

Commentary

Disaster Management in the Implementation of the 2030 Sustainable Development Goals in Indonesia

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1. Introduction

1.1 Importance of Long-term Disaster Management Plan

In 2045, the Republic of Indonesia (NKRI) will be one hundred years old. To welcome a century of independence, the 2015-2045 “Golden Indonesia Vision” was launched, as the first phase of the “Indonesia's Dream 2015-2085”. The vision of Indonesia 2015-2045 is to become “sovereign, advanced, just, and prosperous”. To achieve this vision, Indonesia faces many challenges, one of which is related to its geographical position as a disaster-prone area. Many hydro-meteorological disasters caused by climate change and environmental degradation that cause floods, landslides, drought and tornadoes occur in various regions in Indonesia, in addition to geological disasters such as volcanic eruptions, earthquakes, and tsunamis that cause casualties, damage to infrastructure, destruction of national assets, as well as economic losses and environmental damage.

In order to deal better with increased risk and complexity of future disasters, maintain high levels of economic growth, and secure development outcomes, Indonesia has developed a comprehensive and comprehensive long-term disaster management plan. The plan, called the 2015-2045 Disaster Management Master Plan (RIPB), contains the vision and mission of long-term disaster management for Indonesia, in line with the vision and mission of the National Long-Term Development Plan (RPJPN) 2005-2025, and will become policy input for the preparation of the 2025-2045 RPJPN. This document also contains policy directions and investment strategies for disaster risk management, as part of the implementation of Law Number 24 of Year 2007 on Disaster Management. The master plan is set for the 2015-2045 period, with reference to the first RPJPN period ending in 2025 and the second RPJPN period

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in 2025-2045, and is in line with the 2015-2030 Sustainable Development Goals (SDGs) period and the 2015-2030 Sendai Framework for Disaster Risk Reduction (SFDRR) commitment.

In the international context, Indonesia has actively contributed to the implementation of the 2005-2015 Hyogo Framework for Action (HFA) and has compiled various policies and disaster management planning documents that refer to the 2015-2030 SFDRR. However, apart from what has been compiled and carried out by various stakeholders in Indonesia, the incidence of disasters continues to increase and the damage and losses also continue to increase. For this reason, it is deemed necessary to draw up a comprehensive and integrated long-term plan for disaster management. Such a master plan is legally binding and therefore can be aligned with and become a guideline for national and regional development planning, in order to realize the synergy of development planning with disaster risk reduction.

It is understandable that without significant investment in integrating disaster risk reduction into development, Indonesia will experience obstacles in achieving the goals of a sovereign, developed, just, and prosperous country by 2045, and becoming the fourth-largest economic power in the world. To support resilient development and the achievement of the long-term vision and mission of Indonesia, the 2015-2045 Disaster Management Master Plan was formulated.

Within the period from 2015-2045, the Government will also be carrying out the mandate of agreements at the global level that have been ratified or have become commitments, such as SDGs, the SFDRR, the Paris Agreement of the United Nations Framework Convention on Climate Change, the Agenda for Humanity, the New Urban Agenda, and the Addis Ababa Action Agenda on Financing for Development. Because this period is closely related to efforts at the global level, this period is referred to as the "2015-2030 Period: Global Resilience Plan"

2015-2030 Sendai Framework for Disaster Risk Reduction

The Government of the Republic of Indonesia is also one of the countries committed to implementing the 2015-2030 Sendai Framework for Disaster Risk Reduction (SFDRR). In 2030, all countries committed to SFDRR, including Indonesia, are expected to contribute to achieving the seven SFDRR targets of (1) significant reduction in mortality due to disasters in the world;

(2) significant reduction in the number of affected communities; (3) reduction of economic losses directly in relation to world GDP; (4) significant reduction in damage to critical infrastructure and disruption of basic services, including health and education facilities; (5) increased number of countries that have DRR strategies at the national and regional levels by 2020; (6) increased international cooperation to support developing countries in implementing the SFDRR; and (7) increased access to multi-hazard early warning systems as well as disaster risk information and assessments for communities.

