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Policy Paper

Impact Analysis of Strategic Policy of Natural Resources and Environment in the Indonesian Long-term Development Plan of 2005—2025

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ABSTRACT

The policy implementation under the Indonesian Long-term Development Plan (RPJPN) for the 2005-2025 period is currently in the final stage. It is thus necessary to evaluate the development and impacts of the strategic policy implementation in the area of Natural Resources and the Environment (NR&E). This paper attempted to evaluate the area of NR&E within the RPJPN of 2005—2025. It focused on identifying people's perceptions about the impacts of the strategic policy implementation in NR&E. The data were collected through a survey targeting all regions of Indonesia and analysed using the importance-Performance Analysis (IPA) method. The results of the analysis showed that strategic policy implementation in NR&E was rated as having a fairly good impact. It was indicated by an average aggregate impact indicator score of 3.61 on a Likert scale of 1—5. With regard to the impacts on the aspects of development, the strategic policies of NR&E had a relatively high impact on economic growth, food security, and energy security. However, the impacts on job creation and reduction of poverty were relatively lower. There is an indication that strategic policies in NR&E tend to be biased as they favour capital owners.

Keywords: Impact Evaluation; Natural Resources and Environment; Policy Evaluation of Indonesia; Importance-Performance Analysis

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1. Introduction

The Indonesian Long-term Development Plan of 2005—2025 (RPJPN of 2005—2025) covers nine areas of development, including the area of Natural Resources and Environment (NR&E) (Rencana Pembangunan Jangka Panjang Nasional Tahun 2005-2025, 2007). Natural resources play an important role in Indonesia's development as a base for economic growth and a source of foreign exchange and development capital. Natural resources are still the main source of economic growth in many regions of Indonesia, especially in provinces with rich natural resources.

Despite the significant role of natural resources as an engine of development, their high utilisation has been affecting environmental conditions. Cases of environmental damage in Indonesia have increased due to the high frequency of the use of natural resources. The records of Badan Nasional Penanggulangan Bencana (BNPB, n.d.)[1] showed that natural disasters in Indonesia increased significantly from 928 cases in 2008 to 5.402 cases in 2021, including floods, landslides, and forest and land fires. The advancement of transportation and industrialisation that is still dominated by the use of fossil energy with little clean technology application has resulted in water pollution and air pollution that substantially damages the environment. Environmental damages due to deforestation and land use conversion also occur in many other regions of Indonesia as they lower the quality of forests and land as life support systems.

Efforts to manage natural resources should be based on the principle of prudence for both renewable as well as non-renewable natural resources. Strategic policies regarding the utilisation of resources have become an important component in development planning, which allow the existing natural resources to be utilised in a sustainable way. NR&E should be maintained to avoid unnecessary degradation and depletion.

The implementation of strategic policies under the RPJPN of 2005-2025 is currently in the final stage. It is thus necessary to evaluate the development and impacts of these strategic policies within the area of Natural Resources and the Environment (NR&E). This paper provides an evaluation of the area of NR&E within the RPJPN of 2005-2025. It focused on assessing the impacts of the strategic policy implementation based on the perceptions of the Indonesian people, which are instrumental as the input for policy formulation in the next planning period.

2. Methodology

2.1 Framework

The framework of the evaluation was constructed based on Figure 1. Strategic policies in the Area of Development of NR&E contain five policy dimensions and policy indicators. The policy dimensions include (B1) Disaster Resilience and Climate Change, (B2) Food Availability and Consumption, (B3) Energy Sovereignty, (B4) Maritime and Marine Resources, and (B5) Environment and Forestry. There are several policy indicators in each policy dimension.

