

# DIS-CATCHMENT AREAS: THE NEED FOR ASYMMETRIC DECENTRALIZATION IN ISLAND CHARACTERISTIC AREAS

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## Abstract

This paper aims to answer the call for studies on Indonesia has implemented symmetrical decentralization amidst regional diversity. However, in several areas characterized by islands (dis-catchment), local governments experience difficulties in utilizing their geographic resources efficiently to provide services and encourage development. This research addresses the issue by adapting decentralization policies to the needs of specific regions. It employs a qualitative approach, involving site visits to collect data through interviews, observation, and documentation. The research uses the Spiral model with the help of N-Vivo 12 plus for data analysis. The research results show that services and development in this archipelagic region are not in harmony with its geographical conditions. Services and development tend to be concentrated in government capitals, so these services are expensive and resource-intensive to access in remote areas. Therefore, efforts are needed to reorganize this asymmetrical archipelagic area to better adapt to its unique geographical conditions, especially in an archipelagic country like Indonesia.

**Keywords:** water catchment area, asymmetric decentralization, archipelagic characteristics, local government, archipelagic areas.

## 1. Introduction

With the characteristics of an archipelagic country, Indonesia has opted in favor of symmetrical decentralization, which is unsuitable for implementing regional government. That is because several regional governments, due to their location/ geographic position, have different characteristics as regions characterized by islands, which impacts the government's ability to carry out regional government. Litvack, Ahmad and Bird (1998) stated that within a country, there are differences between certain regions, in terms of economy, demographics, and social diversity. Asymmetric decentralization can be implemented in that region.

Nasution (2016), Huda (2014), and Santoso (2012) highlighted that the uniform application of decentralization (uniformity model) has significant drawbacks when implemented in countries with diverse local contexts. Therefore, decentralization strategies must prioritize regional diversity and local conditions. Nevertheless, there is optimism: by considering local factors, particularly the unique geographical conditions of island regions, optimizing the archipelago's potential for providing adequate public services and fostering development is possible.

Decentralization is an essential policy in the Indonesian government that aims to bring decision-making and public services closer to local communities (Mardiasmo, 2018). However, implementing symmetric decentralization – where all regions are given the same authority and autonomy without considering geographical and demographic differences – has created challenges, especially in island regions with unique characteristics (Nugroho, 2020). In these areas, local governments often face difficulties utilizing their geographic resources efficiently to provide services and encourage equitable development (Setiawan and Santiago, 2021).

Muluk (2019) and Madubun, Akib and Jasruddin (2017) have pointed out that the archipelago's public service and development process still needs to be more land-based, leading to the neglect of island communities. That has resulted in inequality in public services and development between the mainland (land) and islands (aquatic). As a consequence, areas characterized by islands remain underdeveloped. Island regions like Indonesia face additional resource and infrastructure distribution challenges, often leading to the concentration of public services in government capitals and the neglect of remote areas (Baharuddin, 2024). This situation makes services expensive and difficult for people in remote areas to access, potentially exacerbating inequality and hindering regional economic development.

This empirical condition can be seen in North Maluku Province as one of the regions that geographically has the form of an archipelago in the administration of regional government experiencing dis-catchment areas in health services, education, inter-island transportation, clean water needs, and marine waste management. According to data, North Maluku Province has 805 islands; of these, 79 are inhabited. In contrast, the other islands are uninhabited but produce coconut, clove and nutmeg plantations, and cashew plantations spread across 10 city districts (Ichi, 2021).

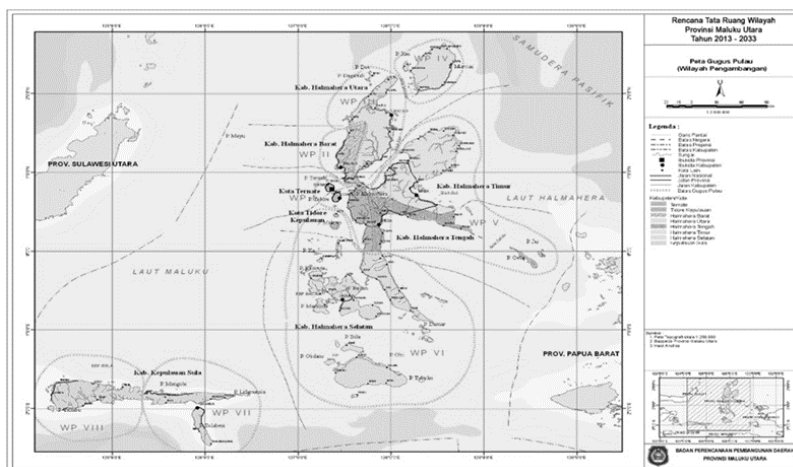


Figure 1: Map of the Island Group of North Maluku Province  
 Source: Bappeda Maluku Utara (2023)

Many inhabited islands in Indonesia experience inequality in the availability of public service infrastructure. Development is often not adjusted to the geographical conditions of the islands. The government builds more service centers and infrastructure on islands that are the center of government, while the outskirts tend to be neglected. As a result, the distribution of public services is uneven, and access to these services – such as education, health, and inter-island transportation – is expensive and difficult to reach. This also impacts the provision of clean water and waste management, which are generally better in inland areas but not in sea areas. Marine waste is still neglected even though it dramatically influences inter-island transportation activities.

