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Key factor driving coastal governance policy in Indonesia from a knowledge-based governance perspective

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ABSTRACT

Coastal governance policies in Indonesia have undergone significant changes over time, influenced by dynamic knowledge development. This study aims to analyze the dynamics of coastal and small island governance policies in Indonesia using a Knowledge-Based Governance approach. The method used was qualitative content analysis of 67 regulations issued by the Indonesian government between 1960 and 2024. The results show that the knowledge gained in coastal zone management comes mostly from reflections on the past and the present. Dialectical learning involving public consultation and discussions among stakeholders is limited and has not been widely implemented. Co-evolution, in which stakeholders, knowledge, and institutions interact dynamically, is a key factor in creating policies that are responsive to environmental challenges. This study suggests that the government strengthen inter-agency coordination and increase the participation of the community and relevant parties in the decision-making process. This is useful for creating policies that are more flexible and adaptive to changes. Therefore, it is important to integrate learning that involves various perspectives to produce policies that are more innovative, comprehensive, and in line with the needs of Indonesia's coastal communities.

Keywords: Coastal governance policy, Knowledge-Based Governance, policy change, community participation, policy adaptation

1. INTRODUCTION

In this era of governance development, governments are required to have *good decision-making* capability. These capabilities are reflected in their efforts to address various issues. In order for decisions to be made accurately, knowledge and ideas play an important role in ensuring appropriate governance (Moyson et al., 2017; Gerlak et al., 2018). In this case, knowledge obtained from local communities, experts, and scientific data about past and future learning plays a crucial role in strengthening the decisions made (Wheeler 2020). The involvement of various actors in the decision-making process can enrich existing perspectives, resulting in more holistic and evidence-based policies (Galdames et al., 2025; Khoiril & Priambodo, 2025; Rozikin et al., 2024). An approach that involves interaction between science and field practice is essential for realizing adaptive and responsive management policies.

Indonesia's coastal areas and small islands play an important role in the lives of the community. Coastal areas and small islands are not only seen as a source of national wealth, but also as instruments that directly affect the community's welfare. Therefore, an appropriate management approach is required to ensure sustainability and wise use. As the largest archipelagic country in the world, Indonesia has significant potential for development. However, Indonesia faces serious threats related to climate change, ecosystem degradation, and environmental damage (Zhao et al., 2024).

In addition, the lives of coastal communities in Indonesia are highly dependent on the sustainability of marine ecosystems, which provide various natural resources, such as fisheries, tourism, and various other marine products (BPS, 2022). Currently, coastal zone management faces various challenges, such as climate change, coastal ecosystem degradation, and environmental sustainability (UNEP, 2021; Bappenas, 2020). In recent decades, Indonesia's coastal areas have faced the risk of natural disasters, which are predicted to worsen as sea levels rise (IPCC 2021). Most of Indonesia's coastal communities still depend on these sectors to meet their daily needs. This shows an imbalance between the natural potential and socioeconomic conditions of coastal communities (Suryanto et al., 2023). Therefore, effective and sustainable coastal zone management is important to preserve marine ecosystems and improve the welfare of the communities living around them.

The government, as a key actor in the administration of public affairs, plays an important role in ensuring that the state is present in every aspect of life. This includes ensuring the welfare of the community and sustainability of coastal areas. The government is fully responsible for creating and managing systems that can address community problems. One of the government's tasks as a regulator is to establish policies, regulations, and laws that serve as guidelines for implementing various tasks and functions of the public sector. Through this, the government provides clear guidelines for public sector organizations to carry out their duties (Haudi, 2021). The established policies are not only a tool for direct implementation but also a foundation for managing public affairs in a more systematic, structured, and relevant manner. In line with Dye's (2017) concept of policy, the government exists to alleviate personal discomfort or social unrest through policy.

Government systems that use conventional principles are considered incapable of overcoming coastal problems. This may be due to the lack of representation of the diverse knowledge that exists in coastal areas and small islands in the management process of MPAs. Furthermore, failure can also be caused by differences in interests, values, and perspectives among the users of the coastal area. The various challenges that exist cannot be resolved by involving local actors alone. Instead, interactions between all stakeholders are required. The more discourse that is generated, the more effective these efforts will be in overcoming problems.