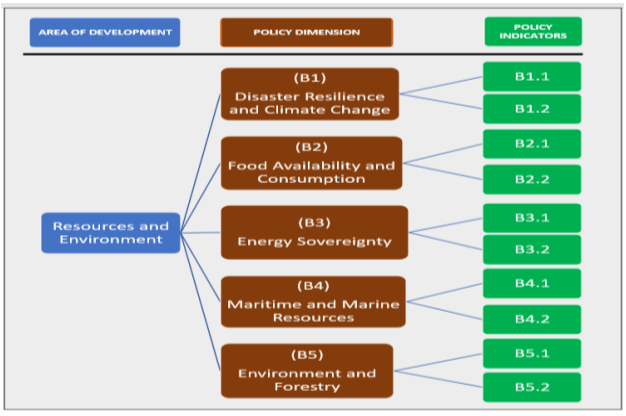

Figure 1. Policy Framework for Impact Evaluation

[1] Info Bencana (Monthly disaster information) published by BNPB (National Disaster Management Agency) since January 2013

2.2 Data

The data used in the analysis were the primary data collected from the survey. Questionnaires were employed to identify Indonesian people's perceptions about the degree of importance and performance of the strategic policy impacts on NR&E. Questionnaires were developed through several Focused Group of Discussions using the framework presented in Figure 1.

Perceptions about the degree of importance and impacts on various indicators were measured using the Likert Scale scores ranging from 1 to 5. The scoring criteria in measuring the degree of importance were as follows: 1= very unimportant, 2= not important, 3 = quite important, 4 = important, and 5 = very important, whereas the scores for the perceptions about the performance impacts were: 1= very low, 2= rather low, 3= quite high, 4= high, and 5=very high.

The survey was conducted in October 2021 in three regions: Western Indonesia, Central Indonesia, and Eastern Indonesia. There was a total of 164 respondents selected purposively. The criteria for the inclusion of respondents to the research were at least 35 years old and belonging to the productive age category at the beginning of the implementation period of the 2005-2025 RPJPN. These criteria were determined based on a consideration that the samples could experience and assess the impacts of the development during the 2005-2025 RPJPN period. All of the respondents had given complete responses to the questionnaires.

2.3 Measurement Technique

Measurement of the level of importance and the impacts of strategic policies are useful in the field of NR&E. Strategic policies were implemented based on the framework in Figure 1 and the scores obtained from the survey. The survey directly measured the score of each policy indicator. The measurement was then aggregated for every policy dimension and strategic policy of the area of development in NR&E.

The Policy Indicator Score is the average score given by all respondents. In addition, a policy dimension score is defined as the average score of all indicators in the dimension. At the aggregate level, the strategic policies of NR&E's scores are the average scores of the five policy dimensions.

2.4 Analysis Technique

The analysis mainly adopted quantitative descriptive methods, especially in assessing the level of impact of every policy dimension as well as its indicators. More specifically, the analysis was conducted by descriptively comparing the mean values of impact levels among policy dimensions and policy indicators.

Additionally, the Important-Performance Analysis (IPA) technique was utilised to place policy dimensions or the indicators in four quadrant areas, following the method developed by Martilla & James (1977) that was also applied by Ferreiraa (2015); Warner et al. (2016); and Zhao et al. (2021) in their research. The analysis discussion was focused on indicators with a high level of importance, providing an indication of priorities for policy preparation in the future.

3. Results and Discussions

3.1 Assessment of the Impacts of Strategic Policies by Dimensions

Overall, strategic policies in NR&E were rated as having a fairly good impact. This was indicated by an average aggregate impact indicator score of 3.61 on a Likert scale of 1-5 (Table 1). The score of each strategic policy dimension was also in a fairly good range. Strategic policies on the Dimension of Disaster Resilience and Climate Change were considered to have the highest impact with a score of 3.75, while the impact of the Forestry Environment dimension was the lowest with a score of 3.43.

Table 1: Impact Score by Dimensions of Strategic Policy

Strategic Policy Dimensions	Score*)
B1. Disaster Resilience and Climate Change	3.75
B2. Food Availability and Consumption	3.64
B3. Energy Sovereignty	3.60
B4. Maritime and Marine	3.65
B5. Environment and Forestry	3.43
Average Score	**3.61**

Source: Ministry of National Development Planning / Bappenas, 2021
(Impact Evaluation Survey of RPJPN Strategic Policy 2005—2025)

A high score in disaster resilience and climate change seems inseparable from the government's strategic policy position in handling it. In the Medium-Term Development Plan (RPJMN) of 2020-2024, the government placed disaster and climate resilience improvement programs as one of the national priorities in development. Strategic policies were perceived to be highly appropriate because Indonesia is in the category of countries with high levels of disaster risk. The level of exposure and vulnerability to disasters were quite high, especially disasters related to natural volcanic activity and hydrometeorology.