As a form of implementing this commitment, in 2016, the National Disaster Management Agency (BNPB) prepared and issued an SFDRR baseline report. This article explains the conditions and progress of the implementation of the four SFDRR priorities of (1) understanding disaster risk; (2) strengthening disaster risk management to manage disaster risk; (3) investing in disaster risk reduction for resilience; and (4) improving disaster preparedness for effective disaster response and to "rebuild better" in the post-disaster recovery period.

The BNPB report led to the conclusion that in the period from 2005-2015, Indonesia had shown significant progress in mainstreaming disaster risk reduction in national and regional development. Regional Disaster Management Agencies (BPBDs) and Regional Disaster Management Plans (RPBD) have been formed for all provinces in Indonesia. More than 80 percent of regencies/cities also have established a BPBD.

DRR is not only carried out in the pre-disaster phase, but also integrated in preparedness, during emergencies, and in post-disaster recovery. Many contingency plans have been prepared for disaster emergency preparedness, at both the national and regional levels. Post-disaster recovery efforts have also utilized the "rebuild better and safer" approach. DRR mainstreaming is carried out at all levels, from the national level to the village level, through the formation of a Resilient Village. DRR mainstreaming also involves many actors, not only across ministries/institutions at the national level, but also local governments, NGOs, voluntary organizations, community groups, universities, and business institutions.

Indonesian Commitment to Implementing the Sustainable Development Goals

Through Presidential Regulation No. 59 of Year 2017 on the Implementation of the Achievement of Sustainable Development Goals, the Government of Indonesia has adopted Sustainable Development Goals (SDGs) as one of the references in determining the direction and targets of national development up to 2030. Disaster Management and particularly disaster risk reduction cuts across different aspects and sectors of development. There are 25 targets related to disaster risk reduction in 10 of the 17 sustainable development goals, firmly establishing the role of disaster risk reduction as a core development strategy.

Table 1. SDGs with Targets Related to Disaster Management in Indonesia

No.	Goals and Targets of SDGs	Indonesia's Responses on Disaster Management
1	Goal 1, Target 1.5: In 2030, build resilience of the poor and those in vulnerable conditions, and reduce their vulnerability to extreme events related to climate change and economic, social, environmental, and disaster shocks.	In relation to disaster management and disaster risk reduction in Indonesia, an increase in the frequency of disasters in the past five years, such as the earthquake in Lombok in July 2018 and the tsunami and liquefaction following the earthquake in Palu in September 2018, had considerably significant socio- economic impacts, including the impact of increasing poverty in affected areas. Such conditions need to be managed seriously, because the post-disaster recovery process, which includes rehabilitation, reconstruction, and relocation in the affected areas, requires quite a long time, especially in the recovery process of the socio-economic sector of communities in the affected areas. A more important aspect to consider in relation to sustainable development goals is the need to prioritize community resilience to disasters, not only in the recovery process, but more importantly in disaster risk reduction efforts, especially in areas that are categorized as disaster-prone, by promoting community-based disaster risk reduction.
2	Goal 2, Target 2.4: In 2030, ensure a sustainable food production system and implement resilient agricultural practices that increase production and productivity; help protect ecosystems; strengthen adaptive capacity for climate change, extreme weather, drought, floods, and other disasters; and progressively improve soil and land quality.	As with the impact on the socio-economic conditions of the affected communities above, the frequency and intensity of disasters, which continue to increase, seriously impact the agricultural sector as the main livelihood of Indonesian people. The food production system is also significantly disrupted due to natural disasters and climate change; this needs to be addressed specifically, especially in strengthening food security, which requires increasing disaster and climate change resilience in order to support food production systems nationwide.
3	Goal 3, Target 3.d: Strengthen the capacity of all countries, especially developing countries, on early warning, risk reduction, and national and global health risk management.	From nearly a decade ago, different line ministries have begun to develop programs that capitalize on the potentials of communities living in hazard-prone areas, with the aim of reducing vulnerability and building resilience. The Ministry of Health started such a program in 2006, as the "Prepared Villages" program, to improve health services and health preparedness. Similar programs have also been developed by the Ministry of Social Affairs, Ministry of Fishery, Ministry of Agriculture, Ministry of Energy and Mineral Resources, and Ministry of Environment and Forestry. In 2012, BNPB started the "Disaster Resilient Villages" program, which aims at building resilience at the village level through the introduction of risk mapping and analysis, preparation of DM plans and DRR action plans by communities, early warning systems, volunteer development, and development of economic resilience.
4	Goal 4, Target 4.a: Build and improve educational facilities that are child-friendly, disabled-friendly, and gender-friendly, and provide a safe, non-violent, inclusive, and effective learning environment for all.	As a country that has committed itself as one of the Safe School Leaders, Indonesia has made safe schools a priority and part of the national development agenda. The stakeholders are aware that the main objective of safe school programming and other DRR initiatives is fundamentally to build community resilience. To date, many activities have been implemented to enhance the three pillars of the Comprehensive School Safety Framework Schools, which are safe learning facilities, school disaster management and disaster risk reduction, and resilience education.