The government's response to this problem is still considered slow, given the extraordinary potential and threats if it is left unchecked. This is related to the government's limited understanding of the problem and the change of power that influences the differences in perspective. The government needs to respond quickly to the needs of the community with the appropriate approach. This can be achieved if there is a good knowledge-acquisition process. *Knowledge-based governance* incorporates knowledge management principles into the governance structures. This governance emphasizes the important role of knowledge as a key resource that strategically supports decision-making (Liu, 2017). The

emphasis on the basic understanding of policymakers will determine the extent to which decisions can be made appropriately (Van Assche, 2021).

This study aims to explore how knowledge-based governance processes can be applied to the management of coastal areas and small islands in Indonesia. This study focuses on the role of the government as the main actor with the authority to make good policy management decisions. Thus, this study is expected to contribute to improving the quality of coastal and small island governance in Indonesia to be more inclusive, responsive, and knowledge-based, which, in turn, can overcome the main challenges faced by Indonesia.

2. Literature Review

2.1 Knowledge-Based Governance: Its Implications for Coastal Policy Governance in Indonesia

Over time, there has been a development in the thinking about governance processes. Organizations must always be dynamic and understand change as a response to the complexity of the issues that arise. Therefore, understanding dynamic governance processes is necessary to address this issue. The concept of Evolutionary Governance emerged as a response to the complexity and uncertainty of constantly changing social and political systems (Van Asscche, 2014). This stems from an evolutionary theory that considers change to be a series of events that occur through various stages, forming a pattern that cannot be predicted in its entirety. Evolutionary governance rejects static and rigid governance structures. Instead, it offers an alternative, flexible governance approach based on learning, knowledge, and social interaction (Van Assche, 2014). Evolutionary governance has several interrelated dimensions that ensure governance flexibility. These dimensions are knowledge, institutions, agencies and power. Of all these dimensions, the highest influence on success is in the aspect of knowledge. Therefore, this study highlights how the knowledge process works in governance.

According to Van Assche (2014), knowledge can be obtained through five ways in governance. This includes learning from experts, past and present reflections, dialectical learning, learning through comparison, and learning through experimentation. These five ways are closely related to the process of the government gaining an understanding of the basis for forming a policy narrative. Knowledge-based governance is a key factor in determining strategic steps. Knowledge-Based Governance (KBG) emphasizes knowledge as an indicator in policy formulation and decision-making processes. In KBG, knowledge is not only a tool to support appropriate decisions but also a reference for organizations to learn and adapt in the face of dynamic social and political changes. Given the complexity of the challenges faced by the government, KBG has become an adaptive and evidence-based approach to address various public issues (Schwella, 2014).

Knowledge-Based Governance emphasizes the importance of collective learning spaces that can be applied by stakeholders in the government system. In this case, knowledge is obtained through interactions between stakeholders, the community, and the private sector, which form the basis of policy formulation. In this case, KBG encourages the government to translate the needs of the community (Nejad et al., 2024; Foss, 2010). The mechanisms of KBG are crucial for ensuring that knowledge is well managed within a network of interacting actors. One important aspect of this mechanism is systematic knowledge management, which allows tacit knowledge (knowledge that is difficult to explain) and explicit knowledge (structured and documented knowledge) to be utilized together in the public decision-making process (Nejad et al. 2024; Zhou et al. 2025).

In the context of coastal governance policy in Indonesia, the Knowledge-Based Governance (KBG) perspective can be the basis for an analysis that reveals structured ways in policy change mechanisms. As an archipelagic country, Indonesia must manage existing knowledge to maintain the sustainability of coastal ecosystems and improve the welfare of communities that depend on the fisheries and tourism sectors (Molen, 2018). Systemic knowledge-based coastal governance policies can bridge the integration of diverse knowledge possessed by stakeholders to produce policies that are more relevant to local conditions. For example, in the management of coastal natural resources such as mangroves, coral

reefs, and mangrove forests, the local knowledge possessed by fishermen and surrounding communities is crucial in determining sustainable ways to utilize these resources without damaging the ecosystem itself. In this case, KBG encourages mechanisms that ensure that local knowledge can be integrated into the policy-making process (Zhou et al., 2025).