This condition gives rise to dis-catchment areas as a condition of failure in implementing catchment areas, where the government cannot optimize geographical conditions in providing services and development in the archipelagic region. Regional governments need more administrative capacity. They encounter a lack of budget, human resources, and even limited authority to overcome service and development problems in archipelagic areas caused by geographical conditions that must be reached by sea transportation.

This empirical condition is further validated by the research of Said *et al.* (2019) on evaluating decentralization policies in archipelagic areas. Their findings, which attribute the slow development and low quality of public services in these areas to the limited capacity of local governments, are particularly relevant in the current context of decentralization policies.

Therefore, the administration of regional government in archipelagic areas necessitates a new approach that is tailored to the unique characteristics of these regions. Smith (1985) proposed an administrative needs concept approach, which suggests that in areas where government services and development are limited, a structure is required to maximize the state's role in public services and development.

Leemans (1970) stated that when implementing a water catchment area, the level of regional government administration and the scope of its needs must be considered, as well as the location and boundaries of the regional government unit related to the area's scope of services and boundaries. Muttalib and Khan (1982) said that measuring the boundaries of a government administrative area must be approached using a quantitative standard approach, physical and socio-economic standards, and area and service standards. Tarlton (1965) stated that from the aspect of effectiveness in determining the boundaries of an area, social aspects related to social geography, efficiency principles, managerial and technical factors, and social principles can be considered.

The primary issue identified in this research is the disparity between services, development, and geographical conditions in island areas. This problem is underscored by the concentration of services and development in government capitals, leading to high costs and limited access in remote areas. Moreover, the current system's failure to optimally utilize geographic resources exacerbates the situation.

This study aims to explore the inconsistency between symmetric decentralization implemented nationally and the geographical conditions of the archipelagic regions in Indonesia, especially in North Maluku Province. The main objective of this study is to provide policy recommendations regarding the implementation of asymmetric decentralization that is more adaptive to the characteristics of the archipelagic region. By adopting asymmetric decentralization, local governments in the archipelagic region are expected to more effectively manage resources, infrastructure, and public services according to local conditions.

Based on the findings and discussions from the research conducted, this study highlights the need for a differentiated approach to river basin management in island regions. Specifically, the study argues for implementing asymmetric decentralization in areas characterized by islands to ensure that river basins in different regions of Indonesia can be managed locally. This approach is expected to help resolve region-specific issues and reduce potential conflicts related to resource management. This policy is carried out so local governments can manage their areas according to their needs so that achievements towards the center can be integrated. This study offers several policy implications relevant to policymakers in Indonesia and other archipelagic countries. This research is expected to provide contributions related to government policies, so that by considering this research the government can organize a more effective asymmetric decentralization policy in supporting sustainable and inclusive development of island regions.

This article is organized into several main sections: literature review, which reviews decentralization concepts and models as well as previous research; research methodology, which explains the type of research, data collection techniques, and analysis tools; research findings, which outline the results of studies regarding inconsistencies in services and access in island areas; discussions that analyze the implications of findings, evaluate existing policies, and provide recommendations; conclusion summarizing the main findings, practical implications, and suggestions for future research.

## **2. Literature review**

### **2.1. *Water catchment area***

Leemans (1970) first developed the catchment area theory using geographic concepts to assess the coverage of public service areas. Therefore, catchment areas are related to the optimal efficiency of public services provided in an area. Leemans said that optimal public services vary and even change according to the nature of the service. Muluk (2009) explains that a catchment area is the range of services that public service institutions can provide in a particular area to ensure that the public can receive optimal service. Hoessein (2000) defines a catchment area as optimal for delivering public services, development, resource withdrawal, and, most importantly, participation and control by the community and the bureaucracy.

Therefore, Leemans (1970) stated that the administration of water catchment areas takes into account two things: first, in providing public services, it is necessary to consider the level of regional government administration and the need for service coverage because the more comprehensive the service area, the higher the service coverage. Second, the level of authority that must be granted in the catchment areas determines the area and boundaries of a regional government unit, including the scope of services and boundaries of a regional government. Therefore, it is essential to establish area and area unit boundaries and desired government areas.