Over the past 10 years, incidents and intensity of natural disasters in Indonesia have tended to increase. Economic losses due to the effects of climate change were estimated to reach Rp115 trillion by 2024.[2] Consideration of these high risks had encouraged the Indonesian government to develop a nationally determined contribution roadmap as a commitment at the global level.

National priorities on climate change were made through three programs: improving environmental quality, disaster resilience and climate change, and low carbon development planning. To realise them requires a large amount of money. In an optimistic scenario, the total financing estimate is US$ 446.5 billion (34.6% of GDP for the period 2020-2024) or equivalent to US$ 21.9 billion per year. The need for funding is predicted to be greater because Indonesia plans to achieve Net Zero emissions by 2060 or sooner.[3]

3.2 Assessment of the Strategic Policy Impacts on Aspects of Development

Natural Resources and the Environment (NR&E) are important and strategic capitals that have an influence on various aspects of national development as a whole. There are eight strategic aspects of development in the RPJPN of 2005-2025, namely Food and Agricultural Security (Code C1 in the survey), Energy Security (C2), Disaster Resilience and Climate Change (C3), Environmental Quality and Forestry Management (C4), Economic Growth (C5), Equitable Development (C6), Poverty Reduction (C7), and Job Creation (C8).

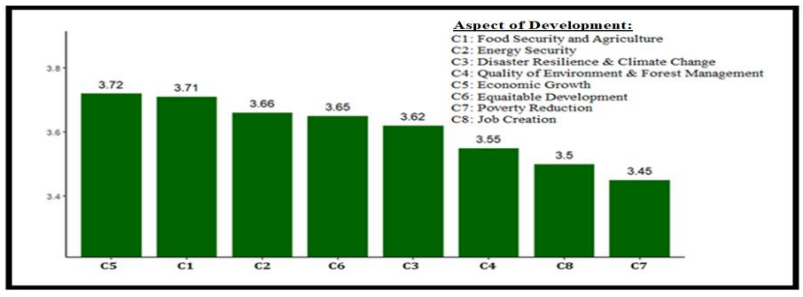

Figure 2. Impact Score of Strategic Policy in NR&E on Every aspect of Development

[2] Estimated by Bappenas (2021)

[3] Speaking at COP26, Minister of Energy and Mineral Resources, Republic of Indonesia Gives Indonesia's Commitment to Net Zero Emission. (PRESS RELEASE NUMBER: 389.Pers/04/SJI/2021 Date: 2 November 2021)

An assessment of the impacts of the strategic policy usefulness in NR&E in the 2005-2025 RPJPN on each aspect of development over the past 20 years (until 2021) is depicted in Figure 2. The strategic policies in NR&E were considered to have considerably good impacts on all aspects of development, with the lowest score of 3.45 and the highest score of 3.72. Figure 2 shows that such strategic policies have provided relatively large impacts/benefits on economic growth (C5), food security (C1), and energy security (C2). However, its impacts on job creation (C8) and reduction of poverty (C7) were relatively low.

The results of this assessment confirmed that Indonesia's economic growth is still dependent on natural resources. The high impact scores on economic growth and low scores on job creation and poverty reduction indicate a misalignment between economic growth and job creation as well as poverty alleviation. This fact implies that the strategic policies in NR&E tend to prefer investors/capital owners rather than the communities. This shows that the management of natural resources and the environment carried out by the government was perceived to be non-optimal by the public. Such misalignments will become strategic issues in the future that the government should be aware of and deal with. There have to be policies that provide wider access for the community in the management and utilisation of natural resources for the improvement of their welfare.

Strategic policies in NR&E have provided a significant contribution to the acceleration of economic growth, food security, and energy. However, there is an imbalanced trade-off between economic activities and the environment. Management and utilisation of natural resources in some areas have been conducted in an unsustainable manner, resulting in deforestation of natural forests, over-exploitation of coastal and marine resources, as well as the high conversion of agricultural lands.

Over-exploitation of the forest is still occurring until a recent period. Forest Watch Indonesia (FWI, 2021) showed that the area of natural forests in Indonesia continues to decline from year to year. In 2000, there were about 106 million hectares of natural forest in Indonesia. This number declined to 82 million hectares in 2017. Even though deforestation still occurs today, the rate of deforestation has been significantly decreasing (Kementerian Lingkungan Hidup dan Kehutanan [KLHK], 2021).