Coastal governance practices, including knowledge-based policies, can promote adaptive mechanisms. Efforts to address increasingly dynamic environmental and social issues require strategic measures to facilitate knowledge-based sustainable change. The government, together with all stakeholders, such as the business world and the community, may need to design knowledge-based policies and governance systems that enable knowledge transfer and open dialogue (Giebels et al. 2016). This knowledge-based approach can accommodate various public policy issues while addressing the problems faced by each party (Nejad et al. 2024).

3. METHOD

This study used a qualitative content analysis approach. This method allows for the analysis of the knowledge process in coastal and small-island governance in Indonesia. According to Zhang and Wildemuth (2017), content analysis involves coding or deliberately selecting certain texts whose meanings can be extracted to answer the research objectives. In content analysis, researchers obtain information related to the patterns of change and dynamics of governance related to coastal and small island management in Indonesia.

The data sources in this study are regulatory documents in the form of laws, government regulations in lieu of laws, presidential regulations, ministerial decrees and ministerial regulations. This study examines the policy products issued by the Indonesian government to manage coastal areas. The document search was conducted from the early years when the policy emerged, namely 1960 to 2024, using Knowledge-Based Governance as the main perspective. The following are the steps taken in the content analysis stage:

3.1 Procedure

This study was conducted in several stages. Data analysis was performed using the NVivo 12 Plus software. NVivo is a software for qualitative research data (Whoolf, 2018). Figure 1 shows the stages of data analysis.

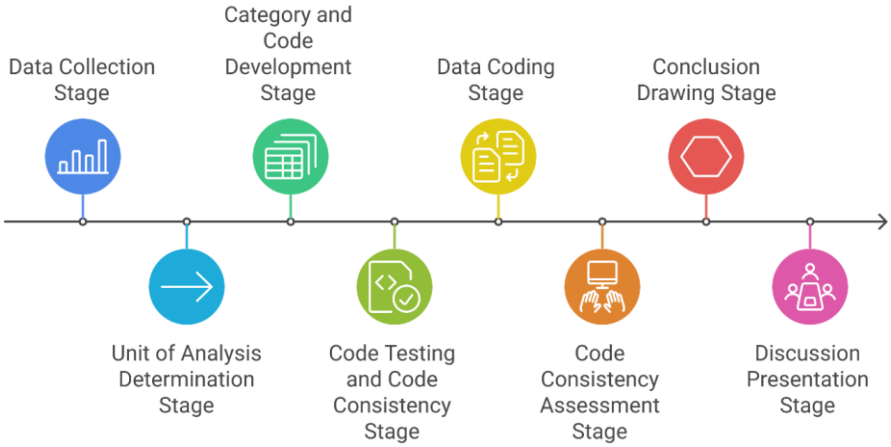

Figure 1. Data Analysis Process

Source: Zhang and Wildemuth (2017)

3.2 Data collection stage

Based on the data collection process, 67 regulations were identified. The researchers selected data in the form of regulations for content analysis that described how government policies on coastal zone and small island management in Indonesia changed.

First, the analysis units were determined. Grouping was performed for each research unit. The analysis units were divided into categories based on the concept of Knowledge-Based Governance. Second, Category and Code Development Stage

The researchers created categories and codes that represented the meanings sought in this study. This was done deductively, that is, coding based on categories that represented each dimension in a theory. In addition, it was also done inductively, that is, the search for categories was not based on categories and codes that had been created from a theory, but was searched for directly without developing categories and codes. The categories in the coding included (see Table 1)

Table 1. Coding Categories

Content Categories	Code
Learning through comparison	"conditions in other regions"; "policies of other countries"
Learning from the past and present	"needs adjustment"; "inadequate"; "not in line with conditions"; "to overcome", "needs to be regulated", "for the sake of improvement"; "for the sake of development"; "for the sake of implementation"; "for the sake of protection"; "no regulations yet"; in order to"; "in order to accelerate"; "in order to strengthen"; "review"; "need to establish"; "need to establish"; "need to reorganize"; "need to revise"; "need technical guidelines"; "need improvement";
Learning from experts	"accreditation"
Learning through experimentation	"pilot demonstrations"
Dialectical learning	"public consultation"; "community involvement"

