Indonesia's Disaster Risk Management Baseline Status Report 2015

Towards identifying national and local priorities for the implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030)

BNPB

Prepared by
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ABBREVIATIONS

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ADB	Asian Development Bank
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on disaster management
ACDM	ASEAN Committee on Disaster Management
ASEAN	Association of Southeast Asian Nations
AEIC	ASEAN Earthquake Information Centre
AMCDRR	Asia Ministerial Conference for Disaster Risk Reduction
APEC	Asia-Pacific Economic Cooperation
BAPPENAS	Badan Perencanaan Pembangunan Nasional or National Development Planning Agency
BASARNAS	Badan SAR Nasional or National SAR Agency
BMKG	Badan Meteorologi, Klimatologi, dan Geofisika or Indonesian Agency for Meteorological, Climatological and Geophysics
BNPB	Badan Nasional Penanggulangan Bencana or National Agency for Disaster Management
BPBD	Badan Penanggulangan Bencana Daerah or Regional Agency for Disaster Management
BPPT	Badan Pengkajian dan Penerapan Technology or Agency for Assessment and Application of Technology
BRG	Badan Restorasi Gambut or Peat Restoration Agency
CBDRM	Community Based Disaster Risk Management
CDE	Consortium for Disaster Education
DFAT	Development Cooperation by Australian Department of Foreign Affairs and Trade
DIBI	Data dan Informasi Bencana Indonesia or Indonesia Disaster Information and Data
DRM	Disaster Risk Management
DPO	Disabled People's Organisation
DRR	Disaster Risk Reduction
DG-ECHO	European Commission Humanitarian Aid Department
ECLAC	Economic Commission for Latin America and Caribbean
EWS	Early Warning System
FHH	Female-Headed Households
GDP	Gross Domestic Product
GFDRR	World Bank's Global Facility for Disaster Reduction and Recovery
GITEWS	German Indonesian Tsunami Early Warning System
GHG	Green House Gasses
GII	Gender Inequality Index
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
GOI	Government of Indonesia
GNI	Gross National Income
HDI	Human Development Index
HFA	Hyogo Framework for Action
HFI	Humanitarian Forum Indonesia
IAP	ISDR Asia Partnership
IDF	Indonesia Disaster Fund
IMDFF-DR	Indonesia Multi-Donor Fund Facility for Disaster Recovery
IDR	Indonesian Rupiah
IORAC	Indian Ocean Rim Association for Regional Cooperation
InaTEWS	Indonesia Tsunami Early Warning System
IOTWS	Indian Ocean Tsunami Warning System
IRBI	Index Rawan Bencana Indonesia or Indonesia Disaster Risk Index
JICA	Japan International Cooperation Agency
KEMEN ATR	Kementerian Agraria dan Tata Ruang or Ministry of Land and Spatial Planning

KEMENDAGRI	Kementerian Dalam Negeri or Ministry of Home Affairs
KEMENDESA PDTT	Kementerian Desa, Pembangunan Daerah Tertinggal dan Transmigrasi or Ministry of Village, Disadvantaged Regions and Transmigration
KEMEN ESDM	Kementerian Energi dan Sumber Daya Mineral or Ministry of Energy and Mineral
KEMENKES	Kementerian Kesehatan or Ministry or Health
KEMEN KKP	Kementerian Kelautan dan Perikanan or Ministry of Maritime Affairs and Fisheries
KEMEN KOMINFO	Kementerian Komunikasi dan Informatika or Ministry of Communication and Informatics
KEMEN PU-PERA	Kementerian Pekerjaan Umum dan Perumahan Rakyat or Ministry of Public Works and Housing
KEMENEG	Kementerian Agama Republik Indonesia or Ministry of Religious Affairs of the Republic of Indonesia
KEMENSOS	Kementrian Sosial or Ministry of Social Affairs
KEMENTAN	Kementerian Pertanian or Ministry of Agriculture
KEMENDIKDASBUD	Kementerian Pendidikan dan Kebudayaan or Ministry of Education and Culture
LAPAN	Lembaga Penerbangan dan Antariksa Nasional or National Institute of Aeronautics and Space
MDGs	Millennium Development Goals
MHH	Male-Headed Households
MIC	Middle Income Country
MPBI	Masyarakat Penanggulangan Bencana Indonesia or The Indonesia Society of Disaster Management
NGO	Non-Government Organization
PDNA	Post-Disaster Need Assessment
Planas PRB	Platform Nasional untuk Pengurangan Risiko Bencana or National Platform for disaster risk reduction
POLRI	Kepolisian Negara Republik Indonesia or Indonesian National Police
PPP	Purchasing Power Parity
HFI	Humanitarian Forum Indonesia
PTWS	Pacific Tsunami Warning and Mitigation System
PVMBG	Pusat Vulkanologi dan Mitigasi Bencana Geologi or Centre of Volcanology and Geological Hazard Mitigation
RENAKSI	Rencana Aksi or Government of Indonesia's Rehabilitation and Reconstruction Action Plans
RPB	Rencana Penanggulangan Bencana or Provincial Disaster Management Plan
RPJMN	Rencana Pembangunan Jangka Menengah Nasional or National Medium Term Development Plan.
SCAs	Senior Citizens Associations
SDGs	Sustainable Development Goals
TNI	Tentara Nasional Indonesia or Indonesian National Army
TNP2K	Tim Nasional Percepatan Penanggulangan Kemiskinan or The National Team for the Acceleration of Poverty Reduction
TWGs	Technical Working Groups
SFDRR	Sendai Framework for Disaster Risk Reduction
UNDP	United Nations Development Programme
UNISDR	United Nations Office for Disaster Risk Reduction
USAID	United States Agency for International Development
YTBI	Yayasan Tanggul Bencana Indonesia
WHO	World Health Organisation
WRI	World Resources Institute

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It is our pleasure to share the Indonesia's Disaster Risk Management Baseline Status Report 2015: *Towards identifying national and local priorities for the implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030) (SFDRR).*

This report is based on an extensive consultation process (including four multi-stakeholder meetings, several peer-review meetings and bilateral interviews) during the course of one-and-a-half years, in conjunction with a desk review and data analysis process. The Directorate for Disaster Risk Reduction in BNPB coordinated this process with technical assistance by UNV and UNOCHA to work with a group of peer review facilitators consisting of the Indonesian Society for Disaster Management (MPBI), the National Platform for DRR (Planas PRB), United Nations agencies, and civil society including NGOs, academia, community, faith-based organizations and the private sector.

The report has been developed by the National Disaster Management Authority (BNPB) with technical collaboration of the United Nations Volunteer (UNV) regional project "UNV Support to enhancing capacity of United Nations Plan of Action on Disaster Risk Reduction (DRR) for Resilience in South and East Asia and Pacific", the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and the United Nations Office for Disaster Risk Reduction (UNISDR). The report has been thoroughly reviewed and enriched by the contributions from the National Development Agency (BAPPENAS), Indonesian line ministries and agencies, member organisations of the National Platform for DRR, United Nations agencies and civil society including national and international non-governmental organisations, academia, community and faith-based organizations, private sector and other DRR stakeholders in Indonesia.

Indonesia's National Disaster Management Authority (BNPB)
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EXECUTIVE SUMMARY

This baseline report aims to further develop a clear understanding among the government (both national and local), line ministries, NGOs, academia, private sector and communities of Indonesia's current disaster risk management status and to identify national targets and priorities for action for next fifteen years in line with Agenda 2030. The progress and challenges in the implementation of the SFDRR at the national and local levels will be monitored against this baseline report. It will also foster international cooperation and contribute to the regional and global monitoring of the progress in disaster risk management.

The report consists of the main report and thirteen sectoral reports.

- Section one and Annex H on the timeline and process explain the context, purpose, target audience and methodology of this report.
- Section two delves into the disaster landscape of Indonesia and discusses the existing hazards, vulnerabilities and risks
- Section three provides further details of the existing systems to understand and manage these multiple hazards, risks, vulnerabilities and capacities. These include prevalent policies, legislative, institutional, regulatory, accountability frameworks and funding mechanisms.
- Section four maps the stakeholders responsible for the implementation of the Sendai Framework.
- Section five is arguably the most significant section of the report as it analyses the first four sections and lists the resulting priorities for actions to be undertaken by the Indonesian government and its national and international partners in next fifteen years, in line with the National Mid-term Development Plan (RPJMN), the Sustainable Development Goals and SFDRR priorities and targets.
- Annexes C, D, E and F lists government and civil society stakeholders.
- Annex G of the report further explains the connection between this report and related global processes.

The Main Report will be reviewed biennially by a Review Committee under the joint chairmanship of BNPB and BAPPENAS and will compare progress against the established baseline, in line with the RPJMN and SDGs reports.

The thirteen sectoral reports will be reviewed separately on a biennial basis by the responsible line ministries and agencies. These review meetings will be jointly convened by the lead government line ministry, BNPB and BAPPENAS, with the required support from the relevant clusters. Biennial progress reports will be developed to measure the progress against this baseline status report.

This report as a "living document" will provide opportunities for national and regional consultations to elicit inputs and analysis for updating the report by diverse stakeholders.

SECTION 1: INTRODUCTION

1.1. Context

The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 sets the outcome of "…the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries."[1], to be measured against seven global targets that are both quantitative and qualitative, and against a baseline derived from disaster risk reduction (DRR) actions taken during the 2005-2015 period.[2]

The Government of Indonesia recognises its sovereign responsibility to prevent and reduce disaster risk and, at the same time, ensure that disaster risk management becomes a shared responsibility of central and local governments, line ministries and related civil society stakeholders. The Rencana Pembangunan Jangka Menengah Nasional (RPJMN) or National Medium Term Development Plan, 2015-2019 has outlined the need to further mainstream disaster management in development planning, building on work already done in the context of the Hyogo Framework for Action (HFA). Significant progress has been made by the Indonesian Government since Hyogo Framework of Action was adopted in 2005. The most recent HFA report (2013-2015), submitted by the Indonesian government highlights the cumulative progress made for the following HFA goals:

Strategic Goal 1 : *The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.*

Outcome: Disaster management (DM)planning has been strengthened at the provincial and district/city levels. DM plans were developed for all the provinces by 2013. BNPB has extended DM planning in some districts and cities. BNPB has also been piloting village-level DM Plans. It is expected that in the coming years DRR will be mainstreamed into regular development planning at the local levels.

Strategic Outcome For Goal 2: *The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.*
Outcome: Between 2005 and 2015, all provinces established disaster management agencies and currently more than 90 per cent of districts and cities in the country have established Local DM Agencies (BPBDs). BNPB has continuously facilitated BPBDs and local DRR platforms to promote DRR at the village level and have trained these BPBDs in risk assessment, response, and community-based DRR. However, capacity to respond to climate-related disaster risks, has not been as significantly developed at the local level.

Strategic Goal Area 3: *The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.*

[1] United Nations(2015), Sendai Framework for Disaster Risk Reduction 2015 2030: http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf
[2] UNISDR(2015), Country Landscape of Disaster Risk Reduction: www.unisdr-apps.net/confluence/download/attachments/16416845/Country%20Landscape%20of%20DRR-04May2015.docx?version=1&modificationDate=1432091525000&api=v2

Outcome: Until 2015, 122 districts and cities in Indonesia developed their contingency plans for multiple hazards. There are increasing efforts to engage communities and DRR stakeholders in contingency planning and disaster emergency/simulations response exercises.

For detailed information, kindly refer to Indonesia's National progress reports on the implementation of the Hyogo Framework for Action 2011[3], 2013[4] and 2014[5].

The National Disaster Management Plan for 2015-2019 and Disaster Management Policy and Strategy 2015 -2019 articulates Indonesia's growing commitment to finance disaster risk reduction mainstreaming. A key element of the success of the RPJMN and 2030 Agenda for Sustainable Development will rest upon the ability to measure progress in implementing disaster risk reduction policies and programmes[6]Annex G will monitor the progress of RPJMN – GOI National Indicators in line with Sustainable Development targets and indicators, SFDRR targets, the Humanitarian Core Responsibilities emanating from the World Humanitarian Summit, and articles in climate change agreements.

1.2. Purpose and objectives of the report

Purpose

The implementation and monitoring of the SFDRR in Indonesia require a clear understanding among government, (both central and local), line ministries, partners and stakeholders such as NGOs, the private sector and communities of the country's current disaster risk management baseline status, so as to be able to identify national targets and priorities for action. Understanding the progress and challenges made against this baseline at the national and local levels will be essential for fostering international cooperation and for contributing to the regional and global monitoring of the progress.

Since the 2004 Indian Ocean Tsunami, Indonesia has invested substantial efforts in monitoring and reporting on DRR progress. The tsunami was the world's worst recorded natural disaster. In Indonesia alone, 225,000 lives were lost, over 400,000 people were internally displaced, 20 per cent of the population of Aceh province was rendered homeless, and 20 per cent of the land area of Nias Island was damaged.[7] While the immediate economic loss caused by the event was estimated at US$ 4.5 billion[8], the tsunami also inflicted long-term environmental and development harm as salt water contaminated agricultural and residential land, wiped out agriculture and damaged forests and ecosystems.

The widespread devastation across a number of countries around the Indian Ocean spurred the international community into immediate action. The Hyogo Framework for Action (HFA) was world's first comprehensive agreement on disaster reduction.[9] HFA monitoring became an instrumental part of advancing Indonesia's DRR agenda, including the development of the national Disaster Management Law in 2007 and the creation of BNPB in 2008, whose role is to coordinate

[3] BNPB (2011) Indonesia National progress report on the implementation of the Hyogo Framework for Action (2009-2011), http://www.preventionweb.net/files/15941_idn_NationalHFAprogress_2009-11.pdf
[4] BNPB (2013),Indonesia National progress report on the implementation of the Hyogo Framework for Action (2011-2013), http://www.preventionweb.net/files/28912_idn_NationalHFAprogress_2011-13.pdf
[5] BNPB (2014), Indonesia National progress report on the implementation of the Hyogo Framework for Action (2013-2015), http://www.preventionweb.net/files/41507_IDN_NationalHFAprogress_2013-15.pdf
[6] UNISDR (2015), Disaster Risk Reduction and Resilience in the 2030 Agenda for Sustainable Development
[7] ADB(2012) Validation Report: Indonesia: Earthquake and Tsunami Emergency Support Project:http://www.adb.org/sites/default/files/evaluation-document/36080/files/pvr-237.pdf
[8] World Bank (2005),Rebuilding a Better Aceh and Nias Stocktaking of the Reconstruction Effort Brief for the Coordination Forum Aceh and Nias (CFAN): www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2005/11/10/000012009_20051110101558/Rendered/PDF/342010rev.pdf
[9] UNIC (2015),Marking 10 years since Indian Ocean tsunami, UN says world better prepared for natural disasters: http://www.un.org/apps/news/story.asp?NewsID=49691#.VkiZezi6Fhg

the disaster risk management efforts of the Government and stakeholders. Nevertheless, and despite significant advances, information is either still distributed amongst line ministries and government agencies or is not yet not available. Further streamlining and coordination is required to enhance line ministries and relevant government institutions understanding and management of disaster risks. Systematic monitoring of DRR progress remains as yet only a partially achieved goal for Indonesia.

Below are the outcome, goal, seven targets and four Priorities for Action in the Sendai Framework for Disaster Risk Reduction.[10]

Outcome of SFDRR
The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses and communities in Indonesia.

The realization of this outcome requires the strong commitment and involvement of political leadership in Indonesia at all levels in the implementation and follow-up of the present Framework and in the creation of the necessary conducive and enabling environment.

Goal of SFDRR
To attain the expected outcome, the following goal must be pursued:

> *Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.*

Seven SFDRR Targets
To support the assessment of progress in achieving the outcome and goal of SFDRR, seven global targets have been agreed. These targets will be measured at the national level and will be complemented by the Indonesian Government's work to develop appropriate indicators. National targets and indicators will contribute to the achievement of the outcome and goal of the present Framework. The seven global targets are:

(a) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005– 2015;
(b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;9
(c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030;
(d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030;
(e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;

[10] United Nations (2015) The Sendai Framework for Disaster Risk Reduction 2015-2030: http://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf

(f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;
(g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

Priorities for action
In pursuance of the expected outcome and goal, there is a need for focused action within and across sectors by states at local and national levels in the following four priority areas:

Priority 1: Understanding disaster risk.
Priority 2: Strengthening disaster risk governance to manage disaster risk.
Priority 3: Investing in disaster risk reduction for resilience.
Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

Objectives
Following are the objectives of Indonesia's DRM Baseline Status Report (2015-2030):

Objective 1: To clearly identify the gaps in disaster risk management at all levels and sectors of Indonesian society and to support the designing of actions to address them in the next fifteen years.
Objective 2: To enhance collaboration among line ministries and DRM stakeholders in the implementation and monitoring of disaster risk management in general and to more fully address the requirements of SFDRR's global standards on DRR in particular.
Objective 3: To promote coherence and synergy of future actions by Indonesia to maximize the impacts of its collective disaster risk management efforts.

1.3. Target audience

The target audiences for Indonesia's Disaster Risk Management Baseline Status Report (2015-2030) are the following:

a. **Government line ministries/institutions:** The main baseline report will serve as a reference document for the Indonesian Government's line ministries and institutions especially Badan Perencanaan Pembangunan Nasional or the National Development Planning Agency (BAPPENAS) and BNPB to monitor the progress of national development indicators in line with disaster risk management related Sustainable Development Goals (SDGs) and SFDRR.[11] A further thirteen sub-reports will be developed and monitored by the relevant line ministries.

b. **Disaster prone countries:** The report aims to foster international cooperation. Other countries with similar contexts to those prevailing in Indonesia may wish to use this as a best practice reference document while preparing their own country reports. The report may also become the baseline for comparison of achievements between different countries.

c. **Other DRM stakeholders:** This document will also be useful for other stakeholders such as the United Nations, NGOs, the private sectors, media, academia, CSOs, communities and other stakeholders who are engaged in one or more aspects of the disaster risk management agenda.

[11] BAPPENAS coordinates national development planning and BNPB coordinates national efforts for disaster risk management.

1.4. Methodology and structure of the report

Structure of the report: The structure of the report was proposed by the United Nations Office for Disaster Risk Reduction (UNISDR), based on the inputs received from the inter-governmental participants of the UNISDR Asia Partnership (IAP) meeting on 3 to 5 June 2015 in Bangkok, Thailand.[12] The document outlines the existing gaps, issues, achievements and the Priorities of Action for disaster risk management.

The report consists of one Main Report and thirteen sub-reports with policy recommendation sections for the line ministries and DRM stakeholders. These will be used by the government to biannually measure the progress against the SFDRR commitments in Indonesia and to design the future outlook and recommendations for action. In addition to the main report the thirteen sub-reports cover:

1. Education
2. Health
3. Urban Development and land use planning/ Infrastructure Development
4. Risk financing /Micro finance/insurance
5. Social Protection
6. Food Security
7. Livelihoods /Agriculture
8. Environment and Ecosystem/ Climate Risk Management
9. Volunteerism and Community Participation
10. Private sector and Industries
11. Marine
12. Energy
13. Tourism and Cultural heritage

Methodological background for development of the report:

a. The Sendai Conference and the IAP meeting (2015): Indonesia was actively involved in the development of the Sendai Framework on Disaster Risk Reduction. It also committed during the ISDR Asia Pacific Meeting, held in Bangkok in June 2015, to pioneer the development of a Road Map for Sendai Framework implementation, starting with this baseline status report.

b. National level multi-stakeholder meeting: The first national multi-stakeholder meeting was organized on 30 July 2015 in Jakarta[13]. More than 60 participants attended the workshop and five Technical Working Groups (TWGs) were formed to work on the thirteen sector reports.[14] The second and the third multi-stakeholder meetings were organized on 1 March 2016 and 26 July 2016 to review the process of completion of the main and sectoral reports. The results of the group work done by the participants have formed the basis of this main report.

c. A desk review of international and national documents (plans, policies, reports and research articles) related to disaster and development planning was undertaken to support preparation of this report.

d. In-depth interviews were conducted with government officials, staff from UN agencies and partners from civil society organisations.