According to Muluk (2009), to ensure that the public can obtain public services, it is necessary to pay attention to the boundaries of a region and consider the units that carry out service responsibilities. Meanwhile, according to Muttalib and Khan (1982), the boundaries of administrative areas are based on a quantitative standard approach, physical and socio-economic standards, and regional and service standards. Smith's (1985) thought regarding aspects of effectiveness can encourage the determination of boundaries of an area by considering aspects of society related to social geography, efficiency principles, managerial and technical factors, and social principles.

Muluk (2009) provides indicators of the success of implementing the catchment area concept, which will produce guaranteed security, a controlled environment, effective bureaucratic implementation, high government competitiveness, and, most importantly, satisfactory public services for the entire community. Dis-catchment area conditions follow the failure to reach the catchment area. This condition shows the low reach of government institutions and officials towards the community, which causes the local government to be unable to provide services to the community, including the community's weak ability to meet community needs. This condition can have negative implications in the form of environmental damage, crime, high economic costs, and, most importantly, public dissatisfaction with bureaucratic services.

### **2.2. *Definition of decentralization***

Domai (2011) defines decentralization as the process of redistributing or dispersing functions, powers, people, or things away from a central authority. This often involves shifting decision-making authority, responsibilities, and resources from central institutions

to local levels, such as regional or municipal governments, community organizations, or other decentralized entities. The aim is to bring governance closer to the people, potentially enhancing responsiveness, accountability, and adaptability to local needs and conditions.

The meaning of decentralization was also explained by Indonesian public administration and political experts. One of them is Hendratno (2009), who defines decentralization as the handover of government power from the center to regions that manage their households (autonomous regions). The handover of authority to autonomous regions in the form of regional autonomy is the implementation of regional government, where the regional government regulates and manages its government affairs. It is hoped that regional governments can help accelerate the realization of community welfare because these decentralized tasks can help the central government manage the country in their respective regions (autonomous regions).

According to UNDP, as quoted by Noor (2012), decentralization is the restructuring or reorganization of authority to establish a system of shared responsibility between government institutions at the central and regional levels. That is done according to the principle of subsidiarity to enhance the overall quality and effectiveness of the government system and increase regional authority and capacity. Decentralization is expected to create opportunities for good governance, such as increasing people's participation in economic, social, and political decisions, enhancing the capacities of those in developing stages, and promoting responsibility, transparency, and accountability.

Fiscal decentralization, or the transfer of fiscal power from the central government to regional governments, is a crucial part of a reform package. This transfer aims to enhance efficiency in the public sector, foster competition among regional governments in delivering public services, and stimulate economic growth (Davoodi and Zou, 1998).

### ***2.3. Decentralization in Indonesia***

The decentralization policy in Indonesia was implemented based on Law no. 22 of 1999 concerning the Regional Government in early January 2001. As stated by Piliang (as cited in Noor, 2012), the existence of Law no. 22 of 1999, Law no. 25 of 1999, and Government Regulation no. 105 of 2000, and the guidelines set by the Minister of Home Affairs show that the beginning of 2001 was the runway for massive and drastic decentralization of government, and could even be called an extraordinary leap in governance in this country. Of course, the manifestation of this decentralization is regional autonomy, by which the regional government has the right, authority, and obligation to regulate and manage its households by applicable laws and regulations.

The existence of Law no. 22 of 1999 and Law no. 25 of 1999 does not provide a solution regarding decentralization in Indonesia, primarily regional fiscal decentralization. Therefore, the government revised these two laws. Law no. 22 of 1999 was revised to become Law no. 32 of 2004 concerning regional government. Law no. 25 of 1999 was revised to become Law no. 33 of 2004 concerning the financial balance between the central government and regional governments.

The enactment of these two laws provides two fundamental dimensions of decentralization. Among them are:

- a. As reflected in Law no. 32 of 2004, the first dimension focuses on administrative decentralization. Administrative decentralization is the delegation of authority to distribute authority, responsibility, and financial resources to provide public services to various levels of government.
- b. The second dimension is regulated in Law no. 33 of 2004, which focuses on financial decentralization as a core component of the decentralization concept. Financial decentralization results from having the authority to manage finances (expenditures) independently (Halim and Mujib, 2009).

After being in force for several years, Law no. 32 of 2004 concerning regional government was deemed to have several shortcomings that needed improvement. Therefore, the government then revised Law no. 32 of 2004 to be replaced with Law no. 23 of 2014 concerning regional government. Implementing this law places greater emphasis on autonomy for villages to develop from the outskirts.