Source: Methods of acquiring knowledge according to Van Assche (2014). Processed by researchers, (2025)

1. Code testing and code consistency stage
   This testing was conducted on 10 examples of regulatory policies to ensure that the codes used were consistent with the established operational definitions.
2. Data *coding* stage
   The coding process was continued for 57 other regulatory policy texts. Data coding was performed using NVivo 12 Plus. During the coding process, the researcher continuously checked and ensured that the coding was performed carefully to avoid misunderstanding the meaning of the established codes.
3. Code Consistency Assessment Stage
   After all policies were coded, the researchers rechecked the consistency of the coding and grouped the coding results.
4. Drawing Conclusions Stage
   The researcher drew conclusions from this coded data. This process involved understanding the identified themes or categories. At this stage, the researcher drew conclusions and presented a reconstruction of the meaning obtained from the data.
5. Discussion Presentation Stage
   The researcher writes down the findings to be discussed.

4. RESULT AND DISCUSION

Based on the processed data, of the total 67 regulations reviewed, 66 regulations show how the government obtains knowledge in the policy-making process, while 1 regulation does not explain how knowledge is obtained. This knowledge is obtained through three learning mechanisms, with 1 regulation showing several ways of obtaining knowledge. For example, in Minister of Marine Affairs and Fisheries Regulation No. 18 of 2018, there are codes for learning from experts, experiments, and reflections on the past and present. Two regulations show knowledge acquisition through two mechanisms: dialectical learning and learning from past and present reflections. The two regulations are Minister of Marine Affairs and Fisheries Regulation No. 17 of 2008 and Minister of Marine Affairs and Fisheries Regulation No. 23 of 2016, respectively. In dialectical learning, there are four regulations covering a single regulation (without coding in other coding variables) and three other regulations that *are double-coded* in "learning from the past and present." Meanwhile, in the past and present learning code, there are 60 single regulations and four regulations that are also coded in other coding variables.

Table 2. Knowledge Sources

Name	Description	Reference
Learning from experts	The process of organizing and integrating new information with existing knowledge into a specific framework of understanding involving experts in coastal areas and small islands.	1
Accreditation	The government strives to improve the quality and evaluate coastal and small island management programs.	1
Learning through experimentation	Learning through experimentation with new approaches, perspectives, and methods	1
Demonstration pilot projects	Governments learn through pilot projects that are used as a basis for policy-making or policy experimentation.	1
Dialectical learning	Learning is carried out through deliberation, discussion, confrontation, and debate involving the community.	4
Public consultation	Learning is conducted through public consultation to obtain input from relevant ministries/agencies/institutions, regional councils, relevant government agencies, universities, NGOs, community organizations, the general public, the business world, and key stakeholders.	1
Community involvement	Learning is carried out by involving community aspirations and deliberations.	3
Learning through reflection on the past and present	Learning is carried out by examining past experiences to understand how those events have influenced current conditions or decisions.	64
Evaluation	The government learns from evaluations of coastal and small island management.	26
Regulations are needed	The government learns from the evaluation of coastal and small island management, which indicates the need for regulations in the form of regulations.	3
Technical guidelines are needed	Lessons learned from coastal and small island management indicate the need for technical guidelines to implement policies.	3
Control is needed	There are lessons to be learned from the use of coastal areas and small islands, which require control to ensure sustainability, integrated management, and protection.	1
Needs to be reviewed	There are developments and efforts that must be carried out in a coordinated manner, thus requiring a review of previous regulations.	2
Not in line with conditions	There are lessons learned from previous regulations that are no longer relevant to developments and community needs.	5

For the sake of protection	Lessons learned for the protection of ecosystems and communities in coastal areas and small islands.	18
In the context of improvement	There are lessons learned to improve the current situation for better management of coastal areas and small islands.	3
In the context of structuring	There is a need for learning about the management of coastal and small island boundaries.	2
In the context of implementation	There is a need for learning to implement synergy between the central and regional governments in relation to the management of coastal areas and small islands.	1
In the context of development	There is a learning process to build integrated marine centers and make better efforts for coastal communities and small islands.	1