No.	Goals and Targets of SDGs	Indonesia's Responses on Disaster Management
5	<p>Goal 6, Target 6.4: By 2030, significantly improve water use efficiency in all sectors, guarantee sustainable use and supply of fresh water to overcome water scarcity, and significantly reduce the number of people suffering from water scarcity.</p>	<p>In terms of the policy framework, the increase in water-related disasters encourages the national government to prevent and mitigate disasters by applying a landscape-based approach, including watershed areas. The Ministry of Environment and Forestry has issued some regulations on watershed management that can prevent hydro-meteorological disasters. Those regulations protect upstream water catchment and conservation areas in order to prevent floods affecting downstream areas and landslides affecting upstream and middle areas. In many cases, this may transgress the administrative boundaries of regencies or cities, or even provinces. For the purpose of enforcing the regulations and applying them into spatial planning to guarantee proper land use, the national government has added the internalization of watershed management into a spatial plan as a national indicator of SDGs Goal 6, which is mentioned in Presidential Regulation Number 59 of Year 2017. To support this commitment, the Ministry of Agrarian Affairs and Spatial Planning issued a regulation on the guidance of spatial planning at the province, regency, and city levels. The regulation states that a watershed area map and disaster risk map should be referred to in order to make a spatial plan document. Therefore, the spatial plan will not only be developed based on administrative boundaries but also ecosystem-based considerations, such as watershed areas. To make it in practice, at present the Ministry of the Environment and Forestry is developing a guideline for local governments in order to integrate watershed areas into spatial plans. Therefore, it is urgent to raise local, national, regional, and global awareness for private and public stakeholders to promote policies and investments in conserving and restoring wetland ecosystems, which have a significant role in regulating fresh water ecosystems, as well as to scale up the implementation of Green Infrastructure and Ecosystem- or Nature-Based Solutions as part of integrated risk management and resilience strategies.</p>
6	<p>Goal 9, Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and cross-border infrastructure, to support economic development and human welfare, with a focus on affordable and equitable access for all.</p>	<p>The government has established the integration of data and information among line ministries through a platform called InaRISK. This is available as web-based and mobile applications for further analyzing the risks in the country to understand the risks that apply to people. The risk map is available and accessible to the public to find out risks to places of people in Indonesia. The risk map increases to a better scale specifically for areas of economic growth centers that have medium to high risk. This risk and situation map can be freely accessed as the portal web site www.inarisk.bnpb.go.id. This portal is also for monitoring the reduction of the index of risk to 2019 by 30 percent, especially in the economic growth centers that have been outlined in the 2015-2019 National Middle-Term Plan. Development of the Multi-Hazard Early Warning System (MHEWS) with other line ministries and involving the BMKG, PVMBG of Ministry of Energy and Mineral Resources, Ministry of the Environment and Forestry, Agency for Geospatial Information, and other related institutions and scholars, which include data and information on climate hazards, hydrological hazards, meteorological hazards, and geological hazards, had been performed to have a set of specific data and information that can be distributed and disseminated to the public by using methods of accessing the Internet.</p>
7	<p>Goal 11, Target 11.1: In 2030, ensure access for all to decent, safe, and affordable housing and basic services, and to organize slums; Target 11.5: By 2030, significantly reduce the number of deaths and the number of people affected, and substantially reduce economic losses relative to the global GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations; Target 11.b: In 2020, substantially increase the number of cities and settlements that adopt and implement</p>	<p>At present, a number of line ministries in Indonesia have started programs addressing resilience in urban areas. The Ministry of Public Works has, in the past several years, developed the Program of Sustainable Cities and Green Cities. The Ministry of Environment and Forestry has also piloted the Climate-Resilient Cities Program, while the Ministry of National Development Planning (Bappenas) has its Resilient Cities Program. Efforts are underway to build coherence among these different programs with their different</p>

No.	Goals and Targets of SDGs	Indonesia’s Responses on Disaster Management
	<p>integrated policies and plans that support inclusion, resource efficiency, mitigation and adaptation to climate change, and disaster resilience, and develop and implement holistic disaster risk management according to the 2015- 2030 Sendai Framework for Disaster Risk Reduction.</p>	<p>approaches and strategies. Led by the Bappenas, the national government is now developing common indicators for disaster- and climate change- resilient cities that will be used as measures of monitoring city performance. Such an integrated program will include micro-zoning based on detailed disaster risk analysis and climate projections, building codes that incorporate resilience into site design and construction standards, financing frameworks that promote risk-sensitive urban development, and urban upgrading and ecosystem restoration to increase the resilience of urban settlements and infrastructure. The Ministry of Female Empowerment and Child Protection has also promoted “child-friendly cities” that has been presented during the Global Platform on DRR in Mexico. Relevant stakeholders also introduced the Child- Centered Urban Resilience Framework to provincial governments to promote Resilient Cities that interlink multiple dimensions such as climate change adaptation, education, health, child protection, and safe facilities for children.</p>
8	<p>Goal 13, Target 13.1: Strengthen the capacity of resilience and adaptation to climate-related hazards and natural disasters in all countries.</p>	<p>Indonesia has also begun the development of its very own multi-hazard early warning system (MHEWS) in response to the call of 2019-2030 SFDRR global targets, particularly on substantially increasing the availability of and access to the MHEWS and disaster risk information and assessments to the people by 2030. Several types of disaster early warning systems have existed in Indonesia for years despite facing several challenges, such as data related to hazards, risks, and disasters being spread across various ministries or agencies as a result of the unavailability of an integrated and inclusive early warning platform. However, a strategic framework has been defined that includes the vision, mission, goals, basic principles, strategies, and initiatives for successful development and implementation of the MHEWS. The basic principles for the system are collaboration, creativity, availability, integration, security, and continuity.</p>
9	<p>Goal 14, Target 14.2: In 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening resilience and carrying out restoration to create healthy and productive oceans.</p>	<p>It had been proven that vegetation along coastal areas can reduce wave energies to the beach; thus, some areas beyond greenbelt areas can be protected. The Government encourages to implement Coastal Forests by reforesting vacant lands and buffer zones along the coasts. As one of the areas that is most prone to hydro-meteorological disasters is the ecosystem, coastal areas particularly on the north part of Java have become severely eroded, which leads to increased vulnerability to extreme weather, tidal floods, floods, and loss of land as the source of community livelihoods. Hundreds of thousands of people feel the effects of severe coastal abrasion caused by mangrove ecosystem conversions, as well as continued land subsidence and rising sea levels as the impact of climate change. To address this problem, one initiative has been conducted among NGOs, related government institutions, and the private sector to develop an ecosystem- and nature-based solution that applies sustainable and adaptable hydraulic infrastructure that also encourages the conservation of nature at the same time. This program is known as the “Building with Nature” program. Through this program, mangrove green belts along the coast are starting to be restored through the construction of permeable dams that mainly function to trap sediment that allows mangrove seedlings to grow naturally.</p>
10	<p>Goal 15, Target 15.3: In 2020, stop desertification, restore critical lands and lands affected by desertification, drought, and flooding, and strive to achieve a world free of degraded land.</p>	<p>With the strong commitment to protect the environment as a major priority due to the causes of disaster occurrences in several places in Indonesia, reforestation is one of the movements to protect high-risk areas from disasters. Vegetation along riversides and coastal zones is one of the solutions to protect the ecosystem. It is believed that the significant effects of planting along faults is to remind about the hazards, planting uphill areas is to protect the watershed, and planting in hilly areas is to protect from landslides.</p>

The Way Forward: Integrating SDGs and SFDRR into Disaster Management Planning

The Indonesian government has been actively involved in the conception and development process of the 2030 Agenda, including ongoing work being undertaken by the SDGs Secretariat in Bappenas as well as the engagement of Indonesia in Disaster Risk Management-related international frameworks such as SFDRR since 2015.

The disaster risk reduction planning and programming by Indonesian line ministries and agencies requires a more coordinated and coherent approach that takes into account interlinkages between climate change and disasters that will be instrumental and effective in the achievement of SDGs other than those of 2030 Agenda commitments.

It is also critical to ensure coherence with ASEAN regional frameworks, including the contribution by Indonesia to the ASEAN Agreement on Disaster Management and Emergency Response Program (ADMER) and other sectoral frameworks to align with the global agenda. To achieve such targets, Indonesia had made hard efforts to reduce risks in all relevant sectors and increase food security, water security, energy security, ecosystem resilience, and maritime resilience through 1) strengthening local capacity; 2) improvement of knowledge management; 3) convergent policies between climate change adaptation and disaster risk reduction; and 4) adopting adaptive technologies. Furthermore, the process of data convergence through the use of information technology, including for climate and disasters, has been carried out in the provinces with the establishment of a single data system that is managed by the provincial governments.

However, the coherency of Indicators of SDGs will be achieved with the strong coordination initiated by Bappenas through engagement and discussion at all ministerial levels on national development priorities, of which DRM is one of the National Priorities. Bappenas is also setting up goals for the implementation of SDGs in Indonesia through multi-sectoral coordination among government institutions. In accordance with the efforts, the main task is to monitor whether the national development indicators are in line with disaster risk management-related SDGs and the SFDRR, or diverge from them.

Finally, Disaster Risk Management strategies at national and local levels endorse local authorities to create Disaster Management Strategic Plans. Clarity in the distribution of roles and responsibilities between BNPB and national actors as well as BPBDs and local actors need to be enhanced. Utilization of assessments and disaster risk maps for the preparation of Regency Disaster Management Plans and Regional Disaster Risk Reduction Action Plans (RAD PRB) will serve as references for the preparation of the Regional Middle-Term Development Plan (RPJMD). The challenge at the sub-national level is that cross-sectoral coordination remains a challenge, which sometimes prevents the effectiveness of DRR implementation at the sub-national level.

Moreover, at the village level, there is the urge to conduct capacity building to familiarize village apparatuses with regulations on village fund management for mainstreaming DRR, and to identify affirmative budget allocation on disaster preparedness and disaster response activities. Furthermore, by considering the urban population growth rate of approximately 4 percent annually, urban risks will certainly pose challenges in the coming decades. Therefore, Indonesia needs to strengthen further its urban risk management, and in line with SDG 11 of “[making] cities and human settlements inclusive, safe, resilient, and sustainable”, as well as in addressing climate change adaptation, Indonesia still faces a challenge in integrating SFDRR targets into urban and village resilience programs.

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