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CLIMATE CHANGE MITIGATION AND ADAPTATION IN NATIONAL DEVELOPMENT POLICY FORMULATION IN INDONESIA

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Abstract

The health of a community is another factor that is affected by changes in climate temperature, indirectly and directly. Changes in climate not only affect human life but also the survival of plants and animals. Changes in climate also have a negative impact on the transportation and tourism industries. The purpose of this study is (1) to describe the climate change mitigation and adaptation agenda in formulating national development policies. (2) To describe the climate change mitigation and adaptation agenda that is integrated into national development planning. The research method used is qualitative research with literature studies to collect data. The results of the study indicate that: (1) Indonesia has considered the climate change adaptation agenda in formulating national development policies, with the consideration that the adaptation agenda is more suitable and more feasible to be implemented in developing countries. to address the impacts of climate change at the national level.The Indonesian government has taken various measures to address the impacts of climate change. Many public policy documents have been published at the Central Level, through related Ministries/Institutions and Regional Governments.(2) The climate change adaptation agenda has been outlined in the APBN posture in the form of (a) a climate change budget in state revenues, (b) a climate change budget in central government transactions, (c) a climate change budget in distribution to regions and village funds, and (d) a climate change budget in financing.

Keywords: Adaptation, APBN, Climate change , Mitigation, National Development, Public Policy

Introduction

In an old traditional model paradigm, one of the differences between a developed country and a developing country is about income. Income regarding economic growth is not an appropriate measure to define development. This is because economic growth leaves other development problems such as unemployment, poverty, and social inequality. In further developments, the emergence of a new perspective that views development as having many aspects. The economic development of a country requires special attention to fulfilling basic human needs alone, but also on the other hand such as other forms of development and respect for nature and the surrounding environment. Policies on sustainable economic development come from abroad and domestically. A form of economic policy in terms of domestic development is a fiscal and monetary regulation, while policies originating from abroad have a scope of government policies

in the form of direct assistance, foreign investment with the private sector, foreign government investment, and trade policies (Amalia et al., 2022).

According to Dewi and Rosalina from the Indonesian Research Institute for Decarbonization (IRID), Greenhouse Gases (GHG) are gases in the atmosphere that appear due to human and natural activities that cause global warming and climate temperature changes. The presence of GHG has benefits for all organisms in it and on earth at normal levels of influence. Its ability to trap solar heat can warm the earth and make life more comfortable. However, the amount of heat absorbed can increase the temperature of the earth and is greater because the amount of GHG in the atmosphere is too high. An irregular increase in the temperature of the earth's surface can cause the earth's surface to become hotter and will slowly cause natural damage, and cause humans and other living ecosystems on earth to be in a sensitive state. Changes in climate temperature can affect the rainfall water cycle and increase the incidence of prolonged drought with more extreme rainfall. These temperature changes will worsen the intensity of storms and the height of sea waves, endangering ships that are sailing. Increasing sea water temperatures often also cause the Arctic ice sheet to melt quickly, thus impacting sea level rise, so that coastal areas are increasingly unstable and vulnerable to tidal flooding. Heat waves, temperature changes and falling rainfall cause reduced agricultural yields. The health of a community is another factor that is affected by changes in climate temperature, indirectly and directly. Changes in climate not only affect human life but also the survival of plants and animals. Changes in climate also have a negative impact on the transportation and tourism industries.

Empirically, studies by Harvian and Yuhan (2019); Rafly et al. (2023); Imelda et al. (2023); Malau et al. (2023); Utami (2019); Susilawati (2021); Megasari and Sodiq (2023); Herlina and Prasetyorini (2020); Priyanto (2021); and Fatahuddin et al. (2022) show that climate change has a negative impact on Indonesia's sustainable development.

According to Aldrian et al (2011), As an archipelagic country, Indonesia is very vulnerable to climate change. Because Indonesia is a developing country, its ability to adapt to climate change is not as strong as other developed countries. Therefore, there is concern that development carried out by the government may be hampered by the impacts of climate change. Adaptation to climate change is a crucial aspect that must be included in the national development agenda, with the aim of developing a development model that can withstand the impacts of climate change and increasingly frequent extreme weather phenomena, and taking into account its impacts in the future. The objective of the Indonesian Climate Change Adaptation Program is to integrate climate change adaptation strategies into the national development plan.

This research literature study aims to describe (1) whether Indonesia has considered climate change mitigation and adaptation in formulating national development policies, (2) how the climate change mitigation and adaptation agenda is integrated into national development planning.