Mulyani et al. (2016) conducted land conversion research in nine central rice-producing provinces using Landsat imageries and Google Earth's IKONOS, Quickbird-2, and Worldview with 8 to 12 years differences. The research found that the national conversion rate is estimated at 96,512 ha per year. The conversion rate is alarming. Without significant measures to safeguard the existing paddy fields and develop new paddy fields, Indonesian food security will be at risk.

The use of environmentally-friendly energy is also still a serious challenge in developing natural resources and the environment in some regions, partially due to a lack of human resources capability and access to technology. In the future, the government needs to implement natural resources management policies based on the ecosystem approach to prevent the occurrence of non-optimal management practices.

3.3 Assessment of the Strategic Policies Impacts by Region

The impacts of the strategic policies on NR&E during the RPJPN of 2005-2025 in all regions were deemed fairly good with scores between 3 and 4. There were no significant differences between the impacts perceived by the respondents in western and central Indonesia, with rating scores of 3.62 and 3.61, respectively. However, the respondents in the Eastern Region of Indonesia rated the impacts of the strategic policies of NR&E with a lower score of 3.37. (Figure 3)

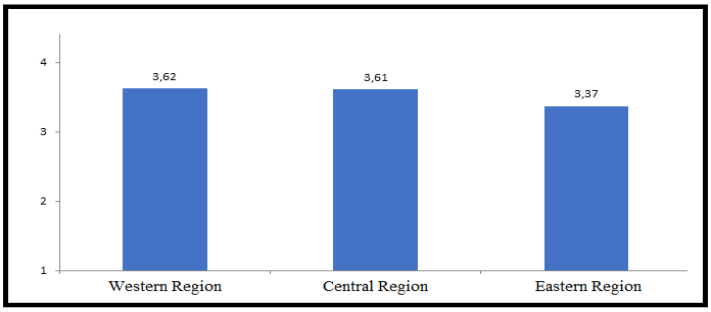

Figure 3. Assessment of Impact Policy Performance by Region of Indonesia

It is suspected that there are some unsolved problems related to the use of natural resources and the environment in the eastern part of Indonesia. It seems that the utilisation of abundant natural resources has provided little benefit to residents, mainly due to limited access. The attempts to utilise natural resources are still constrained by the problems of poverty, infrastructure development, isolation, and unemployment. Connectivity factors that are still low, especially in eastern Indonesia, become obstacles that hinder people from managing and utilising natural resources optimally. The development of adequate infrastructure and increased accessibility of people in eastern Indonesia are urgent and strategic.

3.4 Importance-Performance Analysis of Strategic Policy in NR&E

Evaluation of strategic policies in NR&E in RPJPN of 2020-2025 is essential as reference material in policy formulation for the next planning period. Not only is it important to evaluate the benefits of policies, but it is also necessary to evaluate the importance level of various dimensions of the policy and its indicators. Integrating analysis of the impact performance and the importance level of the policy dimensions and their indicators will provide information about the position of policy dimensions/indicators in four quadrant categories: Quadrant I (Top-Right): Important–High Performance, Quadrant II (Bottom-Right): Not Important–High Performance, Quadrant III (Bottom-Left): Not Important – Low Performance, and Quadrant IV (Top-Left): Important–Low Performance. Mapping the position of policy dimensions/indicators becomes an important reference in formulating upcoming policies.

a. Importance Performance Analysis (IPA) on the Policy Dimensions

There are five policy dimensions in the strategic policies of NR&E in RPJPN 2005-2025 (Figure 4). All the five Policy Dimensions were rated as important to very important (with scores ranging from 4 to 5), although the Energy Security Dimension (code B3) received the lowest rating. On the impact performance side, the assessments of the five dimensions discovered more variation in performance levels, with scores ranging from 3.43 to 4.75.

Disaster and Climate Resilience (B1) and Food Availability and Consumption (B2) are two policy dimensions considered highly important. Both dimensions of the policies also have high impact performance; hence, the two policy dimensions need to be included in the future development period. Meanwhile, although the dimensions of Environment and Forestry are also considered very important, it has relatively low impact performance (Figure 4). Some policy improvements are needed to enhance a more positive impact.