No	Name of Regulation	Learning reflection past and present	Learning from experts	Learning from experiments	Dialectical learning
1	Presidential Instruction 002-2002	✓	-	-	-
2	Director General Decision 015-2023	✓	-	-	-
3	Director General Letter 065-2023	✓	-	-	-
4	Director General Decision 066-2023	✓	-	-	-
5	Director General Decision 069-2023	✓	-	-	-
6	Director General Decision 076-2023	✓	-	-	-
7	Decision of the Minister of Maritime Affairs and Fisheries 005-2016	✓	-	-	-
8	Decision of the Minister of Maritime Affairs and Fisheries No. 006-2016	✓	-	-	-
9	Decision of the Minister of Maritime Affairs and Fisheries 015-2006	✓	-	-	-
10	Decision of the Minister of Marine Affairs and Fisheries 021-2001	✓	-	-	-
11	Decision of the Minister of Maritime Affairs and Fisheries No. 023-2005	✓	-	-	-
12	Decision of the Minister of Maritime Affairs and Fisheries No. 029-2012	✓	-	-	-
13	Decision of the Minister of Maritime Affairs and Fisheries No. 033-2014	✓	-	-	-
14	Decision of the Minister of Marine Affairs and Fisheries 041-2000	✓	-	-	-
15	Decision of the Minister of Marine Affairs and Fisheries 050-2016	✓	-	-	-
16	Decision of the Minister of Marine Affairs and Fisheries 050-2019	✓	-	-	-

17	Decision of the Minister of Marine Affairs and Fisheries 051-2019	✓	-	-	-
18	Decision of the Minister of Marine Affairs and Fisheries 052-2019	✓	-	-	-
19	Decision of the Minister of Marine Affairs and Fisheries No. 053-2019	✓	-	-	-
20	Decision of the Minister of Marine Affairs and Fisheries No. 054-2019	✓	-	-	-
21	Decision of the Minister of Marine Affairs and Fisheries 065-2020	✓	-	-	-
22	Decision of the Minister of Marine Affairs and Fisheries 068-2020	✓	-	-	-
23	Decision of the Minister of Marine Affairs and Fisheries No. 076-2020	✓	-	-	-
24	Decision of the Minister of Marine Affairs and Fisheries No. 077-2020	✓	-	-	-
25	Decision of the Minister of Marine Affairs and Fisheries No. 086-2020	✓	-	-	-
26	Decision of the Minister of Marine Affairs and Fisheries 087-2016	✓	-	-	-
27	Decision of the Minister of Marine Affairs and Fisheries 087-2020	✓	-	-	-
28	Decision of the Minister of Marine Affairs and Fisheries 090-2020	✓	-	-	-
29	Decision of the Minister of Marine Affairs and Fisheries 091-2020	✓	-	-	-
30	Decision of the Minister of Marine Affairs and Fisheries 092-2020	✓	-	-	-
31	Decision of the Minister of Marine Affairs and Fisheries No. 093-2020	✓	-	-	-
32	Presidential Decree 006-2017	✓	-	-	-
33	Presidential Decree 355-1999	✓	-	-	-
34	Minister of Marine Affairs and Fisheries Regulation 001-2016	✓	-	-	-
35	Ministry of Finance Regulation No. 003-2018	✓	-	-	-
36	Minister of Maritime Affairs Regulation No. 008-2009	✓	-	-	-
37	Ministry of Finance Regulation No. 008-2018	✓	-	-	-
38	Minister of Marine Affairs and Fisheries Regulation No. 010-2024	✓	-	-	-
39	Minister of Marine Affairs and Fisheries Regulation 012-2013	✓	-	-	-

