some Ministry offices in the area. Structure relations and functions are regulated in the Local Government Act No.34, 2004. Horizontally, development involves strategic groups in society such as the social and political organization, the Parliament (DPR or DPRD) Entrepreneurs, Banking and Universities.

The main task of the government, especially local governments, is how to mobilize all development resources

and stakeholder participation to increase community welfare. The role of the government has strategic value as a designer or maker of development blueprint. Therefore, in the perspective of social change, the role of the government becomes the locomotive of change, and the achievements and results development signifies the success of a government. Development evaluation instruments can be seen from various perspectives, for example with the Human Development Index (HDI).

The success or failure of development is not all the responsibilities of the central government or local government alone. It also implies the presence or absence of constructive roles played by stakeholder thus successfully driving the pace of development and specifically what and how universities play the strategic role is as a center of excellence or center of social change so that the role of universities is truly present and determines the success of the development.

### **3. RESULT**

Aceh province is one of the provinces in Indonesia which has rich potential marine resources and fisheries. Geographically, the mainland of Aceh Province has an area of 57,365.67 km<sup>2</sup>, while its waters reach 295,370 km<sup>2</sup> consisting of 56,563 km<sup>2</sup> in the form of territorial waters and islands and 238,807 km<sup>2</sup> in the form of exclusive economic zone waters (EEZ), with a coastline length of 2,666.3

km. Aceh also has 119 islands with very strategic geo-economic and geopolitical positions, where the north and east are directly adjacent to the Malacca Strait, south with North Sumatra Province, and west with the Indian Ocean.

The comparative advantage possessed by NAD province based on 2015 data. Fisheries Management Areas (FMA) 571 and 572 are estimated that the total potential of both WPP could reach 1,713,015 tons/year. However, based on one study in 2015, the potential of capture fisheries in Aceh only reached 272.2 thousand tons/year, with a utilization rate of 165,778.80 tons (60, 72%) of the total potential. Looking at this data, it can be seen that the large fish resource potential has not fully exploited. Although, the market opportunities for fish on the international market are very promising with the consumption needs continue to increase.

The primary fishery commodities of Aceh province are various types of large and small types of pelagic fish such as tuna, mackerel tuna, skipjack, mackerel, flying fish, siro, and sardine; demersal fish like Threadfin bream, White Pomfret, Gulamah, Threadfin, and Shrimp; reef fish such as grouper, yellowtail, and snapper; lobster, crab, and squid. The potency of the fisheries economy in Aceh waters is estimated to reach IDR 6.34 trillion/year (SYAMSU, 2004).

Besides, to have the enormous potential of capture fisheries, Aceh Province also has a promising aquaculture potential that reaches 55,896 Ha (excluding marine aquaculture) which consists of

brackishwater aquaculture. 50,691.70 Ha, and freshwater aquaculture 5,204.3 ha. In 2015, the productivity of aquaculture in Aceh was still very low that the productivity of brackish aquaculture is only 0.74 tons/ha, and the productivity of freshwater aquaculture is 0.67 tons/ha for rice fields and 5.40 tons/ha for pool media. Thus, the opportunities for developing capture fisheries and aquaculture are still tremendous in Aceh province.

This reality shows that Aceh's marine and fishery resources have not received serious attention from both the government and the community. Abundant fish resources have not utilized optimally and seriously. This fact is a paradox to the Aceh condition which is a poor province on the island of Sumatra. Poverty is a very prominent development issue. It can be seen in the high poverty rate, the level of open unemployment was high (9.93% and was in the first place in Indonesia). Therefore, the human development index is low (AHMAD & AHMAD, 2018; EFFENDI, 2005).

With the economic potential and position, Aceh has a high comparative advantage in the field of the marine economy; this is homework for the local government of Aceh and its stakeholders. That is how the marine and coastal resources as a comparative advantage can be transformed into the competitive advantages to accelerate the development and prosperity of Aceh society.

First, the majority of fisheries economic business activities are generally carried out traditionally, and the science and technology

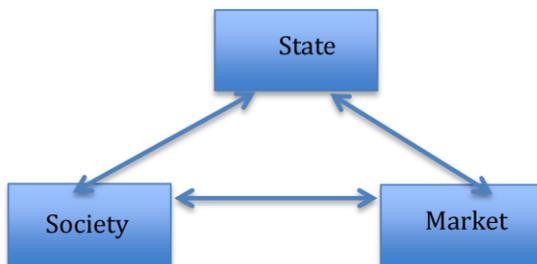
and professional management are not yet implemented. These are the causes most fishers and fish farmers in Aceh live below the poverty line and the productivity of fishes is low. Second, most fishery commodities are sold raw, not processed into semi-finished products or finished products that have high added value and multiplier effects. For example, the majority of seaweed commodities are still sold in the form of wet/dry, not through processing either the level of Alkali Treated Cottonii (ATC) chips or have already become carrageenan and so forth. The same thing also happens to catch or aquaculture fish, generally sold in fresh form at low prices and not through further processing.

Third, there is no market security for fishery products, so prices will benefit fishermen and fish farmers. Therefore, during the season when the fish is scarce, the price increases and when the season when the fish is abundant, the price is very cheap. It does not only happen to capture fish but also in the aquaculture sector, where the fish price is also very volatile and often lower than the production costs that make farmers lose money. Fourth, the problem of Illegal, unregulated and unreported (IUU) fishing practices and other illegal economic activities. Illegal fishing practices in the Aceh marine area (Malacca Strait) even occur annually which are dominantly conducted by foreign vessels from Malaysia and Thailand.

Fifth, the cases of environmental pollution and degradation of coastal ecosystems (such as mangroves, coral reefs, seagrass beds, and estuaries) in the coastal areas of Aceh. Therefore, to achieve the

transformation of maritime and fisheries development in Aceh, regional governments, Local parliament, private sector, and Acehnese people must work together and synergistically create a conditions that are safe, comfortable, friendly and attractive for investment and business growth in the marine and fisheries sector and management of coastal potential in general. Thus, the Aceh marine and fisheries sector will be able to contribute optimally in the development of Aceh and the community will be more prosperous and independent (AHMAD & SAHAR, 2019).

In the era of democracy after the Orde Baru, according to SYARIF (2018), LIPI researcher, an expert in regional government, Indonesia's development model shifts from the top-down model to the bottom-up model. It marked by the participation from below (community) and from the non-state actors; therefore, there is a balance in the relationship pattern of the State -Private-Society (State, Society, Market) relationship.



Picture 1

The model of the relation of the actors mentioned above is the model of social, political and economic power relations which shows the ideal model in developed democracies countries. In countries that are completing democracy transition and still struggling with democracy experiment to look the shape and how to implement it into all sectors of development, the format of relations between the three actors is set out in various forms of regulation. The issue of structure and function and authority in organizing the government will cause overlapping regulations or all forms of regulations. The relations and interactions of actors are very intense and dynamic so that regulatory conflicts and even conflicts of interest between the development actors, state, society and the private sector, are unavoidable.

One very prominent issue in government governance is overlap and conflict of authority among stakeholders; conflict of interest vertically as well as horizontally is inevitable. The possibility of overlapping legislation with the regulation from the lower government is, according to Ginting, 24 laws related to the PWP-PPK Act as follow:

Table 1

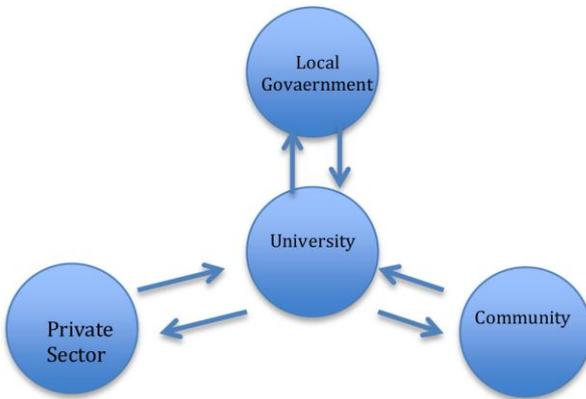
01	Act 5/1960 Agrarian Principle	02	Act 22/2001 Oil and Gas
03	Act 11/1967 Mining Principle	04	Act 2/2002 Police
05	Act 1/1973 Continental Shelf	06	Act 3/2002 National Defence
07	Act 5/1983 Exclusive Economic Zone	08	Act 23/2003 Geothermal Law
09	Act 5/1984 Industry	10	Act 7/2004 Water Resources Management

11	Act 5/1990 Conservation of Natural Resources	12	Act 31/2004 Fisheries
13	Act 9/1990 Tourism	14	Act 32/2004 Regional Government
15	Act 21/1992 Shipping	16	Act 33/2004 Balance of Keuda
17	Act 12/1992 Principles of Agriculture	18	Act 15/2007 Disaster Management
19	Act 6/1996 Indonesian Water	20	Act 23/1997 Environment
21	Act 24/2007 National Planning	22	Act 41/1999 Forestry
23	Act 25/2007 Investment	24	Act 26/2007 Spatial Planning

Likewise, there is a possibility for conflict between the National regulations and the Act about the Aceh Government. Regulatory loopholes and conflict of authority require an in-depth and continuous study, so there is a certainty in the law that regulates the customary rights of the community, investment activities and the authority of the central and regional governments, especially those that relate to the development and management of coastal area potential resources.

In the context of the formulation and development of the Aceh development road map, especially Aceh Barat, the role of universities is very important. The question is to what extent UTU (Teuku Umar University) involves in formulating the regional development road map for Aceh Barat Regency and also at the provincial level. A similar question also applies to National Universities. Given that one of the keys to the success of development in large industrial countries lies in their ability to build synergistic relationships between universities and the industrial world. National

and regional development planning cannot be done partially only by considering certain aspects, but it must be seen thoroughly and in a long term perspective. Given the human resources that the university had is sufficient and relatively better, University can play a strategic role and become a center of culture. It is a model of stakeholders in the new paradigm of the university perspective.



Picture 2

The Higher Education Act now reinforces this role that the curriculum must answer the problems of society and the challenges for Indonesia in the future. Although the central government policy is not new, in 1993 Minister of Education and Culture Dr. Wardiman Djoyo Negoro announced what was called link and match. This strategic policy is not continued because the minister was replaced, so the policy was changed without a thorough evaluation. The Ministry of Higher Education's policy explicitly places

the role and contribution of tertiary institutions as the center of excellence of the high education process to be successful and efficient for national development or regional development.

At least three main goals must be achieved by a university. Firstly, it strengthens its role as an institution that runs education and research for the development of science. This role is to strengthen the function of the university to ensure that scientific development has relevance to the problems and challenges faced by humanity and society in particular. Secondly, to ensure that the knowledge developed can give a solution through the results of research so that it becomes a reference for community development. Thirdly, the resources that university-generated are by the development needs.

One measure of the country's progress can be seen from the progress in the education sector especially at the higher education level. Usually, in developed countries are indicated by the state budget; the higher development in a country linear to the higher spending in the education sector. The development of national universities despite increases in rankings is not yet significant compared to the achievements of universities in Asia and Southeast Asia. Some universities such as several Malaysian universities have a significant jump in university ranking. Even among Malaysian universities, there is a very dynamic and fantastic competition; for example, the competition between the Universiti Kebangsaan Malaysia and Universiti Malaya. The following are the ten best universities in ASEAN:

Table 2

ASEAN ranking	World Ranking	Universities
1	11	National University of Singapore (NUS), Singapore.
2	12	Nanyang Technological University (NTU), Singapore.
3	87	Universiti Malaya (UM), Malaysia.
4	184	Universiti Kebangsaan Malaysia (UKM), Malaysia.
5	202	Universiti Putra Malaysia (UPM), Malaysia.
6	207	Universiti Sains Malaysia (USM), Malaysia
7	228	Universiti Teknologi Malaysia, Malaysia
8	271	Chulalongkorn University, Thailand
9	292	Universitas Indonesia (UI), Indonesia
10	323	Universiti Brunei Darussalam (UBD), Brunei

Government efforts to improve the quality of education especially at the university level by issuing several regulations: Act no. 12/2012 about Higher Education; Republic of Indonesia Presidential Regulation no. 8/2012 about the Indonesian National Qualification Framework; Regulation of Minister of Education and Culture no. 73/2013 about Implementation Indonesian National Qualifications Framework for Higher Education; Minister of Education and Culture Regulation Number 49/2014 about National Standards for Higher Education; and Republic of Indonesia Government Regulation

no.14/2014 about the Implementation of Higher Education and Management of University.

Every university's homework is how to build good corporate governance so that it can ensure the higher education system can run towards achieving quality improvement. It does not stop at a great vision and mission statement, but fail to implement it. If the university management succeeds in placing itself as a cultural center, it will become the center of development, especially in regional development. Therefore, good governance gives a strong foothold and the direction to visionary policy development that capable of increasing the nation's competitiveness and the competitiveness of regional development (DELIAR, 1988).

In addition to budget support from the central government to improve higher education, the local government has to make a policy to strengthen the role of universities in the local area, especially in the research area to develop an excellence center. Local governments also have a role in developing environmental excellence, in managing coastal resources to improve local community welfare.

#### **4. CONCLUSION**

The management of potential development in the coastal areas of Aceh, especially Aceh Barat has a tremendous opportunity. Aceh Province is one of the best provinces at the level of fish production.

With the balance area of the sea and coastal 50: 50 percent, some opinions said that development orientation should be more emphasized to the sea or coastal areas. However, the reality of development does not seem to confirm where the direction of development is focused. Although the issue of coastal development is very prominent, especially when viewed from the central government program. The presence of universities amidst the rush of development is an absolute necessity whatever the focus of development will be set, as the key to the development success in industrial countries. Thus the pattern of relations between development actors is not solely among three actors the State-Society and the Market or the private sector, but the university in the future will become the actor in development.

From the perspective of higher education, there must be a paradigm shift, that the locomotive of development is not only the government but also the university. Consequently, the universities in the regions need to make breakthroughs to increase their strategic role which is very much needed to encourage accelerated regional development. More aggressive improvement of human resources, improving research products, developing multi and interdisciplinary Excellence Study Centres and collaborating between Universities, Research Institutions, and Private Institutions. The Centre for Excellence in Universities can be parallel with the comparative advantages owned by the districts. Therefore, it will fill not only the local needs but also national markets and even international markets. The definition or redefinition of the University Centre of Excellence needs to be done in conjunction with the advantages set by

local governments. Thus, the strategy to strengthen the university must receive support from local governments, the private sector, and the community.

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