The survey results showed that the public has high awareness that the country is facing a high level of disaster insecurity. The public pays a considerably large attention to the policy dimensions related to disasters and climate change. The policy dimensions of disaster resilience and climate change are related to data, information, and facilities for rapid response in disaster management, as well as mitigation and adaptation efforts to minimise the impacts of climate change by lowering greenhouse gases.

The increasing threat of climate change in the future should be a collective concern of the government and communities. Measures to reduce greenhouse gas (GHG) emissions through the establishment of national targets for GHG reduction (National Determine Contribution) in various fields need to be continued. Similarly, mitigation efforts, especially against potential natural disasters, have to be reinforced by the Indonesian government through relevant ministries and institutions to minimise the negative impacts of disasters.

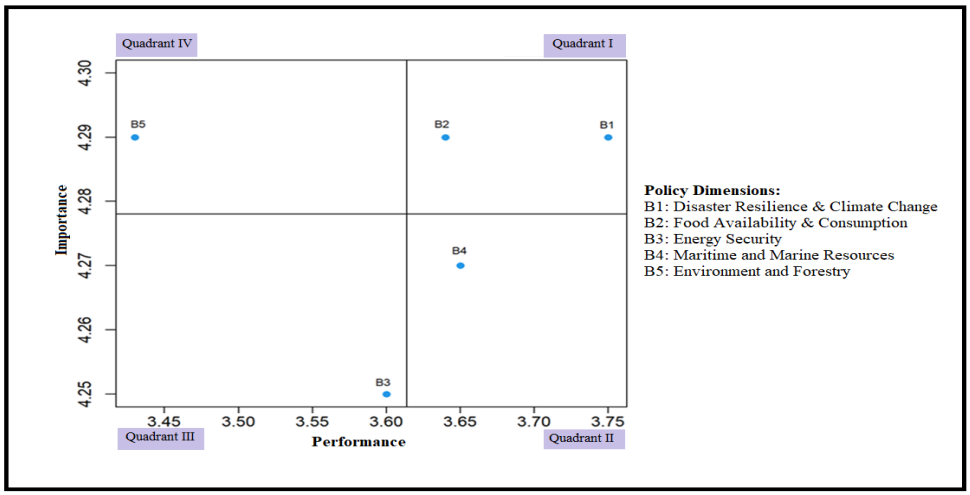

Figure 4. Importance Performance Analysis (IPA) Dimensions of NR&E

The policy dimensions of food availability and consumption are considered crucial because food security is a basic need of the community. It is one of the main obligations of the government to ensure the availability of food as a basic need. In this regard, the government has implemented various policies and programs, both in the upstream (on-farm) and downstream (off-farm) sectors supported by various technologies and improvements in food systems and governance. The community also perceived that the implemented policies during the RPJPN of 2005-2025 are successful and highly beneficial.

In the future, the issue of food security will remain an important and strategic issue; thus, it should remain a development priority. The potential threat of climate change to food and the increasingly limited availability of agricultural resources make food security issues more important. In addition, food consumption patterns and responsible food consumption will become more relevant concerns in the future. Policies and efforts to improve the quality of people's food consumption should be improved. It is also necessary to promote the paradigm of responsible consumption to reduce food waste.

Increasing domestic food production capacity will become a more strategic measure for the national interest. Indonesia should not be dependent on food supply from the international market because it is very small compared to that of global production. The world's food markets are highly fragile and undependable because they are vulnerable to changes in global geostrategy. The disruption of the world's food supplies as a result of the Ukraine-Russia war accentuates the need for attempts to increase domestic food production.

b. Importance Performance Analysis (IPA) on Natural Resources Policy Indicators

All indicators of NR&E in RPJPN 2005-2025 were mapped to four quadrants based on the respondents' perceptions about the level of importance and usefulness of each strategic policy (Figure 5). The analysis was conducted mainly on indicators considered to have a high level of importance, namely those in Quadrant I and Quadrant IV.