40	Ministry of Marine Affairs and Fisheries Regulation No. 012-2024	✓	-	-	-
41	Ministry of Finance Regulation No. 016 of 2008	✓	-	-	-
42	Minister of Maritime Affairs Regulation No. 017-2008	✓	-	-	✓
43	Ministry of Marine Affairs and Fisheries Regulation 017-2013	✓	-	-	-
44	Ministry of Maritime Affairs Regulation 018-2008	✓	✓	✓	
45	Ministerial Regulation No. 023 of 2016	✓	-	-	✓
46	Ministerial Regulation No. 024 of 2016	✓	-	-	-
47	Ministerial Regulation KP 028-2014	✓	-	-	-
48	Ministry of Marine Affairs and Fisheries Regulation No. 028-2020	✓	-	-	-
49	Ministry of Finance Regulation No. 033 of 2020	✓	-	-	-
50	Minister of Maritime Affairs and Fisheries Regulation No. 034-2014	✓	-	-	-
51	Minister of Marine Affairs and Fisheries Regulation No. 040-2014	✓	-	-	-
52	Presidential Regulation 003-2012	✓			✓
53	Presidential Regulation 013-2012	✓	-	-	-
54	Presidential Regulation No. 028 of 2012	✓	-	-	-
55	Presidential Regulation 057-2014	✓	-	-	-
56	Presidential Regulation 072-2023	✓	-	-	-
57	Presidential Regulation No. 073 of 2015	✓	-	-	-
58	Presidential Regulation No. 078 of 2005	✓	-	-	-
59	Presidential Regulation 088-2011	✓	-	-	-
60	Presidential Regulation 121-2012	✓	-	-	-
61	Presidential Regulation No. 122 of 2012	✓	-	-	-
62	Government Regulation 062-2010	-			✓
63	PP 064-2010	✓	-	-	-
64	Law 001-2014	✓	-	-	-
65	Law 005-1960	✓	-	-	-
66	Law 027-2007	✓	-	-	-
67	Law 032-2004	✓	-	-	-

Source: Compiled by researchers (2025)

Lessons learned from experts can be identified through several aspects, one of which is their accreditation. An example can be found in the "program accreditation" code, which aims to ensure the integrated and sustainable management of coastal areas and small islands. This policy serves as an important guideline for the government and other stakeholders to implement effective and consistent management. The implementation of this policy can be seen in the Minister of Marine Affairs and Fisheries Regulation No. 18 of 2008 concerning the Accreditation of Coastal Zone and Small Island Management Programs, which officially establishes standards, procedures, and evaluation mechanisms for related

programs. With this policy in place, it is hoped that the process of learning from experience and best practices can be applied systematically, thereby supporting the sustainability and improvement of coastal zone and small island management in Indonesia.

In learning through experimentation, as indicated in the code "Demonstration Pilot Program," this shows that the government conducts experiments by appointing pilot areas for program implementation and accreditation. In this case, it relates to the implementation of the PWP-3-K (Coastal Zone and Small Island Management) program accreditation process. This is stated in Minister of Marine Affairs and Fisheries Regulation No. 18 of 2008, concerning the Accreditation of Coastal Zone and Small Island Management Programs.

In dialectical learning, four codes were generated, one example of which is the coding of "public consultation." This approach allows interaction between various parties to provide input before the policies are implemented. Public consultation helps the government understand various perspectives before formulating specific regulations and policies. This coding is stated in Article 12 of Minister of Marine Affairs and Fisheries Regulation No. 23 of 2016 concerning Coastal Zone and Small Islands Management Planning.

Learning through reflection on the past and present resulted in 11 codes that reflect the evaluation of previous and current policies, thereby encouraging the government to formulate new policies. One example can be found in the Regulation of the Minister of Marine Affairs and Fisheries No. 12 of 2024, which contains an evaluation of the role and empowerment of the community in PWP-3-K. This evaluation shows that previous implementations are no longer in line with current developments and emphasizes the need for more active community participation in coastal-management. The results of this evaluation prompted regulatory changes to improve the effectiveness of the policies implemented.
However, one regulation has not undergone any changes in terms of knowledge. An example is the Presidential Decree of the Republic of Indonesia No. 355 of 1999. In its preamble, this regulation does not explicitly explain the background knowledge underlying its creation. However, the formation of the National Unity Cabinet became the basis for establishing Indonesia's first maritime and fisheries department, the Department of Marine Exploration.

Based on these data, it can be concluded that policy changes are more influenced by a learning process through reflection on past experiences and adjustments to current conditions. The mapping of regulations related to this can be seen in the following illustration.