#### ***2.4. Asymmetric decentralization***

Asymmetric decentralization is an approach that gives more autonomy and power to certain regions based on the characteristics, needs, and specific conditions of the region (Busygina, Filippov and Taukebaeva, 2018). In the context of island regions, asymmetric decentralization can be very effective in improving resource management and public services. By implementing adaptive asymmetric decentralization, island regions can be more responsive to local needs and optimize resource management, creating inclusive and sustainable development. Asymmetric decentralization in Indonesia refers to the uneven division of power and responsibility between the central and regional governments (Filippetti and Cerulli, 2017). Regions have the authority to manage their own government affairs, including in terms of resource management, education, health, and infrastructure. Some regions, especially those with special characteristics (such as special autonomous regions), may have broader autonomy arrangements compared to other regions (Constitution Transformation Network, 2018; Nurdin and Rusfiana, 2020).

Asymmetric decentralization must remain oriented towards alignment with national policies, so that there is synergy between the central and regional governments (Suwanda, 2020; Faguet and Shami, 2022). The central government needs to provide adequate support both in technical and financial terms to ensure that regions can carry out their autonomy properly (Rosselló Villalonga, 2018). With these principles, it is hoped that asymmetric decentralization in Indonesia can improve the quality of governance and public services, as well as encourage community participation in regional development (Fiorillo, Giuranno and Sacchi, 2021).

Tarleton's (1965) speculative thoughts were adopted by scholars of politics and state administration, one of whom Katorobo (2007) revealed that the symmetric decentralization

design resembles efforts made as a reflection of expanding government institutions from the national level to the sub-national level. So, the regional government structure seems to be a microcosm (shadow) of the national government. Watts (2000) revealed that the application of the asymmetric model in a government system no longer considers the form of a federal or unitary state but considers an asymmetric concept that can be effective and functional in efforts to manage local diversity and specificity.

Asymmetric decentralization in several countries has become an alternative conflict resolution policy when regions demand disintegration (Djohan, 2010; Muluk, 2021). However, asymmetric decentralization can be used as an alternative to accommodate different regional interests and characteristics in its development. Muluk (2023) revealed that asymmetric decentralization is not resistant to the state when approached through subsidiarity and decentralization of government. The principle of subsidiarity in decentralization places regional governments as the leading institutions that drive efforts to achieve state goals tailored to needs based on regional capabilities and capacities.

Therefore, in practice, asymmetric decentralization designs carried out in several countries use two approaches (Wehner, 2000; Bird, 2003; Bird and Ebel, 2007): 1) a political approach is carried out as a response to regions that have unique characteristics in terms of religion, culture, ethnicity, and ethnic tensions that are internalized in the regional government system; 2) an administrative approach with efficiency and economic considerations through strengthening the capacity of regional governments in managing the economy and government administration more effectively (Ali *et al.*, 2013).

Neamtu (2016) states that asymmetric decentralization, administrative approaches, and capacity are interrelated. According to Addison (2009), administrative capacity is necessary to understand broadly as a set of skills and competencies expected from public bureaucracy to facilitate and contribute to problem-solving. Administrative decentralization is the transfer of responsibility from the central government to lower units for implementing public services in the regions (Falleti, 2005; Choudhry and Stacey, 2015).

### **3. Methodology**

This qualitative research aims to uncover and understand something behind unknown phenomena (Strauss and Corbin, 2009). This research uses a naturalistic approach that involves researchers directly, where the researcher is the main instrument that adapts to the research location (Lincoln and Guba, 1985). This research was conducted in North Maluku, an archipelago province. Data was obtained by interviews with several informants: the Regional Secretary of North Maluku Province, the Head of Bappeda, the chairs of regional apparatus organizations, the provincial Local People's Representative Council (DPRD), community figures, and academics. This study focuses on the analysis of autonomy and greater power to certain regions based on the characteristics, needs, and specific conditions of the North Maluku Island region. By covering these various aspects, the asymmetric decentralization policy is expected to increase the effectiveness of local

government, strengthen community participation, and encourage more inclusive and sustainable development in Indonesia.

Data analysis uses the N-Vivo 12 applications, which refers to the Spiral model. The N-Vivo 12 application is qualitative research software for managing interview and observation data (Bandur, 2019; Nurmandi, 2019). The stages in the spiral model are data collection, data management, data reading, describing, and classifying by coding through the first coding cycle to create nodes. The second coding cycle is for generalizing data in the form of themes, building assessments and interpretations, presentation, and data visualization.