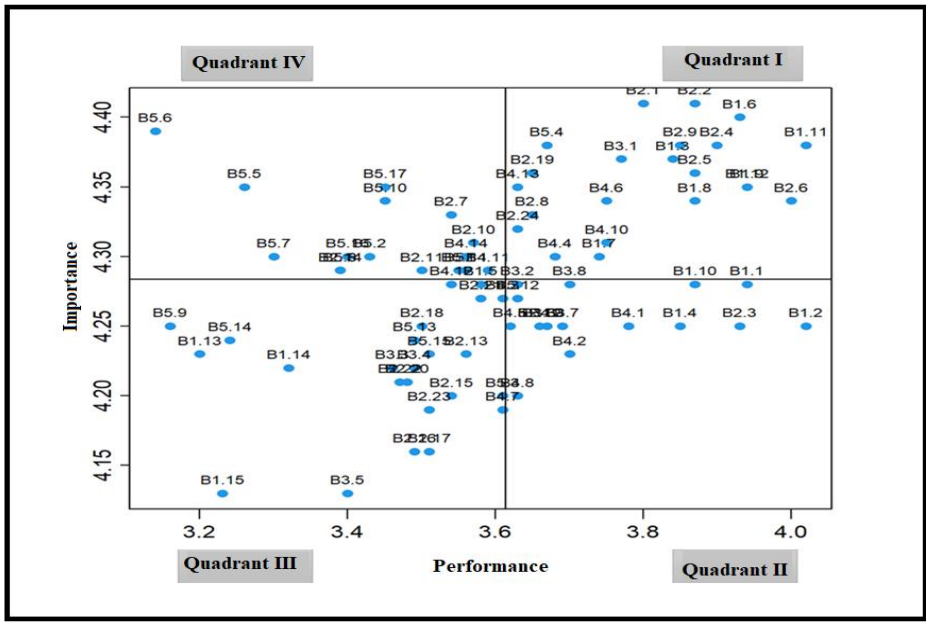

Figure 5. Importance Performance Analysis (IPA) Mapping of Policy Indicators of NR&E

Quadrant I (Top-Right) contains indicators considered important and have a relatively high impact on performance. Considering their level of importance, policies and program intervention related to this indicator needs to be safeguarded in the future. The performance of their use should also be maintained. Quadrant IV (Top-Left) includes indicators considered important but with poor usefulness performance. Because it is considered important, policies related to this indicator require serious attention to improve their usefulness performance in the future. Table 2 lists indicators for both Quadrant I and Quadrant IV for the five dimensions of strategic policies.

Table 2: Performance Rating of Important Indicators per Dimension of Strategic Policy in NR&E

Strategic Policy Dimensions	Indicators with Good Performance (Quadrant I)	Indicators with Poor Performance (Quadrant IV)
B1. Disaster Resilience and Climate Change	B1.3 Availability of data and information related to disaster-prone areas of earthquakes, volcanoes, floods, landslides, ground movements, and others that are always updated (update) regularly B1.6 Rapid responses in search and rescue during disasters, both at the national and regional levels B1.7 Availability of facilities to support rapid responses and relief to disasters B1.8 Fast-response coordination flow in disaster search and rescue B1.9 The responses of the officers to the reporting of disaster incidents (example: BNPB / BPBD response from community reports) B1.11 Availability/existence of disaster management agencies regionally and nationally (e.g. BNPB /	--

Strategic Policy Dimensions	Indicators with Good Performance (Quadrant I)	Indicators with Poor Performance (Quadrant IV)
	BPBD, BASARNAS, PMI, Fire Service, and others) B1.12 Performance of disaster management agencies at the national and regional levels	
B2. Food Availability and Consumption	B2.1 Availability of food and agricultural products in fulfilling the needs of the community B2.2 Availability of food and agricultural products in traditional markets B2.4 Ease of access to food and agricultural products B2.5 Access to food and agricultural products for the rural communities B2.6 Access to food and agricultural products for the urban communities B2.8 Quality of consumption and food safety B2.9 Certification of food products (e.g., halal certification, BPOM, organic, and others). B2.19 Availability of water sources to support agricultural irrigation B2.24 Support of national and local governments to achieve food security	B2.7 Fulfillment of food production targets from the agricultural sector B2.10 The level of public knowledge of safe and quality food products B2.11 Socialization and education from the government about safe and quality food products to the community B2.14 Access to fertiliser
B3. Energy Sovereignty	B3.1 Ease of access to energy and electricity (e.g. strong power generation capacity and equitable electricity infrastructure throughout the region)	--
B4. Maritime and Marine Resources	B4.4 Availability of storage facilities for caught products at the port (e.g. cool storage, ice cube factory, and others) B4.6 Productivity of marine and fisheries sectors B4.10 The handling of illegal fishing (e.g. illegal, unreported, unregulated fishing) in Indonesian territorial waters B4.13 Determination and management of aquatic conservation areas in national parks	B4.11 Rehabilitation of mangrove ecosystems, coral reefs, seagrass meadows, lagoons, and management of coastal areas B4.14 Local government support in the conservation and structuring of coastal areas
B5. Environment and Forestry	B5.4 Utilisation of environmental services from forest areas (natural tourism, water/hydrological protection, erosion/flood control, carbon absorption, storage, etc.)	B5.1 Sustainability of natural resource utilisation B5.11 Availability of data on regions/regions with the potential for land and forest fires (hot spots) that are always updated (updated) periodically) B5.10 Land and forest fire prevention efforts