Research methods

Based on the data used in this study using qualitative research techniques. According to Moleong (2021), Qualitative research is research that produces analysis procedures that do not use statistical analysis procedure techniques or other quantitative methods. If there is data that appears, it is usually used for reference. Data collection is carried out by means of literature studies. According to Sugiyono (2019) Research with librarian studies is the result of theoretical studies, reference materials, and other

scientific works related to cultural matters, values, and development norms in the social situations studied in this study.

Results and Discussion

According to Amalia et al. (2022), policies on development in the economic sector come from within the country and abroad. In domestic socio-economic development policies, they are the result of fiscal and monetary policies. On the other hand, foreign policy includes government policies in the form of technical assistance, private foreign investment, government and foreign investment, and economic trade. Fiscal policy is one of the policies in national development chosen by the government. Fiscal policy itself is based on national public spending and revenue policies which aim to create wide employment opportunities without causing inflation. Monetary policy, on the other hand, is a form of government policy that aims to influence the course of the economy by influencing the amount of money circulating in the national community at the interest rate level.

The above opinion shows that mitigation activities and adaptation activities are forms of climate change in the preparation of a policy in national development which must be integrated into the process of preparing national budget policies.

According to Budiarso (2019), Compared to previously common mitigation measures, adaptation is something that is new to many groups. The adaptation agenda was born from the widespread belief that mitigation alone will not solve the problem of climate change. For developing countries, natural disasters such as floods, landslides and prolonged droughts are prioritized over mitigation issues that they consider to be the domain of developed countries. Globally, the urgency of the adaptation agenda has been recognized by many parties. For example, the UNFCCC has stated that adaptation must be explicitly included in the international agreement on climate change. Given the importance of the value of adaptation, the Indonesian government has issued many documents and regulations related to this adaptation issue, such as the National Action Plan for Climate Change Adaptation (RAN API). However, in the implementation process, it turns out that there are still many obstacles faced.

Adaptation generally refers to efforts to adjust ecological, social and economic systems to current conditions and the impacts of climate change and the possibility of worse disasters in the future. Therefore, adaptation is an effort to overcome the impacts of climate change, both at the individual and community levels, from local to national levels. In short, adaptation is an effort to minimize the risk of premature damage and loss while protecting the lives and livelihoods of social communities from the unavoidable impacts of climate change.

Adaptation is absolutely used because the estimated value of the damage is very high. For example, USAID research (2016) estimates that Indonesia will lose Rp 132 trillion in 2050, equivalent to 1.4% of GDP. Based on this estimate, the agricultural sector will experience losses of up to 53%, health 34%, and the impact of sea level rise (SLR) 13%.

In the draft technocratic document of the National Medium-Term Development Plan (RPJMN) for the period 2020-2024 (Bappenas 2019), it is stated that environmental development, strengthening post-disaster resilience, and climate transformation are among the national priorities. The Ministry of National Development Planning/Bappenas has also prepared a document, namely the API RAN as a contribution to the National Medium-Term Development Plan (RPJMN) 2020-2024. In

the API RAN document, the four priority areas of concern are waters, agriculture, marine and coastal environments, and health.

In each priority area includes four main groups, namely: infrastructure, technology, capacity building, and governance. It also includes many prerequisites that must be integrated in each cluster, namely sensitivity to gender and vulnerable groups such as (elderly and disabled), this innovation is ecosystem-based with landscape or spatial and financial objectives.

Adaptation is the use that is needed in various ways, especially (i) Anticipatory: the way adaptation is carried out before the impact of climate change occurs; (ii) Spontaneous: the way adaptation is carried out unconsciously because it follows changes that occur in the ecology of the surrounding environment, either through changes in the market or changes in the system in human social life; (iii) Planned: Policies are implemented based on the awareness that climate change is occurring and immediate action is needed to restore, maintain, or achieve previously determined goals.

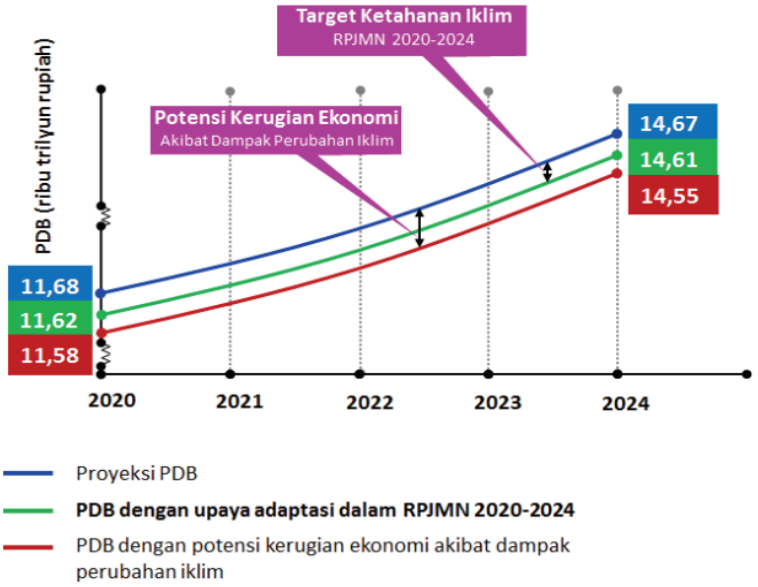


Figure 1. Comparison of Economic Loss Results from Climate Change Impacts with GDP