[12] UNISDR (2015) , Meeting Report – First ISDR Asia Partnership Meeting of 2015: http://amcdrrindia.net/wp-content/uploads/2015/10/Report-of-IAP-Meeting-3-5-June-2015.pdf

[13] Please see attached Annex A: Report on First multi-stakeholder for development of National Baseline Report on DRM for Sendai Framework

[14] Please see attached Annex B Terms of Reference for Technical Working Groups for development of thirteen sector reports.

e. The initial findings of the draft Main Report were presented at the IAP meeting in Delhi in November 2015.
f. The data collected through desk reviews and interviews was analysed; critical issues were identified for which to propose recommendations and follow up action for the government line ministries and authorities in the country.
g. The final results, comprising the main report and completed sector reports will be presented at the Asia Ministerial Conference on Disaster Risk Reduction (AMCDRR) to be held in New Delhi between 2-5 November 2016.[15]

Kindly refer to the Annex H: Timeline and process for development of the Indonesia's Disaster Risk Management Baseline Status Report 2015: *Towards identifying national and local priorities for the implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030)*

1.5 Periodic update of the Country DRM Status

The Main Report will be reviewed biennially by the Review Committee under the joint chairmanship of BNPB and BAPPENAS to compare progress against the established baseline. The Review Committee will consist of the following entities:[16]

a. BNPB
b. BAPPENAS
c. Government Line ministries and agencies with relevant clusters
d. Members of National Platform for DRR (Planas PRB)
e. UNISDR/UN agencies
f. Civil society including NGOs, INGOs, academia, faith-based organizations and private sector

The thirteen sectoral reports will be reviewed separately on a biennial basis by the responsible line ministries and agencies. These review meetings will be jointly convened by the lead government line ministry, BNPB and BAPPENAS with the required support from the relevant clusters.[17] The biennial progress reports will be developed to measure the progress against this baseline status report.

[15] Asia Ministerial Conference on Disaster Risk Reduction 2016: www.amcdrrindia.net/about/
[16] The Review Committee has been constituted during the Final Multi-stakeholder workshop held on Sentul, July 2016
[17] Kindly refer to Annex C on the on international and national cluster and draft document on the ongoing alignment of national clusters. The alignment of the clusters as a priority of action will be completed by next year.

SECTION 2: INDONESIA'S DISASTER RISK PROFILE

2.1 The country in brief

Indonesia is one of the most highly disaster-prone countries in the world.[18] The Indonesian archipelago has some 17,000 islands out of which 6,000 are inhabited. Communities in Indonesia are very resilient to disaster shocks. They face numerous different hazards and vulnerabilities and have differing levels of disaster response capacity and ability to manage the consequences of crises.[19] Geological and climatological vulnerability is exacerbated by development challenges, including poverty, population growth, inequalities in human development, unplanned urbanization, uneven implementation of land use policies and building codes, a relatively high prevalence of corruption and insufficient law enforcement. Environmental destruction, poorly controlled exploitation of natural resources and climate change are increasing the frequency of catastrophic events and are resulting in an increased number of casualties and damage in Indonesia compared to the previous years. [20]

Human Development Index and Disasters

Indonesia ranks 108 out of 187 countries in the global Human Development Index (HDI)[21] and has fourth largest population in the world. The country has progressed well and ranks fourth in the world's **"Top Movers" in HDI improvement: 1970-2010**.[22] Between 1980 and 2013, Indonesia's life expectancy at birth increased by 12.2 years, mean years of schooling increased by 4.4 years and expected years of schooling increased by 4.0 years. It's GNI per capita increased by 206 per cent between 1980 and 2013.[23]

Indonesia's HDI trends:

Years	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capital (2011 PPP$)	HDI value
1980	58.6	8.7	3.1	2,931	0
2013	70.8	12.7	7.5	8,970	0 .

Although categorized as a Middle-Income Country (MIC) with a strong economy and improving HDI, Indonesia continues to experience development challenges, including uneven focus on the need to reduce disaster risks in sectoral plans and budgeting by all the line ministries and at all levels of administration.

Education: The Indonesian school system is immense and diverse. With over 50 million students and 2.6 million teachers in more than 250,000 schools, it is the third largest education system in the

[18] UN World Risk Index (2014) http://ehs.unu.edu/news/news/world-risk-report-2014.html#info
[19] USAID (2014) Indonesia: Disaster Response and Risk Reduction, USAID'S Office of U.S. Foreign Disaster Assistance (USAID/OFDA), 24 October 2014, Page https://www.usaid.gov/sites/default/files/documents/1866/FactSheet_Indonesia_DRRR_2014.pdf
[20] BAPPENAS (2015) Regional Planning Handbook 2015: Building Resilience Through the Nation Disaster Risk Reduction Efforts: http://rc.bappenas.go.id/id/publikasi-informasi-aplikasi-dan-tautan/publikasi/buku-pegangan-perencanaan-pembangunan-daerah-2015-membangun-ketangguhan-bangsa-melalui-upaya-pengurangan-risiko-bencana/
[21] UNDP,(2014) Human Development Report 2014,Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience http://www.undp.org/content/dam/undp/library/corporate/HDR/2014HDR/HDR-2014-English.pdf
[22] UNDP (2010), Human Development Report, 20th Anniversary Edition, The Real Wealth of Nations - Pathways to Human Development: http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf
[23] UNDP (2010): Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience Explanatory note on the 2014 Human Development Report composite indices for Indonesia: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf

Asia region and the fourth largest in the world.[24] It is estimated that 75 per cent of schools in Indonesia are located in disaster prone areas. Most primary schools were built in the 1980s, when DRR issues were not considered. Policies for safe schools are in place at the national level and more than 25,620 pilot safe schools have been completed, but scaling up the numbers remains a major challenge.[25] Youth literacy is 99 per cent (female youth literacy is 99 per cent) and adult literacy is 93.9 per cent in Indonesia. Evidence shows that DRR programmes are more effective when youth is involved in DRR initiatives. The high literacy rate will impact positively for capacity development on disaster risk management.

Food security and nutrition: Nutritional status is influenced by two main determinant factors (immediate causes): food intake and health status (disease). Disasters and food insecurity are directly interrelated. Floods, landslides, drought, volcano eruptions, tsunamis and other disaster can spoil food, destroy agricultural, livestock and fishing and food processing infrastructure, assets, inputs and production capacity. Disasters interrupt market access, trade and food supply, reduce income, deplete savings and erode livelihoods. Disasters create poverty traps that increase the prevalence of food insecurity and malnutrition.

Based on the State of Food Insecurity in the World (SOFI) 2015, FAO estimates the prevalence of undernourishment (insufficient food consumption) in Indonesia in 2014-2016 at 7.6 per cent., a reduction from 11.1 per cent in 2010-2012. Indonesia is close to reaching the World Food Summit (WFS) goal of at least halving the number of undernourished people by 2015. Indonesia has also achieved MDG target 1c by halving the proportion of undernourished people by 2015. Over the past 25 years, Indonesia has done well in that the proportion of undernourished people fell from 19.7 per cent of the population in 1990-1992 (1 in every 5 people), to 7.6 per cent in 2014-2016 (1 in every 12). Nevertheless, nearly 20 million people still suffer from insufficient food consumption.

In terms of safe and nutritious food to meet dietary needs, Indonesia is doing less well. Most recent data, from 2013, shows that chronic malnutrition in children (stunting) under 5 years of age in Indonesia is high at 37.2 per cent, and that this figure has increased when compared to 2010 (35.6 per cent). Statistically, stunting in Indonesia is not only significantly related to poverty and food availability, but has higher correlation to hygiene and sanitation. This implies that there is still inadequate access to diverse and nutritious foods for a large part of the population. Inadequate health and hygiene, as well as inadequate food safety and clean water, are important concerns, especially during disasters.

Regarding physical and economic access to food, by far the majority of the rural poor are net buyers of food – this means that they do not produce sufficient food for their own consumption. A related problem is that the consumer price for food is higher in Indonesia than in other ASEAN countries. With a population of 260 million people, Indonesia's food system is central to ensuring people's food security.

The food system is under pressure, partly because of inadequate infrastructure, and insufficient processing capacity to ensure added-value. This leads to food wastage, with FAO estimating that 13 million tons of food are wasted every year. This is a quite big loss (11 percent of production). Eliminating thiswaste could feed close to 27.5 million people for a whole year (similar to total number of people living below the poverty line in Indonesia).

[24] World Bank (2014), Brief - World Bank and Education in Indonesia: http://www.worldbank.org/en/country/indonesia/brief/world-bank-and-education-in-indonesia

[25] MOEC (2014), Ministry of Education and Culture (MOEC), Presentation - Achievement of the Indonesian Safe School Implementation: http://www.worldbank.org/content/dam/Worldbank/Feature%20Story/japan/pdf/event/2014/121014-GogotSuharwoto.pdf

Disaster risk reduction aids vulnerable people to achieve food and nutrition security. FAO has worked with Government counterparts on development of a Disaster Risk Reduction for Food and Nutrition Security Framework Programme. It promotes an inter-disciplinary and programmatic approach to disaster risk reduction for food and nutrition security, by integrating the agriculture, livestock, fisheries, forestry and natural resource management sectors, to respond more effectively to the diverse livelihoods of small-scale farmers and to the complex set of factors which contribute to disaster risks.

Health: Health outcomes have significantly improved in Indonesia and have contributed to the increase in life expectancy from 43 years in the 1970s to 70.5 in 2008. Nevertheless, Indonesia fell short of achieving its Millennium Development Goals (MDG) health targets.[26] MMR is 305[27] per 100,000 live births which is far from the MDG target of 102 per 100,000 live births in 2015.[28] Crude Birth Rate is 20.4 births per 1000 population and Contraceptive Prevalence Rate (CPR) for modern methods among currently married women age 15-49 is 58% based on Indonesia Demographic Health Survey (IDHS) 2012. Despite recent progress, access to improved sanitation facilities currently stands at 68 per cent of the population, which remains significantly short of the MDG target of 86 per cent.[29]

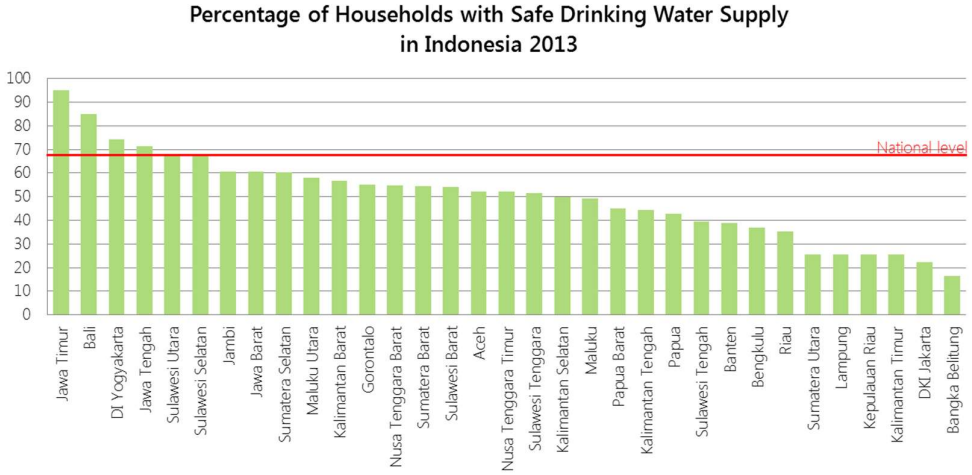
At the same time, Indonesia faces challenges such as population growth, epidemics, and is at a nutrition crossroads. Communicable diseases remain a significant challenge to the health system as demonstrated by increasing trends of various communicable diseases such as filariasis and tuberculosis. Growth of the HIV/AIDS epidemic among high-risk groups is alarming but currently concentrated among the urban poor population. Non-communicable diseases including cardiovascular diseases, metabolic disease, and cancers, have also been detected as being on the increase and becoming major causes of death.

Poor hospital and health facilities construction or hazardous location continues to be observed. Hospital preparedness is important for immediate provision of medical services to a spike in the number of people needing help after a sudden onset disaster. The Ministry of Health has published Technical Guidelines for Safe Hospital in Disaster and Emergency Situations. These guidelines have been adopted and modified from 'Safe Hospitals in Emergencies and Disasters, Structural, Non Structural and Function Indicators' published by World Health Organisation (WHO) Regional Office for the Western Pacific as part of the regional implementation of the global campaign on Making Hospitals Safe from Disasters. The data on implementation and attainment of these indicators needs to be developed and completed. Moreover, the safe hospitals and safe health facilities are to be scaled up at the local levels in Indonesia.

Access to Safe drinking water and Sanitation: Around 43 million people in Indonesia are living without access to an improved drinking water source, 110 million without access to improved sanitation and 63 million people practise open defecation.[30] Lack of adequate sanitation costs the country the equivalent of around 2.3 per cent of GDP annually in terms of health and environmental related economic losses.[31] There are regional disparities in access to clean water and adequate sanitation. Jakarta has the highest level of access to basic sanitation at over 80 per cent, while Nusa Tenggara Timur has the lowest at 15 per cent.[32] Communities living in unsanitary conditions such as

[26] World Bank (2014), World Bank and Health in Indonesia: http://www.worldbank.org/en/country/indonesia/brief/world-bank-and-health-in-indonesia
[27] As per 2015 Intercensal Population Survey (Survey Penduduk Antar Sensus/SUPAS)
[28] BPS et al (2013) Indonesia Demographic and Health Survey 2012, Statistics Indonesia (Badan Pusat Statistik—BPS), National Population and Family Planning Board (BKKBN), and Ministry of Health (Kemenkes), and ICF International: https://dhsprogram.com/pubs/pdf/FR275/FR275.pdf
[29] World Bank (2015) , Indonesia – Overview: http://www.worldbank.org/en/country/indonesia/overview
[30] WHO AND UNICEF (2012) Progress on Drinking Water and Sanitation, Joint Monitoring Programme Update 2012: HTTP://WWW.WHO.INT/WATER_SANITATION_HEALTH/PUBLICATIONS/JMP_REPORT-2012/EN/
[31] World Bank (2013) Poor Sanitation Impedes Indonesia's Growth Potential: http://www.worldbank.org/en/news/press-release/2013/10/28/Poor-Sanitation-Impedes-Indonesia-8217-s-Growth-Potential
[32] ADB (2012) Water Supply and Sanitation Sector Assessment, Strategy, and Road Map Indonesia: http://www.adb.org/sites/default/files/institutional-document/33808/files/indonesia-water-supply-sector-assessment.pdf

inadequate sanitation, lack of water or poor hygiene are more vulnerable and prone to diseases. Poor sanitation and inadequate water can lead to increased instances of diseases, epidemics and deaths. Water and sanitation and hygiene (WASH) is one of the most important elements in humanitarian disasters. Access to safe drinking water supply and adequate sanitation is an indicator of the health status of a community and correlates with the households' disaster resilience.



Source: BAPPENAS (2015), Evaluasi Kinerja Pembangunan Daerah di 33 Provinsi

Poverty and Disasters: Poverty and disasters are intrinsically linked in a vicious cycle. Poor and marginalized households tend to be less resilient and face greater difficulties in absorbing and recovering from disaster impacts.[33] Poverty limits the coping mechanisms of communities to respond to multiple risks and undermines their safety consciousness as they strive to meet basic needs (such as food and drinking water) within their available financial resources. Poor communities are usually forced, by dint of their circumstances, to live in hazardous, often marginalized areas. In Indonesia disaster risks are closely related to poverty. Poor people tend to live and work in hazardous and marginalized areas that are more exposed to disasters. The historical data developed by BNPB confirms that areas with a high population density of poor people experience more frequent disasters.[34] Out of a population of 252 million, more than 28 million Indonesians live below the poverty line. Approximately half of all households remain clustered around the national poverty line set at IDR 292,951 per month (US$24.40) [35], and thus only a single disaster away from falling back into poverty. Livelihood groups most impacted by hydro-meteorological disasters, El Niño/ La Niña and climate change are the poorest households such as agricultural wage laborers, food crop producers, and small scale fishermen, landless, unemployed and urban poor. The latest poverty figures from Indonesia's Statistical Agency (BPS) noted an increase in poverty in 2015, with 1.1 million additional Indonesians falling below the poverty line. BPS has directly attributed these newly poor households to El Niño induced droughts and consequent increase in food prices.[36] Population growth is also contributing to increasing vulnerability to disaster shocks as there are millions of people who survive on incomes marginally above the poverty line. This represents an obstacle for economic progress and human development. The areas that are poor and overpopulated are generally

[33] World Bank (2013) Building Resilience, Integrating Climate and Disaster Risk into Development, The World Bank Group Experience, http://www.worldbank.org/content/dam/Worldbank/document/SDN/Full_Report_Building_Resilience_Integrating_Climate_Disaster_Risk_Development.pdf
[34] GOI(2013) National Assessment Report on Disaster Risk Reduction 2013,Goverment of Indonesia (GOI)http://www.bnpb.go.id/uploads/migration/pubs/573.pdf
[35] World Bank (2015) , Indonesia – Overview: http://www.worldbank.org/en/country/indonesia/overview
[36] WFP (2016) The Impact of Drought on Households in Four Provinces in Eastern Indonesia: http://documents.wfp.org/stellent/groups/public/documents/ena/wfp282160.pdf

the ones which suffer the most as a result of rapid environmental change and so called 'natural' disasters.[37] [38]

Road connectivity: Good condition of national roads refers to roads with damage level of ≤ 6 per cent based on technical criteria. All weather roads are an important indicator for disaster risk management because accessibility is vital, particularly during emergency response - evacuation, search and rescue and relief distribution. Good road networks also facilitate provision of goods, social services and movement of people during normal times, thus contributing to overall resilience of those most vulnerable to shocks, often located in remote areas. Overall, 19 per cent of the national road network is in poor condition and 15 per cent is congested. [39]

Logistics: According to the Ministry of Trade, Indonesia's logistics costs are over 23 per cent of GDP – or twice as high as neighbouring countries[40]. One of the causes is the poor logistics infrastructure in Eastern Indonesia, creating imbalanced economic growth between the western and eastern regions. This disparity was caused by a lack of investment in the eastern region, slowing down the economic growth. That Indonesia's logistics costs are the highest in Southeast Asia indicates that facilities, technology, human resources competencies and logistics policies have not yet been optimally developed.[41] High logistics costs contribute to the high economic impact of natural disasters – aggravated by the challenging operational environment during emergencies.

Indonesia's conventional logistics procedures and infrastructure – including road network, sea- and air-ports, intermodal relations, and so on – contribute to slow delivery time[42]. Disintegrated inter-connectivity between centres of production and centres of consumption also make domestic shipments more expensive than those overseas.

In the long term, Indonesia's investments in infrastructure[43], its emerging industries (including the production and processing of mineral resources) and consumer economy, will result in tremendously increasing transport needs. The development of new maritime facilities and multimodal corridors (the Marine Highway) should ease congestion at central hubs. Commercial pressure to open internal shipping and port management is rising[44], as costly logistics impact on consumer prices and harm Indonesia's competitiveness.

Some key hurdles remain, including outdated logistics procedures and scattered consumer populations, removed from major production centres (particularly outside Java). The Sislognas, a strategy connecting government and the private sector interests, shows that the issue is being addressed, and measures are being implemented to improve Indonesia's logistics sector competitiveness.

[37] Poverty – Populations matters: https://www.populationmatters.org/wp-content/uploads/D15Poverty.pdf
[38] BAPPENAS (2015), Evaluasi Kinerja Pembangunan Daerah Di 33 Provinsi
[39] ADB (2012), Transport Sector Assessment, Strategy, and Road Map:
www.adb.org/sites/default/files/institutional-document/33652/files/ino-transport-assessment.pdf
[40] Shipping 20-feet container from Jakarta to Jayapura costs IDR 25 million. Meanwhile, similar shipping from Jakarta to Shanghai, China only costs IDR 4.5 million.
[41] Herliana, L; Parsons, D (2011) The Impacts and Benefits of Structural Reforms in the Transport, Energy and Telecommunications Sectors in APEC Economies
[42] In the World Economic Forum (WEF) report for 2009 - 2012, the quality of Indonesia's infrastructure was ranked 82 of 134 countries.
[43] Indonesia's attractiveness to global logistics operators has long been hampered by a lack of investment in infrastructure.
[44] Law No. 17/2008 on Shipping has increased the scope for competition between ports by removing the monopolies of the four state-owned Indonesian Port Corporations (IPC I, IPC II, IPC III and IPC IV), each of which in the past would operate all commercial ports in its designated region of the country. The law opens up the industry by allowing private port facility operators and port services providers.
While foreign-flagged vessels are barred from engaging in most domestic shipping, a local presence or participation in local companies allows investors to capitalise on the immense need for transporting goods and people across the world's largest archipelago.

Technology can also play a crucial role in improving the performance of Indonesia's logistics sector. For example, while technologies such as GPS-tracking and RFID labels are commonplace in Western and other Asian markets, they are not yet widespread in Indonesia.

Recurrent challenges constrain humanitarian logistics efforts and impede progress:

1. Nature of the operations: Agencies still focus on direct relief rather than investing in systems and processes that will reduce expenses and disaster financial impact or make relief more effective over the long-term.
2. Organizational culture and high employee turnover can create an environment in which there is a lack of institutional learning.
3. Ineffective leveraging of technology: Many relief organisations' logistics activities still rely on manual systems, widely recognized as inadequate, inefficient, error-prone, and not useful where multiple sites are in use.
   Insufficient inter-agency collaboration results in a lack of coordination, plaguing a sector where coordination is critical. This leads to duplication of effort and stocks, and to overlapping or conflicting operations. This lack of coordination impacts both preparedness and response activities.