Strategic Policy Dimensions	Indicators with Good Performance (Quadrant I)	Indicators with Poor Performance (Quadrant IV)
		B5.17 Conservation and rehabilitation of natural habitats for flora and fauna
		B5.2 Sustainable use of timber forest products
		B5.16 Sustainability of biodiversity
		B5.8 Conservation and rehabilitation of watersheds
		B5.7 Integrated handling of waste from various sources (industrial, household, and commercial)
		B5.5 Environmental quality (water quality, land cover, and air)
		B5.6 Environmental quality from domestic waste pollution, liquid waste, as well as hazardous and toxic material waste

Considering the impact performance listed in Table 2, we can analyse every policy dimension as follows:

B1. Disaster Resilience and Climate Change. There were seven indicators that the public considers important in the policy dimension of Disaster Resilience and Climate Change. The performance of all the indicators was rated good by the public, and none of them had a poor performance rating. The high assessment of disaster management performance showed that the response to disaster management is getting faster and more effective.

The handling of the 2004 Tsunami disaster in Aceh, earthquakes in Yogyakarta (2006) and Sumatra Barat (2009), and the Tsunami in Sulawesi Tengah (2018) were implemented quickly. The quick responses had been supported by the more accurate and faster spreading of the early warning information on earthquake events and tsunamis. After learning the severity level of the Tsunami disaster in Aceh, Indonesia's BMKG (Meteorology, Climatology and Geophysics Agency) successfully developed Indonesia's Tsunami Early Warning System (Ina-TEWS). Ina-TEWS is now able to disseminate information about earthquakes and warnings of Tsunami potentials in less than five minutes.

Good performance of disaster resilience was also supported by institutional reformation. The establishment of BNPB in 2008 as a policy manifestation to strengthen institutional setup had increased the effectiveness of inter-agency coordination with a clear handling mechanism.

B2. Food Availability and Consumption. People consider that production, availability, and ease of access to food are essential. They seemed satisfied with the availability and ease of access to food, even though the performance of food production was rated not very well. Indonesia is relatively capable of maintaining food security. The availability of food in the market is adequate, and this does not cause the price to increase dramatically. However, some food commodities still depend on imports from other countries. Food trade open policies have made it possible for food imports to fill the gap between domestic food production and consumption. Indonesia still imports various food commodities, including meat, dairy products, wheat, soybeans, and sugar in significant quantities.

The poor rating in the performance of food production was confirmed by the fact that Indonesia still imports some food commodities in large amount. The low rating seemed to correlate with the low rating in the ease of access to fertiliser, which is an important input in food production. In future development plans, the issue of increasing domestic food production must be prioritised to ensure food security and resilience, which is a highly strategic component of national security. With a huge population, Indonesia cannot rely on its food supply from the import markets, which are often disrupted by global geopolitical

changes. Current policies to develop food estate seem to be one of the strategic steps needed in achieving national food security.

B3. Energy Sovereignty. Among eight policy indicators for assessment under the policy dimension of Energy Sovereignty, the public considered only one pivotal indicator, namely the ease of access to energy and electricity. It seems obvious that access to energy, which includes availability and affordability, is considered strategic by the public. Energy policy should place this aspect in a high-priority category. The government will always strive to ensure the availability of energy at affordable prices. The survey results showed that, in the view of the community, policy interventions have been performing well and provide plenty of benefits.