Source: Bappenas (2019)

The ability to adapt to climate change is influenced by a number of factors, including socio-economic aspects such as income levels, accessibility to education, health recovery facilities, and business opportunities. Conversely, lack of resources, weak institutional systems, unstable governance, and inadequate infrastructure make communities more vulnerable to the impacts of climate change due to minimal adaptive capacity.

Adaptability through climate change should be considered as an important requirement in planning and development. For example, the provision of open space in coastal areas as part of efforts to protect against tsunamis, tidal floods, abrasion, tidal waves, and storms can provide benefits to the copper ecosystem to reduce the potential impact of disasters. Planning and development with a protection perspective can increase resilience, namely the ability of a community to recover from natural disasters.

A number of studies have identified factors that hinder the implementation of adaptation programs, including a lack of understanding of adaptation issues, uncertainty

in the scientific basis, technological limitations, and limited financial resources and time in both short- and long-term planning.

One of the major challenges in implementing adaptation is the lack of understanding of the concept of adaptation itself. Unlike mitigation efforts, adaptation is still considered a relatively new agenda in the context of climate change, so many parties do not fully understand this concept. This condition makes it difficult to implement adaptation programs, especially at the local level such as local governments. In addition, the implementation of adaptation at the local level is often hampered by limited funds, lack of trained workers, and limited institutional capacity.

The Indonesian government has made many efforts to overcome the impacts of climate change. Various forms of policy documents have been published to overcome the impacts of climate change, including the Indonesian Adaptation Strategy (2011), the National Action Plan for Climate Change Adaptation in Indonesia (2011), the Indonesian Sector Roadmap on Climate Change (2010), the National Action Plan for Climate Change Response (2007), the National Action Plan for Climate Change Adaptation (2014) and plans on sectoral adaptation methods for ministries/ organizations.

Adaptation to climate change has many similarities (cross-sectoral issues) with national development programs in general, so how to integrate social adaptation to climate change into development plans becomes a crucial issue. Integrating forms of climate change adaptation into the development agenda is seen by many as an important prerequisite for the success of adaptation policies. This integration includes prioritizing environmental issues into all development planning, policies, regulations, investments, and actions at the national, local, and sectoral levels. Carrying out adaptation separately from general development programs potentially poses the risk of not achieving some objectives.

In its application, activities on climate change adaptation must require priority in areas prone to climate disasters, namely areas that have experienced or are affected by climate disasters, such as tidal waves and floods that often occur. These hydrometeorological disasters are expected to become more and more problems in the future.

Nasution et al (2022) in the book "Indonesia's Green Budget in Facing Climate Change" revealed that public funding for climate change activities comes from domestic and foreign sources. Funding for the national public can come from and be delivered through the budget from the central government and the Climate Change Fund Trust Fund or National Climate Funds (NCF). Meanwhile, funding from abroad can be delivered through intermediaries of institutions responsible for activities (executing agencies) including ministries/ organizations, international development organizations/ partners, local governments and the Climate Change Fund Commissioner. National capital is provided through a number of instruments, such as mechanisms with budget transfers (between ministries/institutions or between the central and local governments), with capital participation in BUMN and investment (revolving capital). On the other hand, funding from abroad can be in the form of grants and loans.

The funds that have been submitted are then used by implementing agencies to implement programs/activities related to climate change mitigation and adaptation measures. The implementing agencies include ministries/agencies, local governments, state-owned enterprises, institutions and non-governmental organizations, and private parties that carry out activities related to climate change mitigation and adaptation. The

implementing organizations use funds for activities that contribute directly to reducing emissions and climate adaptation methods, or indirectly, including in the form of support for community capacity development, including the development of policy forms, research and development of systems in monitoring, evaluation and reporting that are of a verification nature, etc.