Regional Inequality: According to a World Bank report[45], Indonesia has one of the fastest rising rates of inequality with a Gini coefficient that has risen from 0.32 in 1999 to 0.41 in 2012. Regional disparities persist, further contributing to inequality nationally. The national average of HDI in Indonesia is 68.90. DKI Jakarta (78.39) and Daerah Istimewa Yogyakarta (76.81) have the highest HDI rates in the country and Nusa Tenggara Timur (62.26), Papua Barat (61.28) and Papua (56.75) have the lowest. Provinces in Eastern Indonesia are still lagging behind the national average due to limited infrastructure development, low levels of income and high rates of unemployment, environmental degradation, the relatively high living cost and inequality of goods distribution. Indonesia's poorest 40 per cent are becoming increasingly vulnerable. As inequality in the country increases, the loss in human development[46] also increases.[47] There is evidence that the inequities in access to social assistance have increased crime and eroded social capital. The World Bank suggests that this growing inequality may be affecting political and social cohesion.[48] Conflicts and erosion of social capital (social cohesion, mutual self-help and loss in trust) reduce the individual and collective coping capacity of the communities to prepare for, respond to and emerge from disasters. ,[49] It is an impediment to the vision for creation of resilient villages and communities.

Gender Inequality Index (GII): Indonesia ranks 110th out of 155 countries in the 2014 index. In Indonesia, 17.1 per cent of parliamentary seats are held by women, and 39.9 per cent of adult women have reached at least a secondary level of education compared to 49.2 per cent of their male counterparts. For every 100,000 live births, 190 women die from pregnancy related causes; and the adolescent birth rate is 48.3 births per 1,000 women of ages 15-19. Female participation in the labour

[45] BPS (2015) , Indonesia - Human Development Index: www.bps.go.id/website/pdf_publikasi/Booklet-IPM-Metode-Baru.pdf
[46] UNDP (2014) Human Development Report, Sustaining Human Progress Reducing Vulnerabilities and Building Resilience, Technical notes: Calculating the human development indices—graphical presentation www.hdr.undp.org/sites/default/files/hdr14_technical_notes.pdf *When all inequalities in dimensions are of a similar magnitude the coefficient of human inequality and the loss in HDI differ negligible. When inequalities differ in magnitude, the loss in HDI tends to be higher than the coefficient of human inequality. The loss in the Human Development Index due to inequality is averages these inequalities using the arithmetic mean:*
Coefficient of human inequality *= AHealth + AEducation + AIncome/*3
The loss in the Human Development Index due to inequality is: *Loss %* = 1 – [(1–*AHealth*). (1–*AEducation*). (1–*AIncome*)]$^{1/3}$.
[47] UNDP (2014), Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience -Explanatory note on the 2014 Human Development Report composite indices - Indonesia , HDI values and rank changes in the 2014 Human Development Report http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf
[48] World Bank (2014)Reducing inequality in Indonesia: http://www.worldbank.org/en/country/indonesia/brief/reducing-inequality-in-indonesia
[49] Witvorapong N, Muttarak R, Pothisiri W (2015) Social Participation and Disaster Risk Reduction Behaviors in Tsunami Prone Areas. PLoS ONE 10(7) , http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130862

market is 51.4 percent compared to 84.2 for men. [50] These persistent multidimensional (political, social, economic and wellbeing) inequalities exacerbate the existing vulnerabilities of women and girls during disasters and expose them to further multiple risks and exploitation.

Table on Gender Inequality Index (GII) in Indonesia (2014):

Life expectancy at birth		Expected years of schooling		Mean years of schooling		Gross National Income (GNI) per capita		HDI values	
Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
72.9	68.8	12.8	12.7	6.9	8.1	5,873	12,030	0.654	0.709

2.2 Disaster risk profile (hazard, vulnerability, risk)

Indonesia is prone to multiple hazards, vulnerabilities and risks as outlined below:

Hazards:

Indonesia is located on the Pacific Ring of Fire and at the meeting points of three tectonic plates: Indo-Australian, Eurasian and Pacific plates, making it one of the most volcano, earthquake and tsunami prone regions of the world. Besides the aforementioned geological hazards, Indonesia, being an equatorial tropical archipelago, annually witnesses several hydro-meteorological and climatological hazards.

Based on the nationwide disaster risk assessments the Government of Indonesia has listed twelve hazards.[51] The vulnerability to these natural hazards is increasing due to the socio-economic risks such as poverty and marginalization mentioned in the above paragraphs in Section 2.1:

Natural

- Earthquake,
- Tsunami,
- Flood
- Landslide
- Volcanic Eruption,
- Extreme Tidal Wave and Abrasion,
- Extreme Weather,
- Drought
- Forest and Land Fire

Non Natural

- Disease Epidemic and Pandemic,
- Technological Failure

Social

[50] UNDP(2015)Human Development Report 2015, Work for human development Briefing note for countries on the 2015 Human Development Report – Indonesia, http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf

[51] GOI (2007), Law of Republic of Indonesia Number 24, Year 2007 concerning Disaster Management, Government of Indonesia http://www.preventionweb.net/files/10841_indonesialaw242007concerningdisaste.pdf

- Social Conflict and terrorism.

Besides these hazards industrial and economic activities such as mining, plantations and overexploitation of natural resources and industrial accidents can also cause or contribute to disasters[52].

Social Conflicts

Social conflicts can create or increase vulnerability to other natural hazards, whilst natural hazard events and other environmental stresses can exacerbate social crisis and conflict leading to large scale disasters. Many social conflicts and complex emergencies are in areas which experience recurrent natural hazards.[53] At least three million Indonesians have been internally displaced by social and armed conflict since 1998. Most displacement took place between 1998 and 2004 when Indonesia, still in the early stages of democratic transition and decentralisation, experienced a period of intense social unrest characterized by high levels of inter-communal, inter-faith and separatist violence.[54] Further, development policies such as transmigration policies led to competition for land, resources, and eventually for power. Dispossession of the indigenous people of their land for logging, mining and extraction of natural resources led to resentment and conflict.[55] Since 2011, growing influence of global jihad and religious intolerance has led to a rise in attacks by Islamic militants against the religious minorities, sometimes resulting in their displacement.[56] The major social and ethnic conflicts in last a few decades include clashes between Dayaks , Madurese and communal groups in West Kalimantan, separatism movements in Moluccas, Papua and West Timor, communal riots in Ambon and Poso in Sulawesi.[57]

Climate change can indirectly increase risks of violent conflict by amplifying drivers of the conflicts, such as poverty and economic shocks.[58] Besides local government, civil society, NGOs and skilled leadership needs to be strengthened at the national and local levels for conflict resolution and social harmony.

Climate change and global weather patterns

Indonesia is vulnerable to the impacts climate change. Prolonged droughts, increased frequency in weather events and heavy rainfall and floods are a few examples of climate change. Climate change and related disasters continue to threaten agriculture, fishery and forestry impacting the food security and livelihoods of millions of vulnerable households. [59] According to the World Resources Institute (WRI, 2015)[60], Indonesia has become one of the largest emitters of greenhouse gasses (GHG), contributed by deforestation, forest fires and peat land degradation. These phenomena can result in uncertainty in agricultural production, economic instability, and greater incidences of malnutrition, hindering progress against poverty and exacerbating food insecurity. Increased frequency and severity of El Niño events may in turn increase fire hazards, as was observed during the 2015/16 El

[52] Palutikof Jean P. (2013) Editor. , Boulter Sarah L., Ash Andrew J., Smith Mark Stafford, Parry Martin, Waschka Marie, Daniela Guitart, Climate Adaptation Futures, Wiley-Blackwell
[53] Twigg John (2015)Disaster Risk Reduction Good Practice Review 9 Humanitarian Practice Group : http://goodpracticereview.org/9/
[54] IDMC (2014) Indonesia, Durable solutions needed for protracted IDPs as new displacement occurs in Papua. Internal Displacement Monitoring Centre ,Norwegian Refugee Council (NRC):http://www.internal-displacement.org/south-and-south-east-asia/indonesia/2014/indonesia-durable-solutions-needed-for-protracted-idps-as-new-displacement-occurs-in-papua-/
[55] Jones Sidney (2002) Causes of Conflict in Indonesia: http://asiasociety.org/causes-conflict-indonesia?page=0,2
[56] INDONESIA: Pluralism in Peril, The rise of religious intolerance across the archipelago: http://www.stefanus.no/filestore/Rapporter_notater_blader_etc/Indonesia-PluralisminPeril.pdf
[57] IDMC (2016) Indonesia: Concerted efforts needed to find solutions for protracted IDPs: http://www.internal-displacement.org/south-and-south-east-asia/indonesia/2015/indonesia-concerted-efforts-needed-to-find-solutions-for-protracted-idps
[58] IPCC(2014) Climate Change 2014, Synthesis Report, Fifth Assessment Report: http://www.ipcc.ch/
[59] Indonesia and Climate Change: Current Status and Polices - http://siteresources.worldbank.org/INTINDONESIA/Resources/Environment/ClimateChange_Full_EN.pdf
[60]http://www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters

Niño cycle. Climate hazards recently observed in Indonesia include decreased rainfall during the dry season, (causing droughts such as the 1997 El Niño which resulted in drought that caused 672 fatalities and a total damage cost of US $88 million[61]) as well as increased rainfall during the subsequent heavy monsoon season, together with land subsidence causing severe urban floods. The Jabodetabek (Greater Jakarta) floods in 2007 inundated almost 60 per cent of Jakarta and killed 80 people.[62 &63]

According to BNPB, El Niño related drought in 2015 once again aggravated existing vulnerabilities and causing multiple negative repercussions on the overall well-being of communities in 16 out of 33 provinces. Agricultural production, as well as water supplies, forestry, fisheries and agro-forestry industries were affected. There were also impacts on multiple sectors, including: increased food and water prices; worsening sanitation, health (prevalence of respiratory and waterborne diseases) and nutrition situation; loss of livelihoods, reduced incomes, increased poverty and migration.[64]

Disaster occurrence is likely to increase in intensity, frequency, magnitude and distribution due to climate change and environmental degradation. Hydro-meteorological disasters such as floods, landslides, droughts, typhoons and tidal waves will further increase.[65] The landforms of the Indonesian archipelago are also affected by quaternary global climatic fluctuations[66] and sea level changes. The negative impact of global climate change is increasingly making Indonesia more vulnerable to hydro-meteorological disasters. (Verstappen, 2010).[67] The data provided by the Government of Indonesia to a research team reporting on climate adaptation futures indicates that the intensity and frequency of hydro-meteorological disasters is increasing and that these constituted 77 per cent of the disasters in Indonesia from 1815 to 2011.

Indonesia has initiated the process of developing national policy on DRR-CCA convergence. There are ongoing pilot projects to test and mainstream CCA-DRR activities into local development plans in NTT and child centred DRR-CCA activities in Surabaya. Indonesia issued National Act No. 32/2009 on environmental protection and management covering climate change issues. Technical Guidelines for Mainstreaming CCA into development planning were issued by the Ministry of Environment and Forestry Decree No. P.33 in 2016. The decree guides the integration of CCA and hydro meteorological DRR in local development planning.

Vulnerabilities and Risks:

The above paragraphs in this section explain the inbuilt vulnerabilities and disaster risks in the sectors such as livelihoods, education, health , nutrition, water , sanitation, infrastructure and other areas inhibiting the comprehensive human and sustainable development. As of today, Indonesia has 508

[61] http://reliefweb.int/report/indonesia/indonesia-drought-situation-report-no-5
[62] IFRC (2007), INDONESIA: JAKARTA FLOODS -Information Bulletin no. 4/2007, Appeal no. MDRID003 , 26 September 2007, www.reliefweb.int/sites/reliefweb.int/files/resources/56F1A0AF0071751DC125736200433E9A-Full_Report.pdf
[63] NASA (2007) Floods in Jakarta: http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=17981
[64] Based on the notes - Workshop on El Niño: Learning from Past Experiences to Inform Planning and Response, 09:00 - 14:00, 7 September 2015 UN Papua Room, 7th floor, Menara Thamrin, Jakarta, Indonesia.
[65] GOI(2013) National Assessment Report on Disaster Risk Reduction 2013,Goverment of Indonesia (GOI) http://www.bnpb.go.id/uploads/migration/pubs/573.pdf
[66] Encyclopædia Britannica Online (2015), "Quaternary", accessed December 03, 2015, www.britannica.com/science/Quaternary
The Quaternary has been characterized by several periods of glaciation (the "ice ages" of common lore), when ice sheets many kilometres thick have covered vast areas of the continents in temperate areas. During and between these glacial periods, rapid changes in climate and sea level have occurred, and environments worldwide have been altered. Future sea-level changes have been predicted by the Intergovernmental Panel on Climate Change. These are based on computer models of global warming caused by increased amounts of greenhouse gases in the Earth's atmosphere. The models predict that sea level could rise from 30 to 100 cm (12 to 39 inches) in the next century, disturbing many if not all coastal communities. Of even greater concern, some of the world's major glaciers are marine-based, that is, grounded on land below sea level.
[67] Verstappen H. Th. (2010), Indonesian Landforms and Plate Tectonics, The International Institute for Geo-Information Science and Earth Observation (ITC), Jurnal Geologi Indonesia, Vol. 5 No. 3 September 2010: 197-207 www.bgl.esdm.go.id/publication/index.php/dir/article_download/275

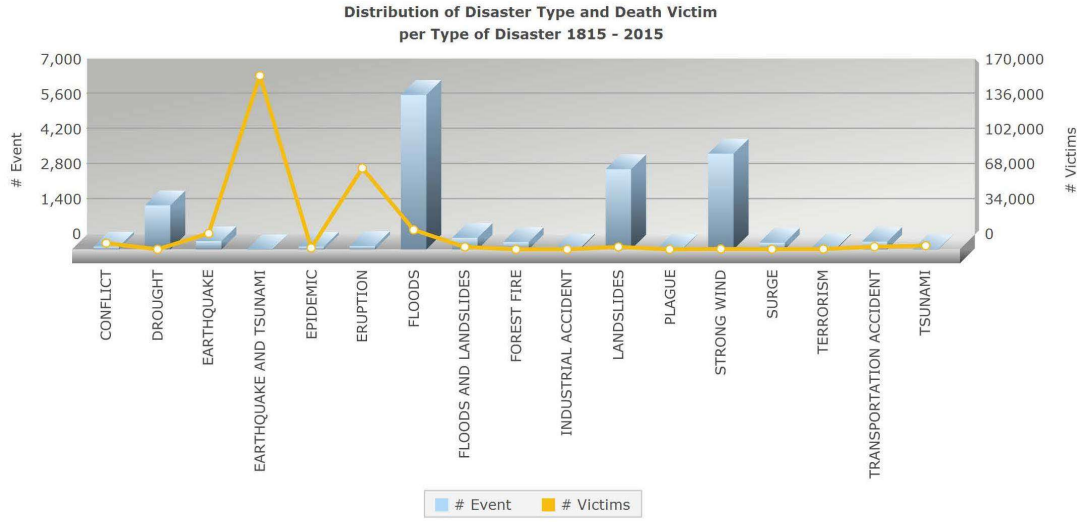
districts (415 rural and 93 urban).[68] BNPB's Indonesia Disaster Risk Index or Index Rawan Bencana Indonesia (IRBI, 2013) lists 497 disaster prone districts / cities out of which 323 districts / cities (65 per cent) have been identified as "high risk" and 174 (35 per cent) as "moderate risk" districts.[69] Besides, unsafe school buildings, poor health services, limited disaster resilient infrastructure, poverty and regional inequalities, these districts suffer from unplanned urbanization, environmental degradation, climate change and population growth, which is increasing disaster exposure and aggravating existing vulnerabilities. The National Disaster Management Policies and Strategies 2019 for Indonesia's National Medium Term Development Plan (RPJMN) 2015-2019 aim to reduce the number of high risk and medium risk districts in next four years to 30 per cent.

2.3 Disaster risk and losses during 2005 -2015

The following section elaborates the trends and pattern of disaster risks and losses as recorded by Data dan Informasi Bencana Indonesia or Indonesia Disaster Information and Data (DIBI):

- **Disaster mortality trends during 2005-2015**

Indonesia ranks 12th among the most vulnerable countries witnessing high mortality risk from multiple hazards.[70] According to DIBI, floods followed by strong winds, landslides and droughts killed the largest number of persons in Indonesia between 1815 and 2015. Some 189,711 people lost their lives between 2005 and 2015 in Indonesia due to natural disasters with the largest number of causalities accruing to the Indian Ocean Tsunami in 2004.[71]



Source: DiBi database (Data and Information on Disaster in Indonesia),

- **Trend in total number of people affected by disasters during 2004-2015: disaggregated by sex, age, vulnerable, socially and economically marginalized groups. et al.**

[68] GoI (2014), Pembentukan Daerah-Daerah Otonom di Indonesia Sampai Dengan Tahun 2014, last accessed on December 28th, 2015, http://otda.kemendagri.go.id/images/file/data_dan_informasi/seputar_otda/total_daerah_otonom.pdf
[69] BNPB (2013) Indonesia Disaster Prone Index (Index Rawan Bencana Indonesia/IRBI)
[70] World Bank and UNISDR (2009) Disaster Risk Management Programs for Priority Countries Summary http://www.unisdr.org/files/14757_6thCGCountryProgramSummaries1.pdf
[71] DiBi database (Data and Information on Disaster in Indonesia), National Disaster Management Agency (BNPB). www.dibi.bnpb.go.id

IBI in general lacks gender and age disaggregated data and information. However BNPB is working to improve the system by initiating data collection based on gender, age and vulnerable groups in disaster assessments.

Risk of death is highest among females and the oldest and youngest population subgroups. Groups living in isolated, coastal areas are also exposed to greater vulnerability. Empirical case studies show that in Aceh province of Indonesia 21.1 per cent of the victims in Asia Tsunami 2004 were the youngest children (aged 0-9) and 32.6 per cent were the oldest (70 +).[72&73] Groups living in isolated, coastal areas are also vulnerable. BNPB's database indicates that around 9.7 million people were displaced between 1990 – 2016 as a result of natural hazards, disasters such as droughts, floods, extreme waves, tornadoes, volcanoes, landslides, earthquakes, epidemics, terrorism and social conflict.[74]

Women and disasters:

Indonesia recognises the need to improve its performance against Gender Inequality Indicators. It is internationally acknowledged that women are socio-economically, culturally and politically more vulnerable than men and, consequently suffer more during disasters. Females accounted for nearly two-thirds of the total number of people reported dead or missing in Indonesia after the 2004 tsunami.[75]

- A study conducted by Oxfam in tsunami-affected countries reflected that three times more women died than men during this event. In the four villages in the Aceh Besar district surveyed by Oxfam, male survivors outnumbered females by a ratio of almost 3 to 1.
- In four study villages of North Aceh district, females accounted for 77 per cent of deaths. In the worst affected villages the female casualties were more than 80 per cent. Men migrated for work and some were out fishing in sea, thus many survived, as the waves passed under their small boats. The waves hit the shore, killing many of the women and children. In agricultural areas, men were out in the fields, working, doing errands away from the house, or were taking produce to markets. Many women also lost their lives in their attempts to save their children and elderly relatives who were with them.[76]
- In the post-tsunami scenario women suffered economically and socially more than men. Female-headed households (FHH) remain more vulnerable to shocks than male-headed households (MHH) [77]Strong patriarchal traditions and many years of conflict made it difficult for tsunami-affected women to assert their rights and raise their voices.[78]
- Women were largely absent from consultative processes and meetings including for the Master Plan for Recovery in Aceh.[79]
- Women and girls contribute in nurturing and restoring community life. The Yogyakarta earthquake in 2006 triggered the collective energy of women in operating community kitchens and ensuring food and water supply, health care, trauma healing and caring for survivors, the

[72] UNISDR (2012), Disasters and Social Vulnerabilities in Asia and the Pacific: http://www.unisdr-apps.net/confluence/download/attachments/12025881/Disasters+and+Social+Vulnerabilities+in+Asia-Pacific.docx?version=1

[74] BNPB (2016) Disaster Information and Database (DIBI): http://dibi.bnpb.go.id/data-bencana
[75] Doocy, S., Rofi, A., Moodie, C., Spring, E., Bradley, S., Burnham, G., & Robinson, C. (2007). Tsunami mortality in Aceh Province, Indonesia. Bulletin of the World Health Organization, 85(4), 273–278. http://doi.org/10.2471/BLT.06.033308
[76] Oxfam(2005), The tsunami's impact on women Oxfam Briefing Note: http://www.preventionweb.net/files/1502_bn050326tsunamiwomen.pdf
[77] World Bank (2012) , FY2013-2015, Country Partnership Strategy for Indonesia: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/04/10/000442464_20130410105833/Rendered/PDF/765010ESW0P1320A0CPS0EN003290lowres.pdf
[78] UNIFEM (2009) Women Building their Future Gender Breakthroughs in Post-Tsunami Aceh: http://www.preventionweb.net/files/19842_unifemenarsonacehgenderbreakthrough.pdf
[79] Indonesia - Gender equality in disaster management and climate adaptation

sick and the dying. Women with disability assisted in the provision of special needs of the other women with disability. [80]

- Women had difficulty in accessing benefits, especially cash payments and rations, because families were registered for government and insurance purposes in the man's name. Widowed women could not receive their payments because the benefits are registered in their husband's name.
- Women faced numerous challenges such as privacy issues, land rights, sexual assault, domestic abuse and trafficking. During disasters, women and girls are at high risk of gender based violence (GBV) including sexual violence. A report "Vulnerable Populations in Emergencies in Indonesia" [81] released by the National Commission on Violence Against Women (2002), noted incidences of rape and sexual violence cases in conflict zones. The National Commission on Violence Against Women (2006) about sexual assault and rapes reported in post-tsunami in Aceh and as per UNFPA Indonesia's final project report of tsunami emergency response project in Aceh (2006) there were 97 GBV cases reported by the Community Support Center (CSC) during the tsunami emergency response in Aceh in 2005 and 80% of the cases were domestic violence. UNFPA Indonesia (2010) mentions reported rape cases at the camps after the earthquakes in Padang, West Sumatra in 2010.