Policy in the energy sector has had a positive impact on the public. An assessment of energy security carried out from 2004 to 2020 by DEN (National Energy Council) revealed that Indonesia's energy security value continues to increase from year to year. The assessment was based on four aspects, namely Availability, Affordability, Accessibility, and Acceptability. Analytical Hierarchy Process (AHP) was used as the weighting method. On average, the primary energy supply in 2020 in the last five yearsrew by 3.5% (Dewan Energi Nasional [DEN], 2021).

The fact that the public did not rate most policy indicators (including renewable energy) as important may generate more challenges in the future. The perception would cause the strategy implementation to develop new and renewable energy to become more challenging. Energy utilisation in Indonesia currently still heavily relies on fossil energy, including oil, LPG, and coal. The supplies of oil and LPG are becoming more dependent on imports. The government is required to create an optimal policy to accelerate the development of NR&E to reduce dependency on imported fossil energy. Indonesia's New and Renewable Energy potential is abundant. Thus, it is necessary to educate and increase the awareness of the public in this regard.

B4. Maritime and Marine Resources. The public considered that programs or interventions related to the economic aspect, especially in marine fisheries production and the determination and management of aquatic conservation, have been performing well and providing useful impact. The finding was consistent with research by Sapanli et al. (2020), concluding that the marine industry, fisheries, and marine tourism have the greatest leverage in economic development. The policy implications that must be carried out are to increase productivity in these sectors so that they can increase the values of technical coefficients and increase investment. In addition, the development of economic activities in these sectors must be supported by information technology required in the fourth industrial revolution.

Despite giving a good rating on the impact on the economic aspect, the public considered that the effectiveness of programs in marine ecosystem rehabilitation and coastal areas management were still lacking. The role of local government was also considered weak in this regard. Ecosystem and coastal rehabilitation and conservation issues will become more challenging issues in the future. Policy on the issues needs to be enhanced and strengthened.

B5. Environment and Forestry. Among eleven indicators that the public considered important in the policy dimension, only the performance of one indicator was rated good, namely the utilisation of environmental services from forest areas. The performance of the other important indicators was considered relatively poor. These include policy indicators related to the improvement of environmental management, mainly in the prevention of land and forest fires, conservation, rehabilitation and sustainable use of biodiversity, and environmental quality as life support systems. Widiatmaka (2009) presented the fact that the achievement points to some failures, with an example of a growing number of critical watersheds until 2008, which are the result of poor environmental management.

Despite presenting some poor environmental policy performance Widiatmaka (2009) said that policies, programs, and activities in the field of NR&E had been compiled completely and well. However, Hakim (2018) argued that failure and lack of optimal public policies are mostly caused by public policy formulations that are not systematic, partial, and have not touched the substance of the matter. Considering the high importance of the policy indicators for the public, those aspects have to be incorporated into the policy of the next planning period.

Conclusions

Strategic policies in NR&E were rated as having a fairly good impact on all aspects of Indonesia's development. From the regional perspective, there was no significant difference in the impacts of NR&E on the western and central regions of Indonesia. However, the impacts of NR&E policies on the eastern region were slightly lower than those on other regions.

With regard to the impacts on development aspects, the NR&E strategic policies were considered to have a relatively high impact on economic growth, food security, and energy security. The impacts on job creation and poverty reduction were relatively lower. There were indications that strategic policies in NR&E tended to favour capital owners.

Among the strategic NR&E policies, the dimensions of Disaster and Climate Resilience and Food Security were perceived to be highly significant with highly beneficial impacts. Thus, they need to be sustained. Meanwhile, the impacts of policies on the environmental and forestry dimensions were deemed insufficient.

Recommendations

Based on the results of the evaluation, we provided several policy recommendations as follows: (1). Develop a fair natural resource management policy, which provides wider access for the community to the management and utilisation of natural resources for the improvement of their welfare. (2). Strengthen policies related to important strategic indicators in strategic policy dimensions of disaster resilience and climate change, food security, and energy security, as well as several other strategic indicators. (3). Improve the national capacity of food production and accelerate the development of renewable energy. Reform policies related to important strategic indicators in strategic policy dimensions in the dimensions of Environment and Forestry, especially related to conservation and sustainability of natural resources and the environment.

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