Based on the 2018 Biennial Update Report (BUR) submitted by Indonesia to the UNFCCC organization, Indonesia estimates that the need for climate change funding to achieve the target, as previously explained, for the period 2018-2030 is IDR3,307.02 trillion or an average of around IDR288.4 trillion. This funding comes from various sources of funds, such as the government, private sector, and other sources for programs or activities for climate change adaptation and mitigation measures. Indonesia has made various alternative financial instrument steps such as in the issuance of Green Bonds/Sukuk, with increased access to domestic and global financial sources (Green Climate Fund/GCF, Multilateral Development Bank localities/MDBs and other financial institutions), as well as incentives or support for convincing regulations, effective and efficient ways to influence the role of the private sector in investments that focus on considering aspects of the environment and society.

Based on the report from the Fiscal Policy Agency (BKF) and the Climate Policy Initiative (CPI) (2014), Climate change financing in Indonesia mostly comes from domestic financing from the government budget, which is 66% and 34% from international public financing. Up to 86% of international public funds in Indonesia are directly used to fund mitigation and adaptation projects, either through state-owned enterprises or the private sector (in the form of loans), and the rest is used to support other indirect activities such as policy development and other activities. Transmitted through central and regional ministries. At the same time, national funds are mainly used to finance adaptation and mitigation activities indirectly, the funding of which comes from the State Budget (APBN) through central government spending (K/L) and transfer of equipment to regions, revolving investment through funds and participation of BUMN.

In its commitment to efforts in controlling climate change, the Indonesian government has made efforts to develop various financial instruments that can be used to finance adaptation and mitigation activities as a climate change action plan. The climate funding instrument covers many things related to public and private funding sourced from within and outside the country. The government funding comes from within the country, mostly from the APBN. allocated through various financial instruments such as tax revenues, PNBP, grants, state sharia securities, BLU funds, and other legitimate revenues based on law. These funds are then allocated to technical ministries/institutions to be used in climate change mitigation and adaptation activity spending programs, both directly and indirectly. Currently, there are 6 K/L involved in mitigation activities and 16 K/L involved in adaptation activities in accordance with the requirements set out in the RAN GRK and RAN API.

Green budgeting is a policy tool in the budget to help focus environmental and climate objectives. It includes assessing the environmental impact of budget and tax policies and assessing their consistency with the implementation of national and international commitments. Green budgeting can also contribute to evidence-based debate and discussion and the delivery of information on sustainable growth. (OECD, 2021).

Green budgeting refers to a set of tools required to prepare a separate green budget plan in a country to prepare its annual budget. It can also lead to the use of changing budgeting practices into mechanisms that build sustainable growth in the economic, social and environmental sectors.

There are several ways in defining the concept of green budget. WWF defines a green economy budget as a budget allocation in government that marks incentives to achieve a green economy. The green budget is a process that combines the nature of integrated policies, there are three main components of sustainable development: growth of the sustainable economic sector, ecological balance, and social progress. Effective policies include waste management, renewable energy, transportation, and zoning.

Meanwhile, in the budget regarding climate change according to the APBN model, it can be in the form of (1) budgeting for climate change in the form of state revenue, (2) budgeting for climate change through central government spending, (3) budgeting for climate change in the form of transfers to regions and village funds and (4) changes to the financial environment related to finance.

Conclusion

The Indonesian government has implemented various steps to address the impacts of climate change by issuing a number of policy documents, such as the Indonesian Adaptation Strategy (2011), the National Action Plan for Climate Change Adaptation in Indonesia (2011), the Indonesian Sector Roadmap on Climate Change (2010), the National Action Plan for Climate Change Response (2007), the National Action Plan for Climate Change Adaptation (2014), and sectoral adaptation plans from various ministries/organizations. These adaptation measures are considered new to many compared to the more common mitigation efforts that have been carried out before. This adaptation agenda was born from the belief that mitigation alone is not enough to address the increasing problem of climate change. In developing countries, dealing with natural disasters such as floods, landslides, and droughts is a higher priority than mitigation issues that are often considered relevant to developed countries. Funding for climate change adaptation in Indonesia can come from domestic sources, such as the central government budget and the National Climate Change Fund (NCF). Meanwhile, foreign funding can be channeled through implementing agencies involving ministries/organizations, international development organizations/partners, local governments, and the Climate Change Fund Commissioner. Climate change-related budgeting in the APBN can include several forms, such as state revenue, central government spending on climate change, transfers of funds to regions and village funds, and adjustments in the environmental financial framework. Considering that climate change adaptation is a necessity that is a prerequisite for sustainable national development, involving large domestic and foreign funding, then distributed and used by many institutions as institutions that act as implementers to run programs or activities related to climate change mitigation and adaptation include ministries/government institutions, local governments, state-owned enterprises, non-profit organizations, and the private sector involved in efforts to mitigate and adapt to climate change. Therefore, it is important to prioritize the principles of transparency and accountability in its implementation.

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