Research study conducted by Oxfam in the aftermath of the 2006 Padang earthquake indicates that women are generally more vulnerable to chronic poverty and disasters due to gender inequalities in the distribution of income and access to credit, and unequal control over property and natural resources. Women's access to paid employment and wages when in employment are also lower than that of men. Further physical life cycle factors such as pregnancy and breastfeeding, as well as social roles and responsibilities – including lack of access to information and restrictions on women's free movement outside the home – made women and children more vulnerable during disasters than men. As a result of destruction of homes, many women also lost their home businesses.[82]

Children and disasters

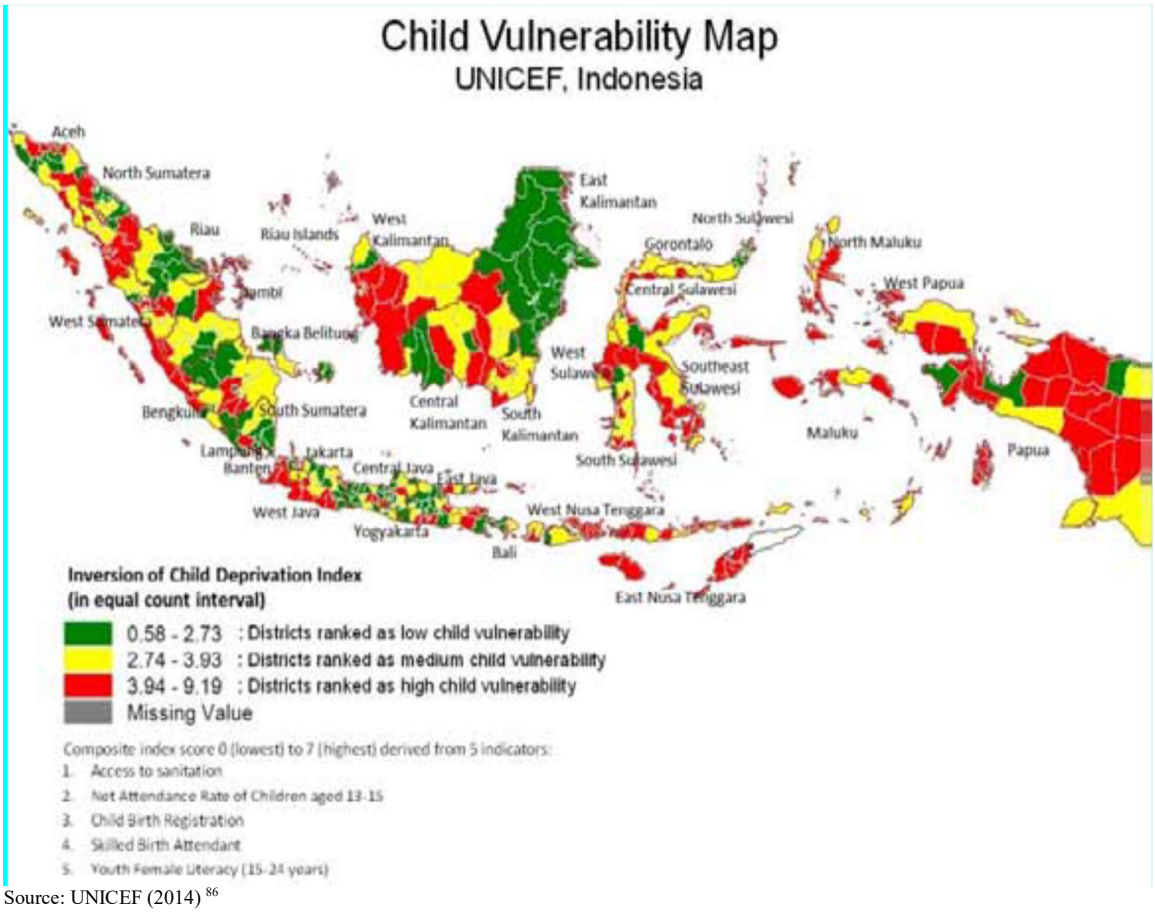
Children in Indonesia are more vulnerable to multiple disasters such as floods, earthquakes, epidemics, volcanoes and haze. Children depend on external support systems for their survival and protection, which collapse during disasters. Mechanisms put into place after disasters to operationalise the support structures that can take care of the physical, psychological, legal and educational needs of children affected by disasters require further development. Deprivations resulting from droughts and El Niño, such as poor nutrition, are irreversible by the age of 24 months and have lifelong cognitive, physical and reproductive repercussions for children.[83] Disasters increase the exposure of children to trafficking, sexual exploitation, violence, child labour and other dangers specific to children.

The Lapindo Brantas industrial disaster in Indonesia in 2006 caused alienation and bullying of children. There was exclusion of children with conspicuous disabilities arising from the disaster, e.g. severe burns, facial disfigurements, loss of limbs, hair loss, psychological trauma. This also meant spoiled marriage opportunities for girls (and perhaps boys) who were seen as contaminated and

[80] Fatimah Dati (2007) Perempuan dan Kerelawanan dalam Bencana, Studi Kasus Penanganan Bencana di Kabupaten Bantul, DIY https://www.academia.edu/2382201/Perempuan_dan_Kerelawanan_dalam_Bencana,
[81] UNFPA (2015) Background Paper "VULNERABLE POPULATIONS IN EMERGENCIES IN INDONESIA" An Overview of Needs and Interventions Addressing Women and Young People
http://indonesia.unfpa.org/application/assets/publications/Vulnerable_Populations_in_emergencies.pdf
[82] Oxfam (2012)Post-Earthquake Response and Reconstruction, Gender-sensitive advocacy in Indonesia
http://reliefweb.int/sites/reliefweb.int/files/resources/Full%20Report_1052.pdf
[83] UNICEF (2011)The impacts of climate change on nutrition and migration affecting children in Indonesia:
http://www.unicef.org/eapro/Indonesia_climate_change_report.pdf

thought likely to be infertile or to produce babies with birth impairments.[84] Children were the most vulnerable in the midst of Indonesia's 2015 severe haze crisis, which severely disrupted their education and threatened their health. The Government of Indonesia has developed a Child Evacuation plan to better protect children against future haze hazards.

Within Indonesia child development and disaster vulnerability indicators vary. For **concentrated high impact disasters**, Yogyakarta was most affected in term of deaths and missing between 1999 and 2009 with almost 5,000 cases (45 per cent). These deaths were caused by the 2006 earthquake. Between 1999-2009, most deaths and missing people recorded as a result of **persistent low-impact disasters** were in Nusa Tenggara Timur; a province with poverty indicators and secondary school enrolment rates lower than the national average, and child malnutrition and child mortality above the national average. However the proportion of actual events recorded was much higher in provinces in Java. This data indicates the wider social and economic context that transforms hazards into disasters and connects the concerns of disaster risk reduction to broader development strategies.[85]



Source: UNICEF (2014) [86]

The Ministry of Women's Empowerment and the Child Protection Act (23/2002) Article 26 outlines the responsibility of the government to protect children's rights in emergency situations, from the fulfilment of basic needs to special assistance such as for children with disabilities and the provision of psychosocial support. In 2014 the Child Protection Act was revised. This law outlines the

[84] UNICEF (2009) Reducing the Risks Facing Vulnerable Children : www.unicef.org/rosa/Report1.pdf
[85] Seballos et al (2011) Children and Disasters: Understanding Impact and Enabling Agency, Children in Changing Climate: http://www.ids.ac.uk/publication/children-and-disasters-understanding-impact-and-enabling-agency
[86] UNICEF (2014) Child-Centred Risk Assessment, Regional Synthesis of UNICEF Assessments in Asia: http://www.preventionweb.net/publications/view/36688

responsibility of the Government to protect children's rights including in times of disaster. Presidential Regulation *(Perpres)* 18/2014 outlines the Protection and Empowerment of Women and Children during Social Conflict while Ministerial Regulations 13 and 14/2010 provide Technical Guidelines for Child-Friendly Regency/City *(KLA)* Development at Provincial Level District/Village Level.

The Elderly and disasters

Indonesia's population includes 24 million senior citizens. Fifteen per cent of older people (nearly 4 million) live below the poverty line. Due to low fertility levels, lower mortality and higher life expectancy rates, the number of elderly in the country is predicted to increase to more than 80 million by 2050. This group will, by then, constitute about 25 per cent of the total population. According to the National Team for the Acceleration of Poverty Reduction or *Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K)*, Indonesia currently spends about one percent of its GDP on pension programmes; only about eight percent of persons aged 60 or above receive any sort of pension payment, with the poor and the majority of the middle class being excluded.[87]

Senior citizens face multiple vulnerabilities of old age, poverty, disability and gender. The most vulnerable persons within older populations are senior citizens (especially women) who provide care to grandchildren or orphans, senior citizens with health difficulties or mobility problems, persons with limited literacy, persons without documentation, oldest-old age group and persons without family support/abandoned.

During and after emergencies, senior citizens have particular needs, vulnerabilities and capacities that differ from those of younger members of the community. These warrant special and specific attention from the humanitarian agencies providing assistance. While an example from some years ago, research by HelpAge International after the 2004 tsunami, indicated that, at that time, more special attention was required during response and rehabilitation. Some citizens were given shelter by relatives and neighbours. They relied on them for food and water during the first few days after the tsunami, but did not want to remain dependent on their hospitality. Older people living with their children's families became almost invisible when the relief material was distributed to the younger members. Almost all of the older persons interviewed were unhappy within the camp environments. The conclusion was that rehabilitation programmes need to consider special needs of senior citizens in basic services such as new housing, health care and livelihoods assistance.[88]

A study conducted after the 2009 earthquake in Padang suggests that the recovery period for older persons took longer due to their dependence on others. Many older people were homeless without care, traumatised and confused because of lack of information available to them. Senior citizens were not able to rebuild their homes again without outside assistance because they lost their income. [89]

The Government of Indonesia recognises the need to develop a clear policy and regulatory framework to address the requirements of senior citizens in disaster management. Age-related issues need to be fully mainstreamed into both organisational policies and practices. This requires more awareness of particular problems and obstacles that older people encounter, changes in attitudes amongst humanitarian workers, increased knowledge and skills in addressing issues of ageing, the development of age-friendly policies and allocating resources.

[87] TNP2K (2014) Old-Age Poverty in Indonesia: Empirical Evidence and Policy Options ,A Role for Social Pensions http://www.tnp2k.go.id/images/uploads/downloads/Old%20Age%20Poverty%20April%201%20Approved%20for%20Publication_EV-2.pdf
[88] HelpAge International (2005), The impact of the Indian Ocean tsunami on older people, Issues and recommendations: http://www.helpage.org/resources/publications/?adv=1&ssearch=&filter=f.yeard&type=3&region=1&topic=3&language=4&page=2
[89] HelpAge International (2010), Final report on Emergency responses in Indonesia, the Philippines and Vietnam: http://www.helpage.org/silo/files/emergency-responses-in-indonesia-the-philippines-and-vietnam.pdf

Persons with Disability and disasters

People with disabilities are at higher risk of injury or morbidity than the general population. People with disabilities experience barriers to accessing early warning and lifesaving emergency information. They also face significant barriers to acting on that information in times of disaster, such as in the case of independent evacuation. Experience in Indonesia has shown that people with disabilities are less likely to receive aid and have greater difficulty coping during recovery from disasters.

There is an intrinsic link between poverty and disability. Disability adds to the risk of poverty and poverty adds to the risk of disability. Poor households with persons with disability are extremely vulnerable to disaster shocks.

The Hyogo Framework for Action insufficiently addressed the disproportionate risk that people with disability face and failed to recognise the agency of people with disabilities. As a consequence, disabilities have been largely excluded from DRR practice and policy to date. The Sendai Framework aims to address this. DRR interventions could be made more effective by sustaining the engagement of disabled persons organisations in Indonesia.

Indonesia issued a national regulation on disasters and the participation of persons with disabilities in 2007. The disability-inclusive DRR Network (DiDRRN) [90] was launched in coordination with the UNISDR at the fifth AMCDRR, hosted by the Government of Indonesia in Yogyakarta in 2012. The ensuing Yogyakarta Declaration (2012) contained the most direct references to inclusion and disability in a DRR policy document at the time.

BNPB, through its training and education centre, has drafted a training curriculum on disability and DRR in consultation with disabled people's organisation (DPO) representatives. This training, which continues to be developed, is aimed at the delivery of DRR education to people with disabilities. DPOs and civil society are supporting the government initiative to empower and build skills to include the persons with disabilities in DRM.

In 2014, Indonesia passed a national regulation on DRR and disability. However, the extent to which regional disaster management agencies are equipped to implement this new regulation remains unclear due to limited policy guidance on disability and DRR for regional disaster management agencies (BPBD). At the sub-national level there have been initiatives to establish local level regulations addressing disability. These include provincial regulations on disability from Yogyakarta and Central Java that include reference to the inclusion of people with disability within disaster risk management. However, awareness of disability remains generally low across all sub-national DRR agencies.[91]

The Indonesian government and the House of Representatives reached an agreement in March 2016 to establish the National Disabilities Commission (KND) who will be responsible for the well-being

[90] Please refer for more details on The Disability-inclusive DRR Network (DiDRRN) : http://www.didrrn.net/home/

[91] University of Sydney (2015), Promoting the Inclusion of People with Disabilities in Disaster Management in Indonesia, Disability Centre for Disability Research and Policy, Technical Report 1 : Mapping of Organisations in Indonesia in Disaster Risk Reduction (MOIDRR), University of Sydney.
https://sydney.edu.au/health-sciences/cdrp/publications/technical-reports/Technical%20Report%20pdfs/Tech_Report_1_MOIDRR_Report.docx

and protection of the rights of persons with disabilities.[92] On 17 March 2016 State Law No 8/206 on Disability was endorsed by the House of Representatives.[93]

An ongoing challenge to disability inclusive DRR is the limited data on disability at the local level in Indonesia. This makes it more difficult for the government to support disability inclusive DRR programmes through coordination of efforts between national (BNPB) and regional (BPBD) level DRR efforts. Presently, the ministries with responsibilities for disability use different definitions and data collection methodologies. While the BPS - Statistic Indonesia National Socio-Economic Survey 2012 data puts the population of persons with disabilities at 2.45 per cent the international average suggests a figure closer to 15 to 20 per cent of a population. Thus, it must be assumed that the number of people with disabilities living in Indonesia is underreported. As a result, people with disabilities remain a partially hidden population both within communities and in terms of policy prescriptions. Quality information on the impact of disasters, including perceptions of risk and actual risks for people with disabilities is limited. This information is needed for evidence-informed policy and program planning.[94]

Disaster economic loss trend in absolute number and in relation to GDP during 2005-2015

According to a World Bank and BNPB report[100] the annual economic impact of natural disasters is estimated at 0.3 percent of Gross Domestic Product (GDP) over the last decade. Simulations show that a major earthquake (occurring once every 250 years) could cause losses in excess of US$30 billion, that is, 3 percent of GDP. Disasters have a larger economic impact at local and sub-national levels. The economic impact of the 2004 earthquake in the province of Aceh was estimated at US$4.5 billion (i.e. 1 per cent of national GDP), which represents 54 per cent of the provincial GDP. Likewise, the 2006 earthquake in the province of Yogyakarta caused losses estimated at 30 per cent of regional GDP. The total loss estimates between 2008-2011 are IDR 6,470,680 million. Floods (including flash floods) and earthquakes contributed to 68 per cent of the total economic losses.

Other disasters such as volcanoes (7 per cent), landslides (10 per cent), droughts and forest fires also cause economic losses every year. Between June and October 2015, more than 100,000 man-made fires burned 2.6 million hectares of land, an area four and a half times the size of Bali. The fWorld Bank estimates that the fires cost Indonesia at least IDR 221 trillion (USD 16.1 billion), equivalent to 1.9 percent of 2015 GDP and more than twice the reconstruction cost after the Aceh tsunami. [95]

The community market (*pasar rakyat*) or traditional market (*pasar tradisional*) plays a very important role in meeting social and economic needs of middle and lower income households in Indonesia. The majority of Indonesians obtain their food stocks and other daily needs from traditional markets. In Indonesia 13,450 traditional markets directly support the livelihoods of 12.6 million small traders.[96] The Government's Damage and Loss Assessments (DALA) and Post Disaster Needs Assessment

[92] Global Diasability (2016) Indonesia to set up national disability commission http://globaldisability.org/2016/03/10/ indonesia-set-national-disability-commission

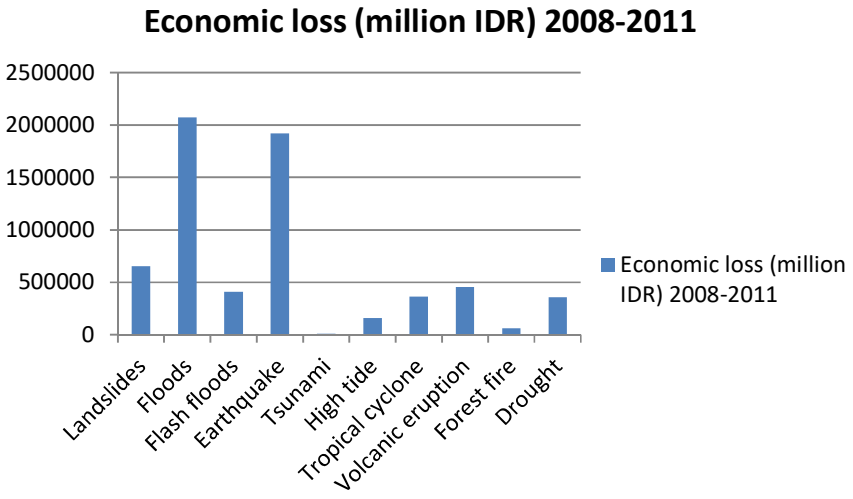
[93] GOI (2016) Undang-Undang Republik Indonesia , Nomor 8 Tahun 2016 ,tentang Penyandang Disabilitas http://www.kemendagri.go.id/produk-hukum/2016/05/11/penyandang-disabilitas

[94] University of Sydney (2015), Promoting the Inclusion of People with Disabilities in Disaster Management in Indonesia, Disability Centre for Disability Research and Policy, Technical Report 1 : Mapping of Organisations in Indonesia in Disaster Risk Reduction (MOIDRR), University of Sydney.
https://sydney.edu.au/health-sciences/cdrp/publications/technical-reports/Technical%20Report%20pdfs/Tech_Report_1_MOIDRR_Report.docx.

[95] World Bank (2015) Indonesia Economic Quarterly, Reforming amid uncertainty
http://pubdocs.worldbank.org/pubdocs/publicdoc/2015/12/844171450085661051/IEQ-DEC-2015-ENG.pdf

[96]Susilowati (2014) The impacts of modern market to traditional traders (a case in Malang city - Indonesia) International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume-2, Special Issue 8 (Nov-Dec 2014), PP. 38-44: http://www.ijtra.com/special-issue-view/the-impacts-of-modern-market-to-traditional-traders-a-case-in-malang-city-indonesia.pdf

(PDNA) for Yogyakarta earthquake, Merapi volcano [97], Papua [98] and Jambi and Sumatra [99] earthquakes and media records from the affected stakeholders clearly indicate that disasters cause significant losses to small vendors/traders and disruption to the local economy. The exact data on losses in economic terms is currently publicly inaccessible/unavailable in centralised form.