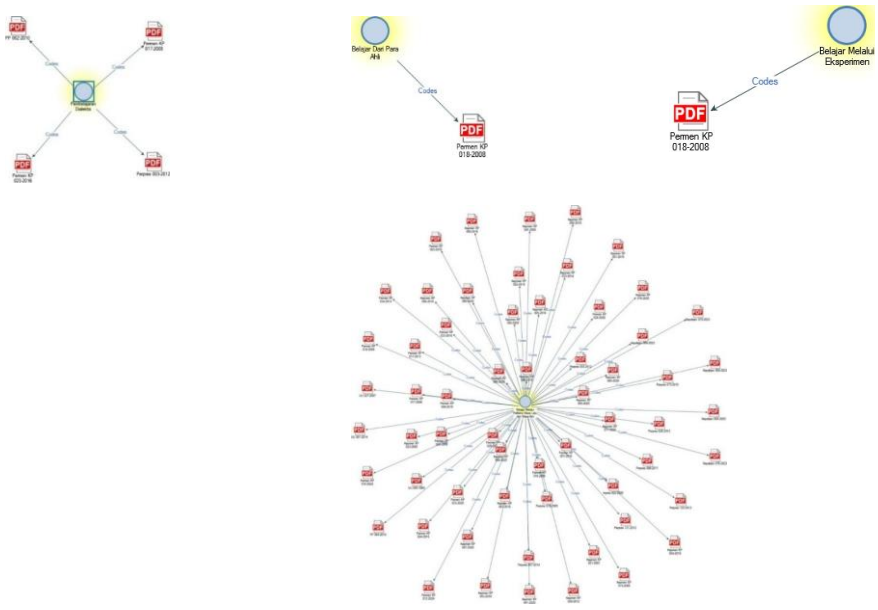

Figure 3. Mapping Results Using NVivo

Source: Processed by the researcher, (2025)

4.1 Discursive Knowledge in the Dynamization of Coastal Zone and Small Island Management Policy in Indonesia

The evolutionary process of governance policy is driven by changes in knowledge. Based on the mapping results, knowledge of the Coastal Zone and Small Islands Management policy is dominated by learning through reflection on the past and present. This indicates a shift from a reactive to a reflective policy. Knowledge has become a key factor in governance policy strategies. *Knowledge-based governance* explains that local and formal knowledge can interact in complex ways. In some cases, local knowledge can provide valuable insights that are not always recognized by more structured formal knowledge (Assche et al., 2014; Beunen R et al., 2014; Van Assche et al., 2022). However, a *top-down* approach to knowledge dissemination often limits the mutually beneficial exchange of ideas between local and formal knowledge.

In mapping the PWP-3K policy in Indonesia, several differences in knowledge acquisition were identified. Among them, only one regulation indicated a process of learning from experts and experimentation, four regulations indicated dialectical learning, and the other policies indicated that knowledge was acquired from reflections on the past and present. The emergence of the PWP-3K policy was triggered by political turmoil at the time, which necessitated regulations on marine spatial planning. Another factor was the desire to improve based on the evaluation results.

This learning process continues to evolve with developments in Indonesia. It began with the establishment of the Department of Marine Exploration, which brought a breath of fresh air to coastal management systems. Although the process has fluctuated, several policies have shifted their focus from being solely oriented towards territorial boundaries to resource utilization and sustainable conservation efforts. Not only that, as the learning process develops, it also involves other combinations. This process is not limited to learning based on reflections on the past and present. Instead, it involves experts contributing their thoughts on the right ideas for PWP-3K.

Furthermore, the government also had *a pilot project* marked by a change in the governance model from around 2000 to 2004. The term *Coastal Resource Management Project* was introduced as a representation of learning through experimentation/piloting. This project was implemented in 45 districts in 15 provinces in Indonesia. The focus was on promoting sustainable management as a means of improving the quality of the environment and socio-economic conditions in the region within the framework of decentralization. During this period, the community was at the forefront of policy-making. The goal was to foster independence and a strong sense of ownership among the community. Through this, the government also began to engage in the discursive process through dialectical learning. However, in practice, this dialectical learning process was not carried out on a large scale.