To obtain complete information about the situation of the research object, especially information relevant to the focus of the research, this study determined informants based on N-Vico12 plus coding data of 31 people who were grouped as follows:

1. Informants from the regional government of North Maluku Province, namely the Deputy Governor, Regional Secretary, Head of the Regional Development Planning Agency (Bappeda), and representatives of the North Maluku Province Transportation Service, North Maluku Province Marine and Fisheries Service, North Maluku Province Environmental Service, Education Service and Health Service.
2. The North Maluku Provincial DPRD consists of elements of representatives of the North Maluku Provincial DPRD, Chairperson of Commission IV, and Chairperson of Commission I of the North Maluku Provincial DPRD.
3. Vertical institutions such as the Harbor Master and Port Operations Office (KSOP) and the Regional Office of the Directorate General of Treasury of North Maluku Province.
4. Informants from stakeholders, namely, academics who understand the conditions and characteristics of island regions, activists concerned about the sea and islands, community leaders in the region who understand the traditions of island communities, and business actors in island areas. The data stages can be illustrated in the spiral image in Figure 2.

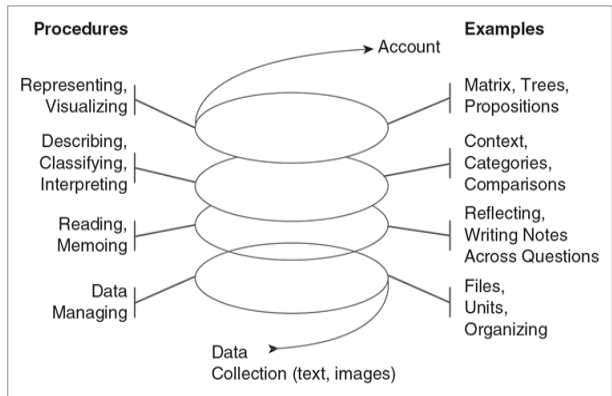


Figure 2: Spiral data analysis procedure  
Source: Creswell (2007)

The novelty of this research method lies in using a naturalistic qualitative approach to investigate decentralization in the North Maluku archipelago province. By involving researchers directly in the local context and collecting data through interviews with various key informants, this research provides an in-depth and comprehensive view of a phenomenon that is not yet fully understood. Data analysis using the N-Vivo 12 application and the Spiral model adds innovation in managing and evaluating qualitative data systematically and flexibly. Focusing on North Maluku provides a new perspective on adapting decentralization policies in a region with unique geographic characteristics.

## **4. Results**

Based on data analysis in the field, there are five problems that people often complain about on North Maluku Island. These problems are related to public services and the development of archipelagic areas, including problems with health services, education services, inter-island transportation services, marine waste services, and clean water services. These five problems are analyzed in several aspects: 1) the availability aspect, looking at the availability of services and development in the archipelago; 2) the distribution aspect, in the form of equal distribution of services and development in the archipelago; and 3) the affordability aspect, which evaluates whether these services are accessible in terms of cost, distance, and ease of access for the communities in the archipelago.

### ***4.1. Availability aspect***

The availability of infrastructure, budget, and resources can provide maximum services, especially in health, education, inter-island transportation, marine waste facilities, and clean water facilities. However, these facilities have not adapted to the characteristics of the North Maluku Islands region, which has archipelagic characteristics. That is because, when implementing development, the government is still oriented towards areas characterized by land, so the needs of the people in the archipelago are neglected.

This impact can be seen from the provision of health infrastructure in North Maluku, which is the center of government. There are around 20 general hospitals (RSU) in North Maluku, which are managed by the local government and the private sector (Avitalia Health, 2024). Most of these hospitals are located on Ternate Island, which is the center of government and the district capital. In South Halmahera, there are two auxiliary hospitals in the sub-district capital, but the infrastructure and health workers are still minimal (Malut, 2024).

A similar condition can also be seen in the availability of elementary school (ES) infrastructure, which is evenly distributed in every village on the island even though they have limited facilities. However, this differs from the availability of infrastructure in junior high schools (JHS) and senior high schools (SHS), which are equivalent; on average, they are built in sub-district capitals or villages with dense populations. Even though this island has a relatively small population, they have to cross the sea using traditional transportation to

attend education in the sub-district capital every day. On the other hand, the availability of inter-island transportation services provided by the government is only in the form of pilot transportation to serve remote areas. In contrast, inter-district and short-distance transportation routes are handed over to private parties, which are relatively expensive.

Regional governments need to utilize resources for services in island areas. This is because inter-island transportation services are still under the government's authority through the Port Authority Office and Port Authority, while the provision of marine waste services is not regulated by the regional government.

A similar condition also occurs in the availability of marine waste services in archipelagic areas. Marine debris in North Maluku is related to environmental problems and can threaten maritime transportation activities, resulting in marine transportation accidents. Regional governments even have conflicts in providing marine waste services because the problem of marine waste has not been covered in regional government regulations.

Another example of providing public services is related to clean water services, which are still focused on district capitals on separate islands. For example, in providing clean water services through the Regional Drinking Water Company (PDAM), the Tidore Islands City Government, South Halmahera Government, Morotai Island, Sula Islands Regency, Taliabu Island Regency, and Ternate City are still focused on the islands that are located in the central government. There is also a great need for raw water availability on several islands. For example, Ternate Island and other small islands still experience a deficit yearly, but government resources are limited to anticipating this phenomenon.

*(...) The problem of clean water occurs not only on islands with small populations but also in Ternate City itself; it is a concern that the Akegaale water source has dried up. Even the River Basin Center representing North Maluku estimates that water demand will be a deficit, assuming water demand is 150 liters per person per day, referring to a population of more than 100,000 people. Then in 2030 there will be a water shortage, and these symptoms will begin to be felt, where PDAM services will not be able to serve the entire area.'* (Interview with Pak MI as an environmental activist and observer of island problems in North Maluku).

Based on the analysis's results, the implementation of public services and development in the archipelagic region has not been adapted to its geographical conditions. Regional governments still adhere to land-oriented development patterns in designing services and development, thereby ignoring the archipelago's interests.

#### **4.2. Distribution of services in the island region**

Distribution services and development in the archipelago are still concentrated on the islands, which are the government capitals, and peripheral areas are ignored. That impacts low community participation and government control in providing services and development in the archipelago.

Based on observations, several island-based sub-districts have excellent community health center infrastructure, which was built using Special Allocation Funds (DAK).

However, the health center experiences limitations in providing equipment and health personnel. The government admits that it has a limited budget to provide health equipment. On the other hand, officers are reluctant to be placed in archipelagic areas because they are isolated areas that experience problems with telecommunications networks, clean water, lighting, and difficulties in inter-island transportation.

*(...) in the island region, there are problems in the availability of human resources. If officers were working 24/7, there might not be a problem. However, the problem is that sometimes there is only one health worker on the islands because the others have returned to town, so no one is on-site. As a result, it is difficult for pregnant women to make referrals to hospitals, so the amount of assistance for pregnant women on the island is minimal. That is due to the limited condition of health workers and the geographical condition of the island, which can only be reached by sea transportation.'* (Interview with Mrs. L, an employee of the North Maluku Provincial Health Service, July 20, 2020).

Island areas experiencing backwardness and isolation were also expressed by teachers assigned to island areas. The teachers admitted that working in the archipelago has its challenges because of the difficulty of housing availability, difficulty getting clean water, and limited telecommunications networks and lighting, making it uncomfortable for teachers to live in remote island areas. Thus, the school needs teachers. To meet the teacher shortage, the school uses high school graduates and non-teaching graduates as volunteers to meet student's needs in the teaching and learning process.

Difficulties in inter-island transportation have resulted in low government supervision of service provision and development in small island areas. Based on the findings, health workers and teachers who left work for a long time did not receive a warning because their superiors did not know about it. Based on employee information, this is because school supervisors in South Halmahera Regency rarely supervise schools in island areas; in fact, they only supervise small island areas every year. The relatively high accommodation cost is why school supervisors rarely visit schools in the island region. Meanwhile, the government does not reimburse school supervisors' travel costs for monitoring.

The empirical conditions above show that equal distribution of services and development still prioritizes regions that are the center of government, thus impacting the level of community participation and utilization of government and community monitoring resources. That shows that it is difficult to reach water catchment areas where the government cannot optimize geographical conditions in the provision and development services in the archipelago.

### ***4.3. Service accessibility***

Optimal accessibility of public services is still difficult for the people of North Maluku, an archipelagic country. This is because the service center is still focused on the islands that are the center of government. On the other hand, in an archipelagic region separated by

sea, it is difficult to ensure service coverage between the center of government and peripheral areas.

Data analysis found that service facilities in small island areas, such as health services, education, clean water, and marine waste, still need to be improved. It causes problems for the community in accessing services in the central government area. This condition is also exacerbated by the inter-island transportation system, which only uses sea transportation, requiring extended travel times and higher costs.

One example of the problem is when a birth case requires a referral to a hospital located in the district capital. The journey requires sea transportation, which is expensive and takes longer travel time. Rough sea conditions often hamper the journey, so resigned people decide to use the services of traditional birth attendants. As a result, the maternal and child mortality rates in the North Maluku islands are very high.

*(...) Based on observations, the high maternal and child mortality rate in North Maluku Province is influenced by several things. There are still many people who choose to give birth at home or contact a village birth attendant because of limited health facilities and the difficulty of being on a remote island.* (Interview with Mr. SU as an employee of the North Maluku Provincial Health Service, July 20, 2020).

Another problem can be seen in educational services in the archipelago, which impacts disparities in the quality of education between islands. Based on data from the National Accreditation Board for Schools-Madrasahs (BAN-SM) for North Maluku Province, there are disparities in the quality of schools located on small islands and islands that are the central government. For example, the 2020 accreditation results show that the City of Ternate Islands and the City of Tidore at the elementary and middle school levels, on average, received excellent grades (A and B). However, this differs from the quality of education in South Halmahera Regency, Morotai Island Regency, Sula Islands Regency, and Taliabu Island Regency, which, on average, receive B and C accreditation grades. Although several schools have received A accreditation, these schools are located in the district capital. This condition shows that increasing accessibility to improve the quality of education is still far from expectations.

Difficulties in the inaccessibility of public services are also seen in inter-island transportation services and marine waste management. The two service objects that are directly connected to the sea and the islands are considered bad and greatly affect the safety of the public when crossing between islands. This is because marine debris is not only an environmental problem for the people of North Maluku but also an obstacle to inter-island maritime transportation activities, which impacts maritime transportation accidents.

Based on data from the Ternate City National Search and Rescue Agency (Basarnas) in 2022, maritime transport accidents occur yearly in North Maluku waters. These accidents are caused by the condition of the inter-island fleet, ships unsuitable for operation, and waste factors that affect speed boat activities between islands.

**Table 1:** Maritime transport traffic accidents

Data	Year							Total
	2016	2017	2018	2019	2020	2021	2022	
Number of cases	24	27	16	36	14	30	23	170
Number of victims	231	134	241	304	150	782	441	2,283
The survivors	297	120	216	267	144	762	419	2,135
The victim dies	15	3	3	6	1	1	18	47
The victim is missing	9	11	22	31	5	14	4	96

Source: National Transportation Safety Committee (2022)

The regional government admits that the accessibility of inter-island transportation services and marine waste is not optimal because it does not have the full authority to optimize these two services. Regional government matters relating to the management of inter-island transportation are still under the central government's authority. For example, determining the location and fleet of pioneer vessels is still a subsystem of the national maritime transportation system, so the central government carries out all policies related to services (Berek, Kase and Rozari, 2022). Meanwhile, regional government regulations have not yet regulated waste management matters, so there are often conflicts of authority between regional governments in managing marine waste.

Apart from that, most people in the North Maluku islands still use groundwater (wells). At the same time, water access through the Regional Drinking Water Company (PDAM) is still reserved for the island area, which is the government capital. Several villages still use rainwater or collect drinking water on other islands using traditional boats. This happened in the Bacan and Kayoa Islands (South Halmahera Regency) and the Loloda Islands (North Halmahera Regency).

These empirical conditions show that the rights of island communities in rural areas are still neglected when it comes to accessing public services. Local governments do not have a large administrative capacity to serve all communities spread across small islands, so island communities continue to experience underdevelopment in dis-catchment areas as a form of catchment area failure.

#### 4. Discussion

In decentralized spatial planning, the state uses decentralization to get closer to the community to carry out its functions. However, it is often faced with different geographical conditions when carrying out its functions, requiring a different regional government model to carry out state functions. According to Smith (1985), this is a form of administrative need where the limitations of services and development in an area are caused by geographical conditions, which impact the ineffectiveness of achieving state functions. So, a different structure is needed to maximize state functions. In line with this, the principle of subsidiarity in decentralization places regional governments as the leading institutions that

drive efforts to achieve state goals adjusted to regional capabilities and capacities (Muluk, 2023). Therefore, regional planning must be organized to adapt to the geographical conditions of the archipelago, especially in the North Maluku region. Due to the challenges posed by water catchment areas and the government's limited administrative capacity, optimizing the region's geographical features to improve public services and development is essential (Bakung, Abdussamad and Muhtar, 2022).

These findings are in line with the results of research conducted by Muluk (2019), Rahmatunnisa, Hindersah and Achmad (2018), Madubun, Akib and Jasruddin (2017), and Kotan (2011), which led to an evaluation of decentralization policies in the archipelago that must have different self-government in the form of asymmetric decentralization. Although the proposed asymmetric decentralization in the regions is characterized by islands of resistance to national interests, the practice of asymmetric decentralization in Indonesia tends to originate from the demands of local communities, which threaten the nation's disintegration. So, the government carries out asymmetric decentralization, a policy to embrace areas threatened with disintegration (Djohan, 2010).

However, according to Muluk (2023), concerns about asymmetric decentralization can be overcome by referring to the principles of subsidiarity and decentralization of government to accommodate the potential for regional diversity in meeting regional needs according to regional capacity. Then, asymmetric decentralization is not seen as the opposite of governance. In this context, areas with archipelagic characteristics are given asymmetric decentralization to overcome the water catchment area problems they face while still paying attention to their diversity and uniqueness.

The study results describe that the island regions' public service process experiences a dis-catchment area as a form of catchment area failure where the public service process does not adjust to the geographical conditions of the area, which is characterized by islands. Muluk (2009; 2019) defines the catchment area as the scope of services that public institutions can carry out as service implementers. Distance and complex geographical conditions create public services that are not accessible. Leemans (1970) said that the level of local government administration must be considered when implementing a catchment area. The greater the need for service coverage, the higher the level of government that organizes it, considering the area and boundaries of a local government unit.

The asymmetric decentralization model in regions characterized by islands reconsiders the needs and scope of service units so that service and development needs can be evenly distributed throughout the archipelago. It is in line with the opinion of Leemans (1970), who stated that for service delivery and development in an area to run well, two aspects must be considered. First, the administrative level of local government and service coverage requirements must be considered. Second, it is necessary to determine the area and boundaries of a regional government unit about the scope of services and the number and distribution of the population served.

Meanwhile, according to Smith (1985), encouraging the effectiveness of the boundaries of a region can be done by considering five principles in determining the size of the

government area:

1. The community principle considers the scale of locality, community hierarchies, and the social geography that shapes political boundaries.
2. The principle of efficiency is needed in connection with regional optimization to implement efficiently the responsibilities at each government level.
3. Managerial principle considers the appropriate organizational structure within a decentralization framework to facilitate achieving government goals.
4. Location, geography, and the economy, including climate and topography of natural resources, influence technical factors regarding the optimization of government administration.
5. Social principles are determined based on accommodative considerations without paying attention to administrative reasons.

Norton (1994) also revealed that the determination of regional boundaries is based on at least several considerations, one of which is related to economic efficiency, which includes several things:

1. Travel and communication costs are low.
2. The extent to which regional governments can meet financial, land, and other resource needs from within their regions, thereby minimizing economic dependence.
3. Minimizing externalities' costs originating from other regions.
4. Collaboration and coordination between the services provided should be facilitated.
5. Align areas with private, voluntary, and public agencies and related interests to facilitate cooperation and coordination for the common good and interdependence.

Meanwhile, Muttalib and Khan (1982) revealed that determining regional boundaries in optimizing public services can be done through three approaches:

1. Quantitative standards that include considerations of population size, span of control, and administrative convenience.
2. Physical and socio-economic standards considering the geographical, demographic, economic, and cultural factors. Geographic factors are the most significant consideration in this approach because they influence other factors.
3. Regional standards and services that should take into consideration the limitations of the scope of public services, which are limited by a region's conditions.

Overall, the findings from this case study provide relevant guidance for international jurisdiction in the context of decentralization in specific geographic regions. By adapting policies based on local context, adopting in-depth research methods, and involving various stakeholders, other countries can better address similar challenges and achieve more effective results in implementing decentralization policies.

## 5. Conclusion

The research analysis discusses decentralization, which does not consider the geographical conditions of areas characterized by islands, thus impacting water catchment areas in providing public services and development. That is a condition where local governments need to optimize geographical conditions in providing services and development. The government's inability can be seen from the provision of infrastructure, budget, and public service resources that do not adapt to geographical conditions. Apart from that, equal distribution of public services and development is still focused on the island areas, which are the center of government. In contrast, the outermost island areas are still neglected. So, this impacts the affordability of public services, which are expensive and require significant costs and even have a social impact on island communities.

The provision of services and development in the context of decentralization must adapt to local geographical, social, economic, and cultural conditions, so that regional governments can accommodate each other's potential diversity in their implementation. That is in line with the principle of subsidiarity in decentralization, which makes regional governments the leading institutions in making decisions and implementing state functions tailored to regional needs and capabilities.

Therefore, in the context of this research, it is necessary to organize regions characterized by islands through asymmetric decentralization, considering the level of regional government administration, the need for service coverage and adjusted government unit boundaries, and the geographical conditions of the archipelago. This aims to overcome the problems faced by water catchment areas and consider their diversity and uniqueness. This study offers several policy implications relevant to policymakers in Indonesia and other archipelagic countries. The Indonesian government is expected to:

- Design a more flexible and responsive decentralization policy for the geographical conditions of the archipelagic region.
- Provide additional authority and a more significant budget allocation for the archipelagic region to overcome geographical challenges in public services.
- Build infrastructure that supports inter-island transportation and the distribution of public services in remote areas.
- The findings of this study are also relevant to other archipelagic countries that face similar challenges in managing public services in regions separated by sea, where an asymmetric decentralization approach could be an effective solution.

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