[100]

Source: DIBI: 2008 – 2011

Data on the economic cost of disaster losses is distributed across various units within line ministries. BNPB will work to develop a list of these key units with the details of methodologies used by them for disaster loss calculation. The accurate and most reliable disaster loss data in monetary terms is available with the Indonesian government but not currently available for public use. Development of a mechanism by which such data can be aggregated and published should be a priority to support SFDRR reporting.

Trend of disaster induced damage to critical infrastructure and basic services i.e. health, education, rural infrastructure, et al during 2005-2015

DIBI has recorded the destruction of around 1,025 educational facilities, 262 health facilities, 1,171 km of roads and 280,752 hectares of cultivated lands between 2008 and 2011 due to natural disasters. The losses of private assets are significant but there is currently no mechanism to calculate these individual losses. Damage and loss assessment reports from recent major disasters show a consistent ranking of reconstruction needs with housing accounting for the largest expenditure followed by public infrastructure (primarily roads, schools, health facilities, traditional or people's markets and small enterprises).[101] Similarly losses for climate change related disasters often go unrecorded as they are smaller but more frequent. Over time, cumulative impacts from small, recurrent disasters can equal or even exceed those from larger catastrophes. The smaller events reinforce poverty and

[97] BAPPENAS & BNPB (2011), Rencana Aksi Rehabilitasi dan Rekonstruksi Wilayah Pasca Bencana Erupsi Gunung Merapi di Provinsi DI Yogyakarta dan Jawa Tengah, Tahun 2011-2013: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/448.pdf
[98] BAPPENAS & BNPB (2010), Rencana Aksi Rehabilitasi dan Rekonstruksi Pasca Bencana Banjir Bandang Wasior di Kabupaten Teluk Wondama, Provinsi Papua Barat, Tahun 2010-2012: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/447.pdf
[99] GOI (2009) West Sumatra and Jambi Natural Disasters: Damage, Loss and Preliminary Needs Assessment: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/11/03/000334955_20091103042447/Rendered/PDF/514090WP0Box34110DALA0West0Sumatera.pdf

[100] The World Bank (2011) Indonesia - Advancing a National Disaster Risk Financing Strategy – Options for Consideration, October 2011. http://documents.worldbank.org/curated/en/2015/07/18191656/indonesia-advancing-national-disaster-risk-financing-strategy-options-consideration
[101] The World Bank (2011) Indonesia - Advancing a National Disaster Risk Financing Strategy – Options for Consideration, October 2011. http://documents.worldbank.org/curated/en/2015/07/18191656/indonesia-advancing-national-disaster-risk-financing-strategy-options-consideration

compound the hardships endured by poor communities. Capturing this information will assist in forming the basis for analysing progress against SFDRR targets between now and 2030.

SECTION 3: DRM STATUS AND PROGRESS

3.1 Understand disaster risk

Understanding the potential impacts of natural hazards and climate change is essential for informing disaster risk management planning. As an archipelagic country with extensive low-lying and small island areas, Indonesia is highly vulnerable to the adverse impacts of natural disasters and climate change. Indonesia has already experienced extreme climate events such as floods and drought, and is anticipating long-term impacts from sea level rise. As the Indonesian population grows, climate change-induced natural disasters will affect a greater number of people and their assets, making it difficult for them to escape poverty. Climate change is believed to increase the risk for hydro-meteorological disasters, which make up 80% of disaster occurrences in Indonesia. [102]The poorest and most marginalized populations tend to live in high-risk areas that are prone to flooding, landslides, sea level rise, and water shortages during drought.

As the country with the second longest coastline in the world, Indonesia faces a high risk of coastal inundation and sea level rise that may affect up to 42 million people living in low elevation coastal zones. The vulnerability of Indonesia's coastal zone is also affected by the rate of deforestation and forest degradation. The loss of forest ecosystems leads to the loss of critical environmental services, providing for water catchment areas, preventing erosion and floods, and protecting against the loss of biodiversity. In order for Indonesia to reduce its vulnerability to climate change, it must strengthen its climate resilience by integrating its adaptation and mitigation efforts in disaster and development planning and implementation.[102]

The climate in Indonesia became warmer during the 20th century. The average annual temperature increased by 0.3ºC. The 1990s was the warmest decade 1998 was the warmest year, almost 1ºC above average between 1961 and 1990. [103]There is a projected temperature increases over Indonesia in the range of 2-2.5°C. There are a few areas of Borneo and Sumatra where temperature rise of 2.5-3°C are projected. Indonesia could experience some of the largest decreases in marine fish stocks across the globe; for example, the 10-year averaged maximum catch potential from 2005 to 2055 could decline by 23 per cent. Results from a recent global-scale study suggest that extreme flooding and landslides could increase in Indonesia with climate change. Most studies reviewed here suggest that the intensity of cyclones could increase with climate change, particularly for the most severe storms. [104]

Strong El Nino phenomena has been experienced in the years 1982/1983, 1986/1987, 1997/1998 and 2015/2016. El Niño induced droughts have intensified forest and peat land fires leading to an increased number of fire hotspots and haze level. These disaster events are adversely impacting health, biodiversity, and environmental capital.[105] Businesses and schools across the region get closed due to the haze, crippling many low-income families and pushing them to fall back into poverty. Approximately 5 million students were impacted by school closures in 2015. More than 2.6 million hectares of forest, peat, and other land burned in 2015 resulting in the loss of timber and non-timber forest products, and the loss of habitat for wildlife and grazing lands. There are also losses to

[102] GOI (2010) Intended Nationally Determined Contribution , Republic of Indonesia http://www4.unfccc.int/submissions/INDC/Published%20Documents/Indonesia/1/INDC_REPUBLIC%20OF%20INDONESIA.pdf.
[103] MoEF (2015) Data and Information System on Vulnerability http://ditjenppi.menlhk.go.id/program/liputan-khusus-cop-21-2015/operationalization-of-technology-and-system-in-directorate-general-of-climate-change
[104] Met Office (2011) Climate: Observations, projections and impacts, Indonesia: http://www.metoffice.gov.uk/media/pdf/8/f/Indonesia.pdf
[105] United Nations(2015) Summary of Proceedings, El Niño: Learning from Past Experiences to Inform Planning and Response: http://un.or.id/elNiño/images/download/008_ElNiño_SoP_7-Sept-final_v2.pdf

agriculture, forestry, transport, trade, industry, tourism, and other sectors. Some of these costs are direct damage and losses to crops, forests, houses and infrastructure, as well as the cost of responding to the fires. Many of the economic losses result from the disruption of air, land and sea travel due to the haze. These damages and losses are expected to have a serious impact on the economic growth rate of affected provinces and the government's efforts to reduce poverty in the hardest-hit regions, such as Central Kalimantan[106]The effects of forest fires and haze also negatively impact the other ASEAN countries such as Singapore and Malaysia. Please also refer to the Section 2 of the report, which outlines sector-wise inbuilt vulnerabilities and disaster risks.

3.1.1 National and local risk assessments

Multi-hazard risk assessments have been completed in 144 districts and municipalities in 33 out of 34 provinces. Around 20 per cent of districts and cities have also developed their own risk assessments. At the central level, some line ministries have also conducted risk mapping. These risk assessments currently lack convergence between disaster risk reduction and climate change. According to the HFA report 2013-2015, the following line ministries have already completed a disaster risk assessment as a precondition for sectoral development planning and programming[107]:

1. Ministry of Public Works and Housing
2. Ministry of Energy and Mineral Resources
3. Ministry of Maritime Affairs and Fisheries
4. Ministry of Environment and Forest
5. Ministry of Agriculture

These risk analyses have been enriched with vulnerability and capacity information from the community, as well as indices of potential losses. While striving to complete local level risk assessments, BNPB recognises the need to update its national level risk assessments regularly and align them with available improved risk assessment methodologies and scientific inputs.

3.1.2 Collection, analysis, management and use of disaggregated data and information

Launched in 2008, 'DIBI', the Indonesian Disaster Data and Information Management Database encountered several financial, technical, technological, bureaucratic and political challenges. While the intention of DIBI is to provide the historical information on disasters, it also provides the opportunity to identify trends, risks and vulnerability. The Government recognises and aims to address the potential for politicization of this information given the natural competition between regions for status and funding and thereafter to publish the data, in line with its obligations under SFDRR.[108]

3.1.3 Develop, update periodically and disseminate location-based disaster risk information

The hazards and disaster risks are periodically monitored and updated by the relevant ministries. The Ministry of Public Works and Infrastructure or *Kementerian Pekerjaan Umum dan Perumahan Rakyat* (Kemen PU PERA) monitors flood risks, the Indonesian Agency for Meteorological, Climatological and Geophysics or *Badan Meteorologi, Klimatologi, dan Geofisika* (BMKG) for

[106] World Bank (2015) Indonesia's Fire and Haze Crisis - World Bank: http://www.worldbank.org/en/news/feature/2015/12/01/indonesias-fire-and-haze-crisis

[107] GOI(2014)Indonesia: National progress report on the implementation of the Hyogo Framework for Action (2013-2015) http://www.preventionweb.net/english/hyogo/progress/reports/v.php?id=41507&pid:223

climate related disasters and the Centre of Volcanology and Geological Hazard Mitigation or *Pusat Vulkanologi dan Mitigasi Bencana Geologi* (PVMBG) for volcanoes. Challenges remains in enhancing and sustaining the monitoring, coordination and information exchange between these institutions. To address such a challenge, institutional mechanisms for enhancing inter-ministerial as well as national to local coordination will be considered in the future. Regular updates of risk assessments will also strengthen risk information. Early warning information needs to be disseminated by BMKG in a publicly understandable and user-friendly language.

3.1.4 Disaster loss accounting at national and local levels

Disaster loss refers to indirect disaster impacts, including all the losses of economic flows due to the incapacity or absence of damaged assets[109]. As stipulated in the Head of BNPB Regulation No. 11/2008, the Government uses damage and loss assessments to develop a baseline for the requirements of the rehabilitation and reconstruction phase[110]. Indonesia adopted the United Nations Economic Commission for Latin America and Caribbean (ECLAC) methodology for calculating disaster losses i.e. Damage and Loss Assessment (DaLA) [111] The DaLA Methodology assesses overall economy taking in account direct physical damage to both public and private property including individual livelihoods.[112]. This methodology was used after the Tsunami in 2004 and Yogyakarta earthquake in 2006. [113]

In 2008, at the global level DaLA was combined with the Human Recovery Needs Assessment (HRNA) methodology to become the Post-Disaster Needs Assessment (PDNA). The HRNA focuses on the social impact of disasters, analysing how disasters affect local patterns of life, social structures and institutions. This combined methodology was immediately adopted by Indonesian Government and codified as 'Guidelines on Post-Disaster Needs Assessment' or Indonesia's PDNA Guidelines, popularly known by the acronym JITU PASNA.

Following the 2009 earthquake in West Sumatra, Indonesia rapidly mobilized experienced government staff to draft the PDNA with almost no external technical support[114]. Thereafter, PDNA has been use to prepare the recovery plans for Merapi volcano response (2010)[115] , the Mentawai tsunami, in West Sumatra (2010) [116] and flash flooding in Wasior (West Papua)[117].

3.1.5 Regional/trans-boundary risks

The ASEAN region is one of the most disaster prone regions of the world. A number of countries within the Association have a history of devastating disasters that have caused economic and human

[109] World Bank (2015), Damage, Loss and Needs Assessment – Tools and Methodology, last accessed in November 2015: https://www.gfdrr.org/Track-III-TA-Tools
[110] GoI (2008), Head of BNPB Regulation No. 11/2008 on Guidelines for the Post-Disaster Rehabilitation and Reconstruction, last accessed on November 2015, http://www.bnpb.go.id/uploads/migration/pubs/52.pdf
[111] DALA was developed by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) in the 1970s, provides a standardized tool for the valuation of post-disaster damage (in assets, physical, capital, stock, material goods) and losses (in flows of goods and services, income, costs) that arise from the temporary absence of the destroyed assets.
[112] World Bank (2010): www.web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTDISMGMT/0,,contentMDK:20196047~menuPK:1415429~pagePK:210058~piPK:210062~theSitePK:341015,00.html
[113] World Bank (2006) Yogyakarta and Central Java Natural Disaster ,Preliminary Damage and Loss Assessment, The 15th Meeting of The Consultative Group on Indonesia Jakarta, June 14, 2006
[114] World Bank (2010) Disaster risk Management in east Asia and the Pacific, Working Paper Series No. 19: https://openknowledge.worldbank.org/bitstream/handle/10986/10132/566090BRI0REVI10BOX353820B01PUBLIC1.pdf?sequence=1
[115] BAPPENAS & BNPB (2011), Rencana Aksi Rehabilitasi dan Rekonstruksi Wilayah Pasca Bencana Erupsi Gunung Merapi di Provinsi DI Yogyakarta dan Jawa Tengah, Tahun 2011-2013, last accessed in November 2015:http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/448.pdf
[116] BAPPENAS & BNPB (2010), Rencana Aksi Rehabilitasi dan Rekonstruksi Pasca Bencana Banjir Bandang Wasior di Kabupaten Teluk Wondama, Provinsi Papua Barat, Tahun 2010-2012, last accessed in November 2015: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/447.pdf
[117] (BAPPENAS (2010) National Action Plan for National Action Plan for Disaster Risk Reduction Disaster Risk Reduction 2010 - 2012

losses. Sometimes these disasters transcend national borders and overwhelm the capacities of individual countries to manage their consequences. Amongst the ASEAN countries, Indonesia is one of the most vulnerable countries to natural hazards including forest (wild) fires, earthquakes and tsunamis, floods, volcanoes, droughts, landslides, typhoons (storms), and epidemics.[118]

Indonesia endeavours to play a leading role in the management of trans-boundary risks through ASEAN and is committed to the joint management of cross-border risks, particularly tsunami and smoke/haze hazards. Indonesia is one of three early warning providers in the Indian Ocean Tsunami Warning System (IOTWS).[119] The ASEAN Humanitarian Assistance Coordinating Centre on disaster management (AHA Centre), is hosted by the Indonesian Government in Jakarta.

Indonesia has state-of-the-art disaster management laws and policies which already incorporate many of the aspects highlighted by 2005 ASEAN Agreement for Disaster Management Emergency Response (AADMER) and AADMER's institutionalization is in line with domestic priorities. The Government recognises the need to continue and intensify engagement between national and regional disaster management arrangements, a process facilitated in 2016 as Indonesia assumed the chair of the ASEAN Committee on Disaster Management.

ASEAN undertook a regional level risk assessment in 2010, in which Indonesia actively participated.[120] However, the level of awareness amongst Member States of regional/trans-boundary risks in the ASEAN region and the Indian Ocean Rim Association for Regional Cooperation (IORA) requires further attention.

3.2. Strengthen disaster risk governance to manage disaster risk:

The following sections discuss various aspects of disaster risk governance and management such as the national legislative, regulatory and institutional frameworks for DRR. They also briefly outline the existing policy environment and accountability mechanisms for DRR.

3.2.1 Legislative and regulatory framework related to DRR

Since 2007, the Indonesian government has developed a robust legal framework to strengthen disaster risk management in the country by promulgating several laws, regulations, plans and policies. Besides national laws, regulations and decrees, Indonesia also conforms to the legally binding ASEAN Agreement on Disaster Management and Emergency Response (AADMER).[121]

Please refer to Annex D: Indonesian Legislative Framework for the comprehensive list of government policies, plans and regulations related to DRM /DRR.

3.2.2 Institutional framework (including e.g. coordination mechanisms, responsibilities and authorities of sub-national governments, roles and task of community representatives)

All 34 provinces of Indonesia have established provincial level Disaster Management Agencies (BPBDs) and have prepared *Rencana Penanggulangan Bencana* (RPB) or the Provincial Disaster

[118] World Bank and UNISDR (2010) Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment , ASEAN Disaster Risk Management Initiative: www.unisdr.org/files/18872_asean.pdf
[119] BNPB (2013) Indonesia's National progress report on the implementation of the Hyogo Framework for Action (2011-2013) http://www.preventionweb.net/files/28912_idn_NationalHFAprogress_2011-13.pdf
[120] UNISDR and World Bank (2010) Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment, ASEAN Disaster Risk Management Initiative http://www.unisdr.org/files/18872_asean.pdf
[121] ASEAN (2005) ASEAN Agreement on Disaster Management and Emergency Response : http://www.aadmerpartnership.org/wp-content/uploads/2014/04/AADMER-Bahasa-Unofficial-small.pdf

Management Plan. More than 90 per cent of the districts and cities in Indonesia have their own local disaster management agencies. BNPB continues to build the technical capacity of these BPBDs. Further work is needed to develop institutional frameworks that clearly define (a) the respective roles and responsibilities of national level ministries/agencies (horizontal) and between national, provincial and local governments (vertical); and (b) the overall bureaucratic steps and protocols required for managing disaster risks and events effectively.

Disaster Risk Management Forums (FPRB) have been establish in 19 provinces and 45 districts. The DRM Forums consists of the government and civil society members, BNPB has included development of these frameworks in its work programme since 2012. The development of a national response framework is listed as one of priorities in the BNPB's five-year strategic plan, and thus implementation is now an urgent priority for the Agency.

Refer to Annex E: Line ministries and their roles and responsibilities and SECTION 4: STAKEHOLDERS MAPPING.

3.2.3 Policy environment and list of key policies related to DRR

The finalisation of a comprehensive DRR mainstreaming in development planning process is still a work in progress in Indonesia. The *Rencana Pembangunan Jangka Menengah* (RPJMN), 2015-2019 has outlined the need for mainstreaming disaster risk management in development planning. DRR financing began in 2007 with the issuance of the National Disaster Management Law. The National Disaster Management Plans for 2009-2014 and 2015-2019 articulate the growing commitment to finance DRR mainstreaming. It is anticipated that the SFDRR will help to increase the provision of DRR financing. Besides these, the following are the plans and government regulations related to DRR:

No.	Type	Number/ Year	Title
1.	Plans and Reports	2014	Handbook for Regional Development Plan 2015: Developing Resilient Nation Through Disaster Risk Reduction.
2.		2013	National Assessment Report on Disaster Risk Reduction
3.		2010-2012	National Action Plan for Disaster Risk Reduction (II)
4.		2006-2009	National Action Plan for Disaster Risk Reduction (I)
5.		2016	Disaster Management Policies and Strategies (Jakstra) 2015-2019 for Indonesia's National Medium Term Development Plan (RPJMN)

The development of triennial disaster risk reduction plans is required by the Disaster Management Law in Indonesia, but has not been fully complied with since 2012. This is despite the fact that Indonesia was one of the first countries to develop a National Action Plan for DRR (NAP-DRR) in 2006-2009, followed by another NAP-DRR for 2010-2012. This baseline study is clearly aimed at boosting Indonesia's DRR effort, but it is not yet institutionalised as will be the integration of NAP-DRR in the new NDMP.

Disaster management policies that employ risk reduction perspectives are in place, but further clarity is required about the future direction. For instance, Indonesia was one of the first countries to develop and implement a National Action Plan for DRR (NAP-DRR) in 2006-2009, clearly demonstrating its sector leadership. A second NAP-DRR was issued covering 2010-2012. Thereafter the country decided to mainstream DRR into its development programmes and thus ceased to develop and issue

NAP-DRRs. While this was a clear articulation of Indonesia's advancement in the disaster management field, the absence of an updated NAP-DRR has presented challenges in monitoring DRR progress since 2012. Paragraph to be improved: NAP-DRR is integrated into DM Plan.

Please refer to Annex D: Indonesian Legislative Framework for the list of laws, plans and regulations on disaster risk management.

3.2.4. Accountability mechanisms:

According to the 2007 Disaster Management Act one of the key pillars in disaster management is transparency and accountability. BNPB has also reinforced its commitment for good governance with the enactment of Head of BNPB Regulation No. 10/2014 on Guidelines for Financial Accountability.

Annually, BNPB and other ministerial and governmental institutions prepare a Financial and Performance Report which is submitted and audited by the Supreme Audit Agency *(BPK)*. As the state external auditor, BPK is responsible to audit ministerial and governmental institutions and prepare following reports: (i) Examination Report on the ministry/institution's Financial Report (ii) Compliance Report on the state's laws and regulations and (iii) Effectiveness Report on internal control system. According to this system, since 2008, BNPB's Accountability Performance has significantly improved, from Disclaimer Opinion (due to incomplete documents) in 2008 and 2009 to Qualified Opinion in 2010 and Unqualified Opinion (the highest standard) in 2011[122], 2012[123], 2013[124] and 2014[125].