Overall, the dialectical learning process became one of the strongest dimensions in the knowledge process. Dialectical learning centers on the confrontation of various perspectives, ideas, or insights through discussion and deliberation (Van Assche et al., 2022). This is related to a system or network of governance consisting of various elements (actors, ideas, perspectives, organizations, and institutions). The following is an ideal representation of this relationship when linked to the learning process.

Figure 4. How should knowledge be obtained for policy making?

Source: Van Assche et al., 2022

Based on the Figure 4, ideally all types of learning should be driven by reflexivity in governance. The quality of governance is highly dependent on dialectical learning. If other forms of learning are not integrated into dialectical learning, the quality of decisions will be lower and the adaptive capacity of the system will be less than optimal (Van Assche et al., 2022). Meanwhile, findings show that not all policies issued are based on dialectical learning. Therefore, it can be assessed that learning that only focuses on reflecting on the past and present tends to lead to policies that only evaluate and adapt existing policies. This is without considering new input or perspectives from various stakeholders. Although this reflection is important, if it is not combined with dialectical learning that involves debate, public consultation, and diverse perspectives, the decisions made may only reflect limited thinking.

Knowledge-based governance includes principles related to the ability to adapt to the environment and constantly changing dynamics. This can be achieved through various learning mechanisms. As a process of acquiring knowledge, the best learning process is one that involves a dialectical process. If the learning process is dominated only by reflections on the past and present, then a system's adaptive capacity to manage issues and problems may be reduced. This results in Indonesia's coastal and small island governance systems becoming stuck in static and inflexible patterns. Ultimately, the policies issued become less relevant and even inadequate to address existing problems.

In the dialectical learning process, various debates take place. These debates involve various parties, including the government, local communities, academics, experts, and other private sectors. This will result in a comprehensive understanding from various backgrounds to produce the best ideas among good ideas. The main objective of this process is to gather comprehensive narratives from various sectors (Van Assche et al., 2020). If these interactions are ignored, the resulting policies may not cover all the needs of various lines. Thus, the potential for more effective and solution-oriented innovation is difficult to achieve. This results in coastal and small island management policies that are inefficient, unresponsive, and ineffective in solving problems.

It can be concluded that, in order to achieve adaptive and proactive coastal policies, the government needs to pay attention to the dialectical process, which has been lacking. This can be achieved through good coordination between institutions and actors. This dialectical process is capable of responding to the complex dynamics that occur in the management of coasts and small islands in Indonesia.

5. CONCLUSION

Based on an analysis of coastal governance policies in Indonesia, it was found that the dynamics of these policies are greatly influenced by the knowledge of policy makers obtained through various learning mechanisms. The knowledge process will determine the policy narrative in the decision-making mechanism. This process includes learning from past experiences, public consultations, experimental learning, and the involvement of experts and the community. Most policies rely on the process of acquiring knowledge from reflections on the past and evaluations of previous policies to improve the effectiveness of coastal zone management. However, dialectical learning, which involves debates and discussions involving various parties, is still lacking. This is an important aspect in improving the adaptive capacity of policies.

The results of the study show that a knowledge-based governance approach allows for a better understanding of the relationship between actors, knowledge, and institutions in the policy-making process. The process of various actors adapting and learning together is very important for creating policies that are more responsive to the ever-changing dynamics of the environment. In the management of coastal areas and small islands in Indonesia, active participation from various stakeholders must still be considered. Active participation from stakeholders can be realized through dialectical learning, which is still lacking in the Indonesian government. In dialectical learning, various statements will emerge to bring out the best ideas in an effective and adaptive decision-making process.

Although there have been efforts to develop more adaptive policies through pilot projects and accreditation, there are still major challenges in facilitating collaboration between the institutions and

actors involved. Therefore, more flexible policies based on discussions and input from various parties must be strengthened to overcome the challenges of coastal management in Indonesia. The government needs to be more proactive in integrating dialectical learning to strengthen the adaptive capacity of the governance system and ensure that the resulting policies are able to face future challenges.

Ethical Approval
This research does not require ethical approval.

Informed Consent Statement
This research does not require informed consent.

Author Contributions
ENNL contributed to original draft writing, conceptualization, and methodology. DS contributed to data validation and review. AHSN contributed to curated and wrote the data review and editing. YRH contributed to original draft writing and visualization. MIM contributed to original draft writing and formal analysis

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