In addition to financial accountability, BNPB is also working towards ensuring accountability and transparency to affected communities/ beneficiaries by improving beneficiary communications, developing quality programmes that meet people's needs and reduce the possibility of mistakes, abuse and corruption. The Government shares the view that when accountability processes are in place and managed effectively, organisations perform better, protect communities from harm, and uphold the rights and dignity of those affected by crises.[126]

3.3. Invest in DRR for Resilience

3.3.1. National, local and sectoral budget allocation for DRR:

Total investment for DRR activities has increased significantly from IDR 2.6 trillion in 2006 to almost IDR 10 trillion in 2012, according to a study conducted by UNDP[127]; but it is believed that actual DRR investments are greater since some activities are embedded in other sectoral programmes. In the period 2006 to 2011, two thirds of DRR investments were allocated for disaster mitigation and prevention activities, followed by disaster preparedness activities and research, education, and training.

[122] BNPB (2013), Gema BNPB: Ketangguhan Bangsa Dalam Menghadapi Bencana, vol. 4, no. 1, http://bnpb.go.id/uploads/migration/pubs/577.pdf
[123] BPK RI (2013), BPK Menyerahkan Laporan Hasil Pemeriksaan atas Laporan Keuangan Tahun 2012 kepada 37 K/L dengan Opini WTP pada 24 entitas dan WDP pada 13 entitas, last accessed on November 2015: http://www.bpk.go.id/news/bpk-ri-menyerahkan-laporan-hasil-pemeriksaan-atas-laporan-keuangan-tahun-2012-kepada-37-kementerianlembaga-dengan-opini-wtp-pada-24-entitas-dan-wdp-pada-13-entitas
[124] BNPB (2014), BNPB Kembali Memperoleh WTP, last accessed on November 2015: http://bnpb.go.id/berita/2129/bnpb-kembali-memperoleh-wtp
[125] BNPB (2015), BNPB Wajar Tanpa Pengecualian, last accessed on November 2015: http://bnpb.go.id/berita/2492/bnpb-wajar-tanpa-pengecualian
[126] HAP(2015),Humanitarian Accountability Partnership: http://www.hapinternational.org/what-we-do/hap-standard.aspx
[127] Darwanto Herry (2012) , Preliminary Examination of Existing Methodologies for Allocating and Tracking National Government Budget for Disaster Risk Reduction (DRR) in Indonesia , http://www.unisdr.org/files/32377_32377indonesiadraftdrrinvestmenttra.pdf

Many national government institutions undertake DRR initiatives; but often on an ad hoc basis. In 2012, the Ministry of Public Works spent the largest amount for DRR activities – about one half of the recorded total institutions' DRR budget, mostly used for physical disaster mitigation. The second largest investor was the Ministry of Forestry (26 per cent), followed by the National Search and Rescue Agency (7 per cent) and BNPB (6 per cent).

Some national ministries and agencies have established a special unit dealing with DRR activities such as the Ministry of National Education and Culture's disaster management centre, established in 2014, requiring funding allocations. The establishment of the national cluster system for disaster preparedness and response in 2014 allocated specific roles to a number of Government agencies. Several revisited their annual budget allocations for 2015 (for example, the Ministry of Health allocated additional budget for the health crisis centre).

The UNDP survey also revealed that among the 28 regional governments surveyed, the average DRR investment was less than 1 per cent of each total regional budget. Most central government institutions and regional governments have invested some funding for DRR purposes. The DRR investment is lower than the internationally accepted ratio, i.e. 1 per cent of the national budget to be devoted for DRR programmes. Such investments are used mainly for capacity building/training, campaign/dissemination, coordination/consultation, regulations drafting, etc. In some regions, a large proportion of DRR investment is used for physical mitigation that requires large funding, such as construction of flood control structures.[128] According to a UNESCAP report the DRR allocation was between 0.38 per cent and 0.69 per cent of the national budget between 2006 and 2012. [129]With a large number of Indonesian regions prone to various types of natural disaster, there is common agreement across Government on the need for greater investment in DRR in order to reduce risk exposure. This will require a transformation in the way in which Government departments at all levels engage on this issue.

In line with the SFDRR commitments Indonesia recognises the need to more comprehensively and sustainably develop its DRR commitments, building on past successes and learning from past failures and challenges. Engaging local authorities, improving disaster risk reduction governance at local level and ensuring that incentives are provided to ensure increases in relative allocations of local development budgets require sustained and coordinated attention from line ministries, and provincial and district leaders

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The national on-call budget and Special Allocation Fund or *Dana Alokasi Khusus* (DAK), is administered by BNPB as a contingency fund for disaster response but is accessible by many line ministries and local governments. Further work is required to better regulate the use of this fund, including clarifying the relationship between it and the need to ensure adequate financing at provincial and local levels, recognising that there is an increasing tendency for calls to be made on the On Call budget for financing disaster-related programmes which should rather be included in provincial and local budgets.

The new Village Law (Law No.6 of 2014) [130] establishes a new institutional framework for community development in Indonesia's 74,091 villages, strengthens the legal status, authority and responsibility of villages and recognizes "*adat*", traditional village governance arrangements. The law substantially increases direct fund transfers to villages, which are to be used for administration,

[128] UNDP (2012) Disaster Risk Reduction Investment Tracking: Case Study Indonesia
[129] UNESCAP (2015) Financing Disaster Risk Reduction for sustainable development in Asia and the Pacific , Draft Discussion Paper , Asia-Pacific High-Level Consultation on Financing for Development Jakarta, Indonesia , 29-30 April 2015
http://www.unescap.org/events/hlcffd2015
[130] GOI (2014) Law of the Republic of Indonesia , Number 6, 2014 about Village:
http://www.indolaw.org/UU/Law%20No.%206%20of%202014%20on%20Villages.pdf

development, and community empowerment. The village transfers will be scaled over time. The national government allocated IDR 280 million (USD 20,000) in 2015, and district governments are estimated to allocate around IDR 500 million (USD 40,000). It is estimated that, starting in 2017, each village will receive approximately IDR 1.4 billion (approximately USD 122,000) on average each year. The transfers are partially financed via the consolidation of existing community-based national development programmes.[131] This presents an excellent opportunity for the line ministries and agencies to also to mainstream disaster risk reduction into village development planning.

3.3.2 Disaster risk transfer and insurance, risk sharing and retention and financial protection mechanisms.

Indonesia implements social development programmes for populations at risk including the rice for the poor programme, the social security programme for senior citizens and social assistance programmes for people with disabilities. Disaster risk insurance, catastrophe bonds and other risk transfer mechanisms are under development in the country. The Ministry of Finance is working with insurance companies to experiment with different public and private insurance schemes.

Micro insurance and micro financing programmes undertaken by the government and private sector have had limited penetration, and only in some areas[132], despite international reinsurance companies like Munich Re, Swiss Re and Zurich Insurance piloting different types of insurance schemes and projects in Indonesia e.g. insurance for the regularly occurring Jakarta floods. There are instances where some provinces such as Yogyakarta offer tax-cuts to disaster affected people. This is helpful for the middle class to recover from disaster shocks. However, it does not support those trapped below the poverty line and marginalised sections of society who are outside the tax bracket.

3.3.3. Incentive and regulatory frameworks for resilient public and private investments i.e. the use of the principles of universal design and the standardization of building materials, etc.

Government Regulation No. 47 of 2012 requires all state-owned companies to make contributions to corporate social responsibility (CSR) (the allocation of profits after a maximum tax deduction of two per cent of the annual revenue). [133] Currently the Government has not put into place an incentive mechanism or framework for public and private investment on DRR but is proactively encouraging public-private partnership in DRR. The Government has enacted various regulations on corporate social responsibility (CSR) such as Act No. 40/2007[134], Government Regulation No. 47/2012[135] and Ministry of Social Affairs Regulation No. 13/2012[136], but these currently focus on the requirement for private and state-owned companies to contribute funding through CSR. Disaster management is listed as one of the possible areas for such CSR contributions. These regulations are limited in their scope to addressing CSR and do not reference corporate investment mechanisms. Head of BNPB Regulation No. 12/2014 [137] explains the role of the private sector during emergency response

[131] World Bank (2015) Indonesia - Country Summary Brief: http://siteresources.worldbank.org/EXTCDD/Resources/430160-1435154813801/Indonesia_Country_Brief.pdf
[132] Indonesia -National progress report on the implementation of the Hyogo Framework for Action (2013-2015) http://www.preventionweb.net/files/41507_IDN_NationalHFAprogress_2013-15.pdf
[133] IBA (2012)Law Firm Management News October 2012 - CSR regulation in Indonesia, Corporate social responsibility regulation in Indonesia: www.ibanet.org/Article/Detail.aspx?ArticleUid=103427a1-0313-4d6c-b7f7-c5deb0bedbb5
[134] GoI (2007), UU No. 40 Tahun 2007 tentang Perseroan Terbatas, last accessed on December 10th 2015, http://aria.bapepam.go.id/reksadana/files/regulasi/UU%2040%202007%20Perseroan%20Terbatas.pdf
[135] GoI (2012), PP No. 47 Tahun 2012 tentang Tanggung Jawab Sosial dan Lingkungan Perseroan Terbatas, last accessed on December 16th 2015, http://www.kemendagri.go.id/media/documents/2012/05/21/p/p/pp_no.47-2012.pdf
[136] MoSA (2012), Permensos No. 13 Tahun 2012 tentang Forum Tanggung Jawab Sosial Dunia Usaha dalam Penyelenggaraan Kesejahteraan Sosial, last accessed on December 10th 2015, http://www.djpp.kemenkumham.go.id/arsip/bn/2012/bn722-2012.htm
[137] BNPB (2014), Perka BNPB No. 12 Tahun 2014 tentang Peran Serta Lembaga Usaha dalam Penyelenggaraan Penanggulangan Bencana, last accessed on December 16th 2015, http://www.bnpb.go.id/uploads/regulation/1082/Perka%20No%2012%20Tahun%202014.pdf

operations but does not reference corporate investment mechanisms. Thus, currently the contributions from the private sector through investment in DRR are carried out purely based on voluntary participation and partnership. While this represents good progress, there are examples from international best practice which Indonesia will examine and adapt to its national and local contexts.

3.3.4. Policies, plans and investments to reduce risk in key development sectors:

Besides BNPB, the National Disaster Management Plan (NDMP) for 2015-2019 lists 48 other national ministries/authorities, including Health, Social Welfare, Environment, Agriculture, Public Works, and Planning that have disaster management-related mandates. The Ministries of Health and Social Welfare have significantly strengthened their capacity to respond to disasters; the Ministries of Environment, Agriculture, and Public Works have incorporated risk mitigation projects; and the National Planning Agency has focused on recovery work. Please see Annex E for the list of line ministries and their roles and responsibilities. The NDMP is currently in draft and it should address the development and maintenance of a strong coordination mechanism among the line ministries.

There are various legal documents that stipulate roles and responsibilities of different ministries and agencies, but they are all within respective ministries/agencies. Currently there is no overarching umbrella framework that regulates the line ministries or their self–defined regulations. To address this concern, therefore, BNPB has proposed and prioritized the development of national response and preparedness framework in its strategic plan.

Between 2015-2019 the Government plans to reduce the disaster risk in 136 districts and cities. These districts and cities are the centres for national economic growth with high and moderate disaster risk indexes and have been determined as priority target locations for disaster risk index reduction. [138]

The National Disaster Management Plan and the National Action Plan for Climate Change Adaptation (NAPCCA) place a strong emphasis on mainstreaming risk management and adaptation measures in development plans at national and subnational levels. The last RPJMN for 2015-2019 has already accommodated both action plans. However there is a need to further evaluate the extent to which these documents have been utilized by local governments to inform their planning processes and are being operationalized in their sectoral development programmes. There is a need for more convergence to promote synergy between the policy, institutional, financing, management and methodological aspects.

[138] GOI (2016) Disaster management policies and strategies 2015-2019 : http://prb-bnpb.apwebs.info/terasconfig/downlot.php?file=KEBIJAKAN%20STRATEGIS%20PB%202015-2019.pdf.

INDONESIAN CABINET STRUCTURE 2015-2019 AND DISASTER RISK MANAGEMENT

Presidential Office

Ministry of State Secretariat	Coordinating Ministry for Political, Legal and Security Affairs	Coordinating Ministry for Maritime and Resource Affairs	Coordinating Ministry for Economic Affairs	Coordinating Ministry for Human Development and Cultural Affairs	*Non-ministerial agencies*
	1. Ministry of Home Affairs 2. Ministry of Foreign Affairs 3. Ministry of Defense 4. Ministry of Legal and Human Rights 5. Ministry of Communication and Informatics 6. Ministry of Administrative and Bureaucratic Reform	1. Ministry of Transportation 2. Ministry of Maritime Affairs and Fisheries 3. Ministry of Tourism 4. Ministry of Energy and Mineral Resources	1. Ministry of Finance 2. Ministry of Industry 3. Ministry of Trade 4. Ministry of Agriculture 5. Ministry of Environment and Forest 6. Ministry of Manpower 7. Ministry of Public Works and Housing 8. Ministry of Land and Spatial Planning 9. Ministry of Cooperation and Small Medium Enterprises 10. Ministry of State Owned Enterprises	1. Ministry of Religious Affairs 2. Ministry of Social Affairs 3. Ministry of Health 4. Ministry of Youth and Sports Affairs 5. Ministry of Rural, Disadvantaged Regions and Transmigration 6. Ministry of Women Empowerment and Child Protection 7. Ministry of Research, Technology and Higher Education 8. Ministry of Education and Culture	1. National Development Planning Board 2. National Archives of Indonesia 3. Creative Economy Board 4. Geospatial Information Agency 5. State Intelligence Agency 6. Maritime Security Agency of Indonesia 7. State Employment Agency 8. National Population and Family Planning Agency 9. Investment Coordinating Board 10. Meteorological, Climatological and Geophysics Agency 11. National Narcotics Agency 12. National Disaster Management Agency 13. National Counterterrorism Agency 14. National Agency of Placement and Protection of Indonesian Migrant Workers 15. Audit and Development Supervising Agency 16. Nuclear Energy Regulatory Agency 17. National Agency of Drug and Food Control 18. Agency for the Assessment and Application of Technology 19. National Land Agency 20. Statistics Indonesia 21. National Search and Rescue Agency 22. National Standardization Agency 23. National Nuclear Energy Agency 24. State Administrative Agency 25. Indonesian Institute of Sciences 26. National Public Procurement Agency 27. National Institute of Aeronautics and Space 28. State Cryptography Agency 29. National Library of Indonesia 30. National Defense Agency

Besides these 37 ministries in the Cabinet there are 11 agencies mentioned by NDMP 2015-2019 which are responsible for DRM. There are various legal documents that stipulate roles and responsibilities of different ministries and agencies. (See Annex E).

3.4 Enhance disaster preparedness for effective response and to "Build Back Better"

Increasing disaster risks requires strengthening disaster preparedness for response, taking action in anticipation of events, and ensuring capacities are in place for effective response and recovery at all levels. The recovery, rehabilitation and reconstruction phase is a critical opportunity to build back better, including through integrating disaster risk reduction into development measures.

3.4.1 Early warning systems (EWS)

Responsible organizations such as PVMBG , BKMG, Indonesian Tsunami Early Warning System (InaTEWS) and KemenPU Indonesia are working diligently to strengthen systematic collection, sharing and analysis of data on hazards and vulnerabilities, and in disseminating this knowledge through training and education.[139] Over the years Indonesia has created sophisticated EWS for tsunami such as the **German Indonesian Tsunami Early Warning System** (GITEWS).

In November 2008, Indonesia in partnership with Government of German, USA, Japan, China, and sixteen related ministries launched an effective tsunami EWS known as **Indonesia Tsunami Early Warning System** (InaTEWS)[1] through a German-Indonesian Tsunami Early Warning System (GITEWS) Project. The InaTEWS has been developed since 2005, it is aimed for People-Centred EWS that allows the community that exposed to tsunami risk to react appropriately and to evacuate from the area at risk and save themselves before the tsunami reaches the shore.

The InaTEWS is the only official tsunami EWS in Indonesia, and as such, all regions are required to adapt to this system. Pursuant to Law Number 31/2009 on Meteorology, Climatology, and Geophysics, only BMKG as the National Tsunami Warning Centre (NTWC) has the authority to issue a national tsunami early warning alert. Within five minutes of the occurrence of an earthquake, based on the network of broadband seismometers and accelerometers, combined with modelling results, BMKG will issue the tsunami early warning alert to relevant institutions, such as BNPB, BPBD, and the media. Information provided by BMKG includes the expected arrival time, location and height of any possible tsunami. InaTEWS can provide 30 minutes warning to the Indonesian main islands, but warning times for islands on the west coast of Sumatra are much shorter due to their proximity to the seismic faults.

During the ICG meeting in Mombassa, Kenya 28 February - 2 March 2007, the National Tsunami Warning Centre (NTWC) of Indonesia proposed to provide alert services to the member states of Indian Ocean Tsunami Warning and Mitigation System as one of the Tsunami Service Providers (RTSPs) along with India and Australia. Through the coordination of UNESCO/ IOC and based on the endorsement of the Intergovernmental Coordination Group of Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) of UNESCO, Indonesia, Australia, and India were appointed as the countries authorized to issue tsunami information to the 28 Indian Ocean Member Countries[2].

[139] UNDP (2009) Institutional and Legislative Systems for Early Warning and Disaster Risk Reduction www.snap-undp.org/elibrary/Publications/EWSReportIndonesia.pd

[1] Konsep dan Desain InaTEWS: Peran Serta Multi Instansi dan Multi Nasional https://inatews.bmkg.go.id/new/about_inatews.php?urt=6

[2] Executive Summary Report of the Eight Session of the ICG/IOTWMS meeting in Melbourne, Australia 3–6 May 2011

The Bandung Institute of Technology's Centre for Disaster Management, the Asian Disaster Preparedness Centre (ADPC), and the Jakarta Provincial Government initiated a comprehensive upgrade and integration of the Jakarta **Flood Early Warning System** (FEWS, 2008 - 2009). This is a wide-ranging multi-stakeholder process, with a range of technical and community-based initiatives to integrate the many elements needed in an effective warning system. Jakarta's BPBD is also currently using a Disaster Information Management System (DIMS). This application plays a vital role as a quick early warning system, allowing BPBD to collect information quickly and make key decisions.

At national level, BNPB is hosting the aforementioned Indonesian Disaster Data and Information (DIBI). DIBI has been adapted for local data and indicators, and has been used in risk mapping and risk indexing, used to create a disaster-prone area index (IRBI) and to support BNPB in making decisions on fund allocation, national programme policies and making plans to reduce the vulnerability of people living in highly-disaster prone areas. However, DIBI is sometimes affected by varying formats of data inputs, limited reliability of media sources, imprecise estimates available for disaster losses and inaccurate information leading to gaps in action and difficulty in obtaining reliable information from small districts. Indonesia is also benefiting from All-Hazard Warnings, Analysis, and Risk Evaluation (InAWARE)[140], designed by the Pacific Disaster Centre (PDC), a web-based platform integrating information, modelling, and mapping technologies to provide disaster authorities with a stream of information on current hazards.

Gadjah Mada University (UGM), BNPB, the Centre for Volcanology and Geological Hazard Mitigation (PVMBG) - Geological Agency and the Agency for Assessment and Application of Technology (BPPT) have installed the Landslide Early Warning Systems (LEWS**)** in several vulnerable locations across Indonesia.[141] The Centre for Volcanology and Geological Hazard Mitigation (CVGHM) monitors the volcanic activity, provides Early Warning information and advise Indonesian government for evacuation of the communities from the volcanic risk zones.[142]

Indonesia's geography poses a challenge in outreach of EWS to the grassroots communities and capacity strengthening to build communities' capacities to respond to warnings. The percentage of urban population watching television in 2012 was 96.1 per cent and in rural areas 87.3 per cent. The percentage of urban population that listens to the radio is 21.5 per cent and 15.6 per cent in rural areas. Accessing information via print media shows significant differences between communities in urban and rural areas (26.2 per cent versus 9.2 per cent).[143] The government is trying to strengthen its efforts for dissemination of disaster-related information to people living in remote locations.

Resources for decentralisation of DRR and EWS need to be further increased to match the current levels of risk and vulnerabilities at local levels. This could be done be supporting community based early warning systems which might involve a potential significant role of civil society, the private sector and the media in DRR and EWS. The existing Early Warning Systems needs to be strengthened maintained and upgraded according to the changing hazard and risk patterns. For instance the authorities realised that all 22 of the early-warning buoys Indonesia deployed after the 2004 tsunami

[140] http://disasteraware.pdc.org/
[141] GOI (2014) UGM and Geological Agency Installed LEWS at 20 Landslide-Prone Locations: http://reliefweb.int/report/indonesia/ugm-and-geological-agency-installed-lews-20-landslide-prone-locations
[142] ESDM (2016) Geological Agency Ministry of Energy and Mineral Resources Republic of Indonesia: http://www.dpri.kyoto-u.ac.jp/gsri/list/2015/Indonesia_Geological%20Agency,%20Ministry%20of%20Energy%20and%20Mineral%20Resources,%20Republic%20of%20Indonesia.pdf
[143] BPS (2015), Statitics- Indonesia's 70 years of Freedom - www.bappenas.go.id/files/data/Pengembangan_Regional_dan_Otonomi_Daerah/Statistik%2070%20Tahun%20Indonesia%20Merdeka.pdf

disaster were inoperable due to vandalism or a lack of funds for operation and maintenance when a 7.8 Richter scale undersea earthquake hit western Sumatra in March 2016.[144&145].

3.4.2 Disaster preparedness and contingency plans, policies, relief funds and capacity for preparedness

Following the Yogyakarta earthquake in 2006, Indonesia has endeavoured to mainstream DRR into post disaster recovery and rehabilitation. Every post-disaster recovery programme in the country has since started with a Post-Disaster Need Assessment (PDNA) and the formulation of an Action Plan for Rehabilitation and Reconstruction. BNPB regulation No. 17/2011 on rehabilitation and reconstruction has further internalized DRR mainstreaming in recovery.[146] The Government has also implemented a "building back better" approach in most post-disaster events since 2006. Five per cent of recovery and reconstruction funds are assigned to DRR.

More than 25 per cent of all districts and cities have formulated contingency plans for different hazards. Guidelines for Contingency Plan [147] Development were crafted in 2011 and a National Contingency Plan for Haze Disaster Caused by Forest and Land Fire[148] was developed in 2013 The RPJMN (2015-2019) stresses the need to implement the Contingency Plan for Haze Disaster Caused by Forest and Land Fire, especially in vulnerable areas. Government Regulation Number 22 of 2008 on the Financing and Management of Disaster Assistance defines three different disaster management funds – (i) contingency (preparedness) fund for before disasters; (ii) on-call budget for during disasters; and (iii) social grants for after disasters.

Head of BNPB Regulation No. 6A/2011 (rev) regulates the allocation and utilization of on-call budget for three sub-phases in emergency phase:

1. Emergency preparedness; operational support, contingency plan, and mitigation activities
2. Emergency response; SAR, evacuation, IDP management, temporary shelter and food aid.
3. Emergency transition; transitional/ permanent shelter, recovery of critical infrastructure and social economic recovery.

Further clarity is required over internal coordination mechanism to plan and the authority to manage the budget. Currently it is fully under the authority of D2 Directorate in BNPB whereas, ideally, arrangements should involve the other directorates (D1 – Preparedness, D3-Recovery and D4-Logistics).

In order to ease operational gaps, Indonesia, together with UNDP and the World Bank, has developed a multi-donor fund mechanism, called the Indonesia Disaster Fund (IDF). The Indonesia Disaster Fund (IDF) or previously Indonesia Multi-Donor Fund Facility for Disaster Recovery (IMDFF-DR) was established in 2010 as a standing mechanism to help fund implementation of the Government's Rehabilitation and Reconstruction Action Plans (RENAKSI) that were formulated following disasters, and for which the Government accepted international support. RENAKSI are based on Government-led Post-Disaster Needs Assessments conducted with support from the United Nations and the World Bank, and provide the foundation for priority setting for the Facility. To ensure national ownership, all projects funded by the Facility are in support of, and strictly aligned with, the

[144] The Guardian (2016) Indonesia tsunami warning buoys failed when quake hit – officials: https://www.theguardian.com/world/2016/mar/03/indonesia-tsunami-warning-buoys-failed-when-quake-hit-officials
[145] Reuters (2016) Indonesia's early tsunami warning buoys down when big quake hit: http://www.reuters.com/article/us-indonesia-quake-idUSKCN0W41J2
[146] BAPPENAS (2010) National Action Plan for Disaster risk Reduction, 2010-2012: http://www.bnpb.go.id/uploads/migration/pubs/451.pdf
[147] BNPB (2011) Guidelines for Contingency Plan: http://www.bnpb.go.id/ViewerJS/#./uploads/migration/pubs/501.pdf
[148] BNPB (2013) National Contingency Plan for Haze Disaster Caused by Forest and Land Fire http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/501.pdf

Government's Post-Disaster Needs Assessment (PDNA/JITUPASNA) Early Recovery Plan and RENAKSI or post-disaster Action Plans.

According to the Head of BNPB Regulation or *"Peraturan Kepala BNPB"* No 17/2010 the main sources of government funding for recovery are the Regional Government Budget (APBD) for district/municipality and/or province) and the National Government Budget (APBN). A minimum of 10 per cent of the total recovery funds are allocated to DRR for "building back better".

Additional funding sources include:

a. Insurance
b. International funding through a bilateral or multilateral mechanism
c. Trust fund mechanism for the implementation of post-disaster management
d. Other funds from society

The Government has not developed a nationwide insurance mechanism to fund post-disaster recovery as yet and there are no regulations that provide specific guidance on how to mobilize resources from non-government actors such as the international community and the private sector.

During the recovery process, mobilization of funds through the government budget, foreign grants or as loans must be done in accordance with regulations related to the government procurement process. These are the following:

a. 'Procurement of Goods and Services' (Presidential Regulation No. 54/2010)
b. Presidential Regulation No. 35/2011 on the first amendment to Presidential Regulation No. 54/2011.
c. Presidential Regulation No. 70/2012 on the second amendment to Presidential Regulation No. 54/2010.

BNPB has managed to address this by using 'Guidelines on the Use of Contingency Funds in the Emergency Response Phase' (Regulation of the Head of BNPB No. 6a/2011)

3.4.3. Planning for post disaster recovery and reconstruction:

BNPB has the mandate to manage all the phases of the disaster management cycle in Indonesia, including the post-disaster recovery phase. At the national level, BNPB is mandated to coordinate all relevant stakeholders such as line ministries, BPBDs, international donors, NGOs and the private sector in the process of PDNA, formulation of the Recovery Action Plan, implementation of the plans and monitoring and evaluation of the implementation. At the local level, BPBD is required to do the same. Thus BNPB plans and coordinates recovery activities in the wake of major or large-scale disasters and BPBD is responsible for recovery activities in the aftermath of minor or small-scale disasters. The Recovery Plans are formulated by BNPB/BPBD and implemented by the respective sectoral ministries and/or local government work units (SKPD) with the technical competence to implement those activities. Regional Medium Term Development Plan becomes the reference for local government work units to develop their regular work plan, programmes related to recovery are bound to be included in their regular work plan. Systematic mainstreaming of disaster risk reduction in reconstruction and recovery phase still needs to be accomplished.

3.4.4 Legal and institutional arrangement for recovery activities:

The mandates of BNPB and BPBDs are grounded firmly in national law. Since its inception in 2008, BNPB has developed institutional capacity and regulatory instruments to guide the implementation of recovery activities. These include the 'General Guidelines for the Implementation of Rehabilitation and Reconstruction' (Regulation of the Head of BNPB No. 17/2010), henceforth referred to as

'General Guidelines'; the 'Guidelines on Post-Disaster Needs Assessment' (Regulation of the Head of BNPB No.15/2011); and the 'Guidelines on Monitoring and Evaluation of Rehabilitation and Reconstruction' (Regulation of the Head of BNPB No.5/2012). 'Technical Guidelines on the Procedure to Propose and Manage Aid in the Form of Grant' (Regulation of the Head of BNPB No.16/2010).

The Division for Rehabilitation and Reconstruction is responsible for planning and coordinating recovery activities. It comprises of following three directorates which share responsibility in post-disaster planning process, including the conduct of PDNA and formulation of the Action Plan:

a. Directorate of damage assessment;
b. Directorate of physical recovery and improvement
c. Directorate of socio-economic recovery.

The potential institutional weakness of the recovery process is located mostly in the institutional capacity of BPBDs at the local level. The capacity of personnel in most of the newly formed BPBDs is limited because the staff assigned to them usually come from various offices with limited experience and / or expertise in matters pertaining to disaster management. An ambitious training programme is now being planned by BNPB to ensure that BPBD staff are provided with the necessary skills. Staff turnover rate is also quite high; often personnel who have been trained by BNPB move to other government units as part of normal civil service rotation, leaving an institutional gap when they depart but, at the same time, taking newly acquired skills with them to their new assignments.

BNPB's institutional location in the Indonesian bureaucracy also presents challenges, particularly in exercising its coordinating role at the national government level. The role of BNPB as a coordinating agency as stipulated in the 2007 Disaster Management Law requires further and clearer elaboration, particularly with regard to its relationship with the broader Governmental structure and its engagement with NGOs, the private sector and other organisations.

The planning process for recovery in post-disaster situations in Indonesia starts with a post disaster needs assessment (PDNA). Based on the 'Guidelines on Post-Disaster Needs Assessment', PDNA is a nationally owned process. The PDNA ("JITU PASNA" in Indonesian) covers six aspects[149].The scope of the PDNA in Indonesia is defined by BNPB Regulation No.17 / 2010 on Guidelines for Rehabilitation and Reconstruction. [150] These regulatory guidelines direct the rehabilitation and reconstruction efforts, covering the following aspects:

1. **Humanitarian:** which includes psychosocial, health, education, reconciliation, conflict resolution, security and order, strengthening the role and participation of institutions and community organizations, businesses and the community.
2. **Housing and settlements:** which includes housing and settlement, consisting of repairs to the environmental disaster area, home repair assistance, and community and social reconstruction.
3. **Infrastructure development:** which consists of restoration of government functions and public services, development and reconstruction of resilient public infrastructure facilities and equipment.
4. **Economic:** which comprises social, economic and cultural aspects, by boosting the local economy and livelihoods such as agriculture, trade, industry, tourism and banking.

[149] World Bank (2014) Institutionalizing Post-Disaster Recovery: Learning from Mentawai Tsunami and Merapi Eruption, Recovery Framework Case Study: https://www.gfdrr.org/sites/gfdrr/files/Indonesia%20Post-Disaster%20Recovery%20Institutionalization.pdf
[150] BNPB (2010) Regulation No.17 / 2010 on Guidelines for Rehabilitation and Reconstruction.

5. **Social:** which includes recovery of social and cultural rights, restoration of wisdom and traditions of the community, rapprochement between diverse cultures religions and faiths and the revival of social and cultural life.
6. **Cross-cutting:** which includes cross sectoral issues such as governance, environment and gender.

The Government has conducted many post-disaster recovery efforts and, as mentioned above, the implementation was measured based on Perka 5/2012. Monitoring and evaluation of recovery interventions is essential, especially when considering that post-disaster recovery efforts are strongly associated with development goals and objectives, and that post-disaster recovery efforts are conducted by various related sectors. Thus far, the application of monitoring and evaluation has primarily been used to observe the targeted outputs in the post-disaster recovery action plan within the regulated 3-years' timeframe of recovery intervention (Perka 17/2010).

Some concerns have emerged on how to ensure the functionality of outputs produced from post-disaster recovery activities and how to measure the recovery level of the affected community throughout as well as after the recovery interventions. To complement the existing monitoring and evaluation framework of post-disaster recovery, in particular to assess and measure how recovery outputs contribute to improve the welfare of the affected community, BNPB, the Central Statistical Agency (BPS) and UNDP have developed a methodology called Indonesia Post-Disaster Recovery Index (Ina-PDRI). In principle, Ina-PDRI is a composite index that will reflect the successes of rehabilitation and reconstruction activities on its main aspects (humanity, housing and settlement, infrastructure development, economy, social and cross sectoral) and its contribution toward human welfare. In addition, the index will also help all actors to define whether the post-disaster recovery interventions have been successful to deliver on the principle of build back better and safer.

BNPB has moved forward with many recovery preparedness activities, including the concept of an Indonesian PDNA, Ina-PDRI and the development of the IDF, despite the aforementioned challenges in securing resources for recovery preparedness. Indonesia is currently experimenting with and enjoying the usefulness of IDF, but its resources are managed by two international trustees and mostly channelled for activities by external partners. Therefore it is important that Indonesia finds ways to more firmly entrench national recovery tools and mechanisms into its operational procedures.

3.4.5. International cooperation

Indonesia is a signatory to a number of international conventions, a reflection of its commitment to disaster management and human rights fundamental principles underpinning effective national development. Indonesia has signed and committed itself to international frameworks such as Hyogo Framework for Action 2005-2015, Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, and the newly agreed Sustainable Development Goals (SDGs) 2015-2030. Regionally Indonesia is very active and is a signatory to the legally binding ASEAN Agreement on Disaster Management and Emergency Response (AADMER). Since 2007, the Indonesian Government has successfully domesticated and adopted AADMER norms on coordination, partnership and simplification of procedures. However, the effective implementation of the norms tend to be different in their application especially at the local level and with the local status of disaster events, highlighting the important role and function of local governments. Giving more space to community participation

and implementing a direct decision-making process at the lowest level could be a more fruitful beginning to implementing AADMER's norms effectively.[151]

International cooperation on disaster risk management in Indonesia is governed by the Government Regulation number 23/2008 on International Institutions and Non-Governmental Organization's engagement in Disaster Management and further elaborated in BNPB Regulation number 22/2010 on Guidelines for International Institutions and Non-Governmental Organization engagement during Emergency Response.

The Indonesian government's stance on disaster management is clearly reflective of international disaster response law. The responsibility to mitigate, prepare for, respond to and recover from disasters lies with the Government and people of Indonesia. Indonesia is playing a demonstrable role as a good global citizen, showcasing its leadership and sharing expertise with neighbouring countries. The Government welcomes targeted humanitarian assistance in technical cooperation for institution building, and for disaster management capacity strengthening.

In 2012 Indonesia hosted 5th Asian Ministerial Conference on Disaster Risk Reduction[152] and chaired the Working Group on Emergency and Preparedness in Asia- Pacific Economic Cooperation (APEC).

[151] Heribertus Jaka Triyana. (2014). Indonesian compliance and its effective implementation of international norms on disaster response. In: Andrej Zwitter et al. (eds.) Humanitarian Action. pp. 330-348. [Online]. Cambridge: Cambridge University Press. Available from: Cambridge Books Online http://dx.doi.org/10.1017/CBO9781107282100.021

[152] UNISDR (2012) 5th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR): http://www.unisdr.org/we/inform/events/23540

SECTION 4: STAKEHOLDERS MAPPING

4.1 List and description of stakeholders present in the country.

The Government of Indonesia is the primary stakeholder in disaster risk management. Its role is to ensure that DRM becomes a shared responsibility of the line ministries/government institutions at central and local levels, sectors and other relevant stakeholders.[153]

Understanding Stakeholder Architecture

Despite the importance of disaster risk reduction and disaster-sensitive development that require enduring investments, the extent of sector stakeholder activities is partially driven by the frequency of disaster events, which generate sufficient resources for their operations. Given that Indonesia has not experienced major disasters for some time, combined with a demonstrable increase in national capacity to manage small- and medium-sized disasters without external assistance, the number and size of international agencies focusing on this area of work has diminished. While there is no overarching umbrella for official coordination that relates to the roles of line ministries, the Government is in the process of putting into place a National Response Framework. In the meantime three coordination mechanisms can be defined:

Government coordination mechanism:
Law Number 24 of 2007 on Disaster Management has outlined the government coordination mechanism for disaster management. BNPB at national level and BPBD at the regional level have the mandate to coordinate, command, and execute disaster management related activities. BNPB comprises the Head of the institution, the Disaster Management Steering Committee, and the Disaster Management Executive Committee. Presidential decree No. 8/2008 includes ten ministries and agencies as members of BNPB's Steering Committee[154], and appoints the head of BNPB as the chairperson.

National Platform for DRR: established in 2009, Indonesia's National Platform for DRR or Planas PRB is working to strengthen disaster risk reduction cooperation in Indonesia. It consists of six major member groups including government ministries and agencies; civil society organizations; the Indonesian Red Cross and partners; the private sector; academia; and media. [155] Planas PRB formed five commissions to encourage participation of different member groups. The five commissions are policy and institutions; education and development of science and technology; public awareness; resource mobilization; and networking.

Forum Perguruan Tinggi untuk Pengurangan Risiko Bencana (FPT-PRB) or University Forum for Disaster Risk Reduction serves as the leading organization of disaster risk reduction efforts among universities in Indonesia. FPT-PRB was formed on November 11, 2008 in Jakarta with support by UNDP and BNPB.

[153] Sources:
1. Government of Indonesia (BAPPENAS & BNPB), 2010, National Action Plan for Disaster Risk Reduction 2010-2012, Jakarta.
2. Government of Indonesia (BNPB), 2015, Draft of National Resource Profile for Disaster Management 2015, Jakarta.
3. Government of Indonesia (BNPB), 2015, Development Framework for National Disaster Management Plan 2015-2019, Jakarta.

[154] (i) Coordinating Ministry of People's Welfare; (ii) Home Affairs; (iii) Social Affairs; (iv) Public Works; (v) Health; (vi) Finance; (vii) Transportation; (viii) Energy and Mineral Resources; (ix) National Police; (x) Army,

Figure 1: National Structure for Disaster Management

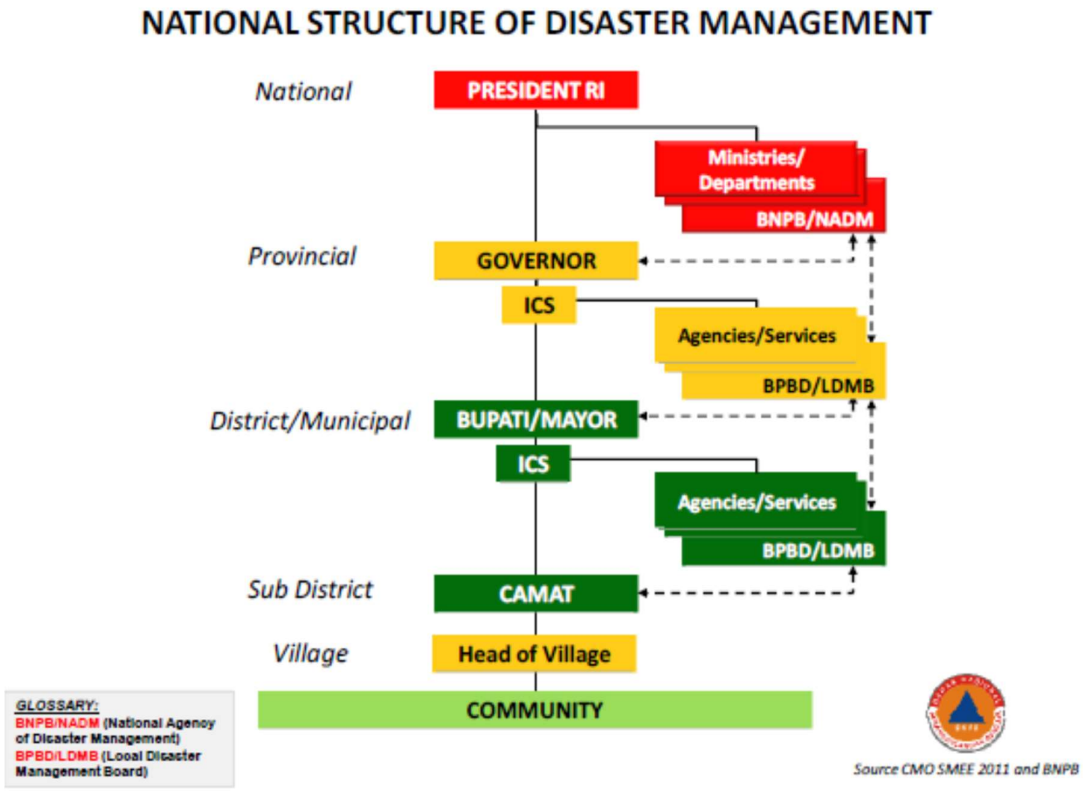
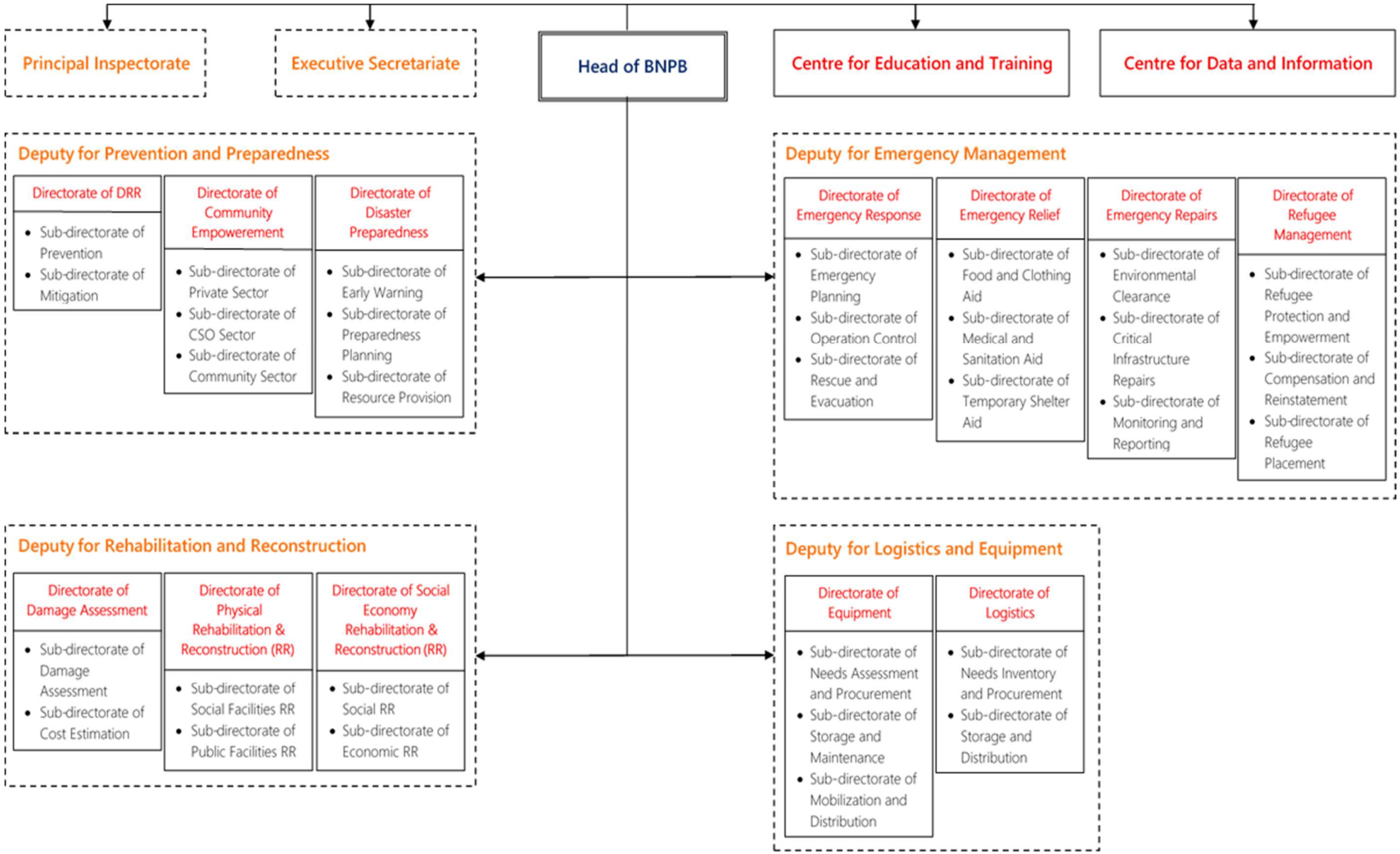


Figure 2: Structure of Indonesia's Badan Nasional Penanggulangan Bencana or National Agency for Disaster Management (BNPB)



International arrangements

Humanitarian Country Team and the Humanitarian Coordinator

The formation of Humanitarian Country Team (HCT) was facilitated by the United Nations to support the Government of Indonesia in coordinating humanitarian actors. Indonesia's international humanitarian agencies have organized themselves largely around the Humanitarian Country Team (HCT) under the leadership of the Humanitarian Coordinator (HC) for Indonesia. The HCT and HC are supported by the UN's Office for the Coordination of Humanitarian Affairs (OCHA), which is in the process of transitioning its presence in Indonesia given the development of national disaster management capacity. The role of the HCT has changed over time, from its prior relatively engaged role in responding to disasters when international offers of assistance were accepted to the current situation where its main focus is preparing for a large scale disaster and supporting the Government on policy and legal issues. Nonetheless the HCT and HC still play a significant role, especially in the context of Indonesia's elaboration of national versions of international tools such as clusters.

IASC Clusters and Interagency Contingency Plan

The cluster approach was used for the first time during the Yogyakarta earthquake response in 2006. The international community developed an inter-agency contingency plan in 2007-2008, which was guided by the new global cluster concept. The IASC Contingency Plan was finalized in 2009 and revised in 2011. Through a comprehensive planning process, international agencies in Indonesia were reorganized by the clusters under designated cluster-lead agencies, including agriculture (led by FAO), early recovery (UNDP), education (UNICEF & Save the Children), emergency shelter (IFRC), emergency communication (WFP), food and nutrition (WFP & UNICEF), health (WHO), logistics (WFP), protection (UNICEF & UNFPA), and WASH (UNICEF). Since then, no large scale disaster occurred, thus no significant IASC cluster activities have been carried out. The Government of Indonesia and the United Nations system have identified human rights; gender equality; HIV-AIDS; young people and statistics and data management as crosscutting issues in implementation of development planning.[156]

As part of preparedness efforts, the possible adoption and adaptation of the international cluster approach was discussed between BNPB and its partners and in 2014, BNPB together with relevant line ministries agreed to adapt the cluster approach into national clusters, i.e. Health, Education, Logistics, Displacement and Protection, Search and Rescue, Infrastructure and Facilities, Early Recovery, and Economy. A decree of the Head of BNPB No. 173/2014 was issued in 2014 to formalize national cluster arrangement. National clusters for Health, Education, Logistics, as well as Displacement and Protection are the most active with additional work required to operationalise all clusters. The finalisation of this process is a key priority for BNPB and its international partners in the coming years.

Indonesia's Thematic Networks

ECB Network

Upon the completion of Emergency Capacity Building (ECB) project in 2013, Indonesian staff members of the international organizations that participated in the project retained an informal network, representing the wealth of experience and knowledge on Indonesian disaster responses. It is now working as a de-facto NGO coordination mechanism since major international NGOs – CARE,

[156] GOI and UN (2015) United Nations Partnership For Development Framework (UNPDF) 2016 – 2020 , http://www.un.or.id/counter/download.php?file=unpdf_2016_2020.pdf

CRS, Mercy Corps, Oxfam, Save the Children, World Vision and IMC – take part in this network, and other organizations such as Plan International are often invited.

CDE (Consortium for Disaster Education)
Established in October 2006 for the purpose of coordination, synergy (of educational resources) and networking within the disaster education programme, CDE included, at its peak, all the stakeholders who are likely to involved in disaster education, ranging from the local and national governments to international actors, civil society organizations and some private sector contributors. In early 2015 the role of CDE was merged with/transferred to the Ministry of Education and Culture when it inaugurated a disaster management centre within the ministry. The CDE now integrated in National Cluster for Education[157]

DRP Indonesia
Disaster Resource Partnership (DRP) is a World Economic Forum (WEF) initiative, where the world's largest engineering and construction companies have decided to dedicate expertise and resources for responding to large disaster events, and also helping in reconstruction. In 2011, Indonesia became the 3rd country to establish a country level DRP with 10 engineering companies. With the specific aim of promoting partnerships between the governments, humanitarian community and the private sector, DRP Indonesia is active in educating the private sector as well as seeking collaborative opportunities in preparedness and response work.

Other Groups
MPBI
Masyarakat Penanggulangan Bencana Indonesia (MPBI), Indonesian Society for Disaster Management, established on 03.03.03 is a non-profit organisation envisioned to be an association of disaster management (DM) practitioners, scientists, and enthusiasts from government, international / national organizations and other DM entities in Indonesia. As an association and a network of DM organizations MPBI delves more at the upper stream of conceptual, policies, strategies and capacity building rather than frontline implementation in the field. MPBI is a member of the Asian Disaster Reduction and Response Network/ADRRN. MPBI has three programs a) Disaster Risk Reduction and Policy b) Disaster Risk Reduction Professionalism and c) Organization and Membership Empowerment. The presence MPBI currently functions as consultants and contributed in the domain of discourse disaster in Indonesia. MPBI also regularly holds symposia Community Based Disaster Risk Management

IABI
BNPB brought together and formed a professionals association under the name of *Ikatan Ahli Bencana Indonesia* (IABI). They are mostly faculty members from 12 designated universities which BNPB worked to develop 12 different hazard based master plans.

HFI
Humanitarian Forum Indonesia (HFI) was originally introduced in Indonesia to engage with Muslim based organizations, with support from the Global Humanitarian Forum. But it is now transformed and emerged as a genuine network of 14 humanitarian or faith-based development civil society organizations, regardless of religion. It comprises of Muhammadiyah Disaster Management Centre (MDMC), (*Yayasan Tanggul Bencana Indonesia* (YTBI), Yakkum Emergency Unit (YEU), *Dompet*

[157] Please see http://www.humanitarianforumindonesia.org/News/tabid/498/ID/10622/Pertemuan-Tahunan-Anggota-2016-Konsorsium-Pendidikan-Bencana.aspx

Dhuafa, Karina-KWI, *Wahana Visi Indonesia* (WVI), *Perkumpulan Peningkatan Keberdayaan Masyarakat* (PPKM), along with PKPU, Church World Service (CWS), DRR Unit of Union of Churches in Indonesia and Rebana Indonesia Foundation (network with Baptist church). In the absence of civil society network that Indonesian government recognizes formally, HFI also represents Indonesian NGOs or CSOs in ASEAN's disaster management committee**.**

INGO Humanitarian Manager Forum

INGO Humanitarian Manager Forum was constituted in 2014 as a follow up of the coordination meetings among humanitarian INGOs to seek for more effective communication and exchange in the Humanitarian Country Team (HCT) . Forum regularly meets to coordinate strategic and innovative efforts in DRM and climate change in order to support and/or to provide added value to governments' mission in humanitarian action. The forum consists of following 27 humanitarian INGOs: ACF, Acted, ADRA, ASB, AWO International, BCM, Build Change, Care International, Catholic Relief Service, Child Fund, Christian Aid, CWS, Handicap International, Hivos, HOPE, International Medical Corps, Islamic Relief, JRS, Lutheran Worldwide Relief, Muslim Aid, Mercy Corps International, Plan International, Qatar Charity, OXFAM, Save the Children, Terre des hommes, World Relief, and World Vision International.

Volunteer Organisations and Groups:

Volunteerism is an essential part of Indonesian life. " *Gotong Royong*"[158] is at the heart of community volunteerism and has been used for disaster risk management by the communities for centuries. The following are the primary organised volunteer movements in Indonesia:

1. Praja Muda Karana (Pramuka)

Pramuka is the Indonesian scout movement founded in 1912. It is the biggest scout movement in the world today with around 20 million members across the country[159]. Disaster management is an integral element of Pramuka activities since 2002. At that time Pramuka launched a programme called Pramuka Care *(Pramuka Peduli)* for disaster response[160]. In 2010, it published technical guidance on disaster management which mandates every branch at regional and local level to have its own disaster management unit[161]. In 2012 Pramuka signed a MoU with BNPB outlining its commitment to support BNPB in disaster management activities, particularly volunteer mobilization.[162]

2. Kuliah Kerja Nyata (KKN)

KKN is a community service programme for university students. It was initiated by the Ministry of Research and Higher Education in 1973 to enhance the contribution of universities in community development [163]. Under this programme a group of students are sent to rural areas on an annual basis to work on community development projects. The type of community project works are varied with a general requirement to create a programme that is relevant to the programme of study. Some universities have developed a KKN thematic programme on

[158] State of the World's Volunteerism Report Universal Values for Global Well-being http://www.unv.org/fileadmin/docdb/pdf/2011/SWVR/English/SWVR2011_full.pdf
[159] Kwarda DKI Jakarta Gerakan Pramuka (2014), *Anggota Pramuka Indonesia Terbesar Sedunia*, last accessed on January 20, 2016, http://www.kwardadki.or.id/berita/2014/01/anggota-pramuka-indonesia-terbesar-sedunia
[160] Kwarnas Gerakan Pramuka (2007), Petunjuk Penyelenggaraan Pramuka Peduli, last accessed on January 20, 2016, https://kwartircabangjepara.files.wordpress.com/2012/06/petunjuk-penyelenggaraan-pramuka-peduli.pdf
[161] Kwarnas Gerakan Pramuka (2010), *Petunjuk Teknis Pramuka Peduli Penanggulangan Bencana*, last accessed on January 20, 2016, http://www.kwardasulsel.or.id/?wpdmpro=petunjuk-teknis-pramuka-peduli-penanggulangan-bencana
[162] Kwarnas Gerakan Pramuka (2011), *Kesepakatan Bersama Antara BNPB dengan Kwarnas Gerakan Pramuka*, last accessed on January 20, 2016, https://lordscout67.files.wordpress.com/2013/09/naskah-mou-kwarnas-gerakan-pramuka-dengan-bnpb-dan-unit-siaga-bencana.pdf
[163] Hardjasoemantri, K (2007), 'Peran Pemuda Pelajar Indonesia dalam Perjuangan Bangsa: Sebuah Refleksi dan Harapan', *Jurnal Sejarah*, vol. 13, no. 13, pp. 1-12.

disaster management to enhance the capacity and preparedness of rural communities to prepare and respond to disasters. With around 4.5 million university students in Indonesia, KKN could become an entry point for youth participation in community based disaster resilience activities.[164].

3. Palang Merah Indonesia (PMI)

PMI, or the Indonesian Red Cross Society has been engaged in disaster management for last 70 years. Volunteers are the backbone of PMI[165]. Currently PMI has around 600,000 active volunteers - divided into three categories (i.e. youth, skilled and regular volunteers). These volunteers are regularly trained and 75 per cent of PMI regional offices have disaster management units with between 5 and 30 members[166]. Through its volunteers PMI builds the capacity of the community on disaster management. It currently assists 165 CBDRM initiatives in 12 provinces.

Volunteers supported by the line ministries:

Line ministries support the following volunteer force on disaster management:

1. Taruna Siaga Bencana (TAGANA)

Ministry of Social Affairs (MoSA) through its Directorate of Humanitarian Assistance for Natural Disaster Victims has the mandate to manage the process of delivery of humanitarian assistance in the event of disaster. The process of development of TAGANA was started in 2004 and in 2006 Ministry of Social Affairs Regulation No. 82/HUK/2006[167] gave it a legal form. TAGANA was formed to address the needs of the shifting disaster management paradigm - from emergency response to proactive prevention and risk reduction. The targeted volunteers are citizens between 18 and 40 years. All TAGANA members are required to participate in DRM trainings conducted by MoSA (i) Logistics; (ii) Shelter and (iii) Psychosocial support. As per 2015 data from *BNPB* there are around 2,600 TAGANA volunteers across Indonesia at all levels of administration.

2. Pemuda Siaga Peduli Bencana (DASIPENA)

DASIPENA was established by Ministry of Health (MoH) under the Minister of Health Decree No. 406/Menkes/SK/IV/2008[168] and aimed to enhance health service provision in relation to disaster management needs and to improve the youth volunteer participation. MoH, through the Centre of Health Crisis Management *(PPKK)* coordinates training activities to improve the skills and capacities of DASIPENA. At the. provincial and regency/city levels, the Department of Health needs to facilitate the DASIPENA in development of the action plan. Department of Health at provincial and regency/city level could mobilize DASIPENA members to disaster affected regions for search and rescue and emergency health service provision. According to BNPB, in 2015 there were around 330 listed members of DASIPENA at provincial and regency/city levels**.**

[164] Kementerian Ristekdikti (2014), *Grafik Jumlah Mahasiswa Aktif Berdasarkan Jenis Kelamin*, last accessed on January 20, 2016, http://forlap.dikti.go.id/mahasiswa/homegraphjk
[165] PMI (2009), *Pedoman Manajemen Relawan*, last accessed on January 20, 2016, http://pmi-kabtegal.or.id/downlot.php?file=Manajemen%20Relawan.pdf
[166] PMI (2014), *Pokok-pokok Kebijakan, Rencana Strategis dan Rencana Operasional PMI 2014-2019*, last accessed on January 20, 2016, http://www.pmi.or.id/index.php/berita-dan-media/k2-categories/e-library/416-rencana-strategis-pmi-tahun-2014.html
[167] GoI (2006), Minister of Social Affairs Regulation No. 82/HUK/2006 on Taruna Siaga Bencana, last accessed on November 2015, http://www.bphn.go.id/data/documents/06pmsos082.pdf
[168] GoI (2008), Minister of Health Decree No. 406/Menkes/SK/IV/2008 on DASIPENA Establishment, last accessed on November 2015, http://www.penanggulangankrisis.depkes.go.id/__pub/files74608KMK_No_406_ttg_Pembentukan_Pemuda_Siaga_Peduli_Bencana_(DASI_PENA).pdf

3. Desa Tangguh Bencana (DESTANA)

DESTANA is a resilient village programme initiated by BNPB through Head of BNPB Regulation No. 01/2012. BNPB aims to transform disaster management capacity in existing villages under either ministerial or NGO projects leading to resilient villages by mainstreaming the disaster risk management within the development process. Thus, DESTANA is also aimed to foster better partnership and synergy between BNPB and other line ministries and other non-governmental stakeholders. There are nine indicators for resilient village and one of the most important is the existence of disaster volunteers. In order to become a resilient village, a village is required to have at least 30 volunteers trained in disaster risk management to implement the village level DRM action plan. The most recent BNPB data lists around 5,000 DESTANA volunteers across Indonesia. DESTANA program reached 265 villages/wards during 2012 to 2015 throughout Indonesia.[169]

BNPB also maintains a database of volunteer organizations that can deploy volunteers for disaster management activities. Kindly refer to Annex F: The list of Volunteer Organisations registered with BNPB for Disaster Risk Management. There are around 40,000 volunteers listed with these organisations. The organisations have been divided into nine different national clusters. DRM training is provided to the Master Trainers of these organisations once a year. BNPB needs to strengthen its capacity in volunteer management and Information/ knowledge management on volunteerism in Indonesia.

United Nations agencies in Indonesia:

The United Nations in Indonesia comprises 28 organizations, with specific mandates and areas of expertise, often with a strong focus on social and economic development and disaster response. [170]The United Nations organizations have formed a partnership with the Government and people of Indonesia to support national efforts to meet the Sustainable Development Goals, save lives in times of disaster, and rise to the challenges of people-centred development in a rapidly growing middle-income country. [171]

1. Food and Agriculture Organization of the United Nations (FAO)
2. International Atomic Energy Agency (IAEA)
3. International Labour Organization (ILO)
4. International Organization for Migration(IOM)
5. International Telecommunication Union (ITU)
6. Pulse Lab Jakarta
7. United Nations Office for the Coordination of Humanitarian Affairs (OCHA)
8. UN WOMEN
9. Joint United Nations Programme on HIV/AIDS (UNAIDS)
10. Centre for Alleviation of Poverty through Sustainable Agriculture - United Nations Economic and Social Commission for Asia and the Pacific (CAPSA-ESCAP)
11. United Nations Development Programme (UNDP)
12. United Nations Educational, Scientific and Cultural Organization (UNESCO)
13. United Nations Population Fund (UNFPA)
14. United Nations Human Settlements Programme (UNHABITAT)
15. United Nations High Commissioner for Refugees (UNHCR)
16. United Nations Children's Fund (UNICEF)
17. United Nations Industrial Development Organization (UNIDO)

[169] BNPB (2014) Rekruitmen Fasilitator Desa Tangguh Bencana: http://bnpb.go.id/berita/2137/rekruitmen-fasilitator-desa-tangguh-bencana
[170] UN (2015) UN Indonesia brochure: www.un.or.id/counter/download.php?file=un_indonesia_brochure_2015.pdf
[171] UNRC(2015) United Nations Resident Coordinators Office (UNRC) Office: http://un.or.id/en/who-we-are#gkBottom1-2

18. United Nations Office on Drugs and Crime (UNODC)
19. United Nations Office for Project Services (UNOPS)
20. United Nations Volunteers (UNV)
21. World Food Programme (WFP)
22. World Health Organisation (WHO)
23. United Nations Department of Safety and Security (UNDSS)
24. United Nations Environment Programme (UNEP)
25. United Nations Information Centre (UNIC)
26. United Nations Office for REDD+ Coordination in Indonesia (UNORCID)
27. United Nations University – Institute for Environment and Human Security (UNU-EHS)
28. ASEAN-UN Partnership

International Donors:
A range of bilateral and multilateral donors are engaged in the DRM space in Indonesia. The donors provide supports to BNPB and relevant ministries through bilateral or through multilateral cooperation with UN agencies and/or non-government organizations as well as through Red Cross and Red Crescent Movement. Some of the key donors in the DRM space include:

- Japan International Cooperation Agency (JICA)
- United States Agency for International Development (USAID)
- New Zealand Aid Programme
- Development Cooperation by Australian Department of Foreign Affairs and Trade (DFAT)
- World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR)
- Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ)

The last DRM stakeholder mapping[172] was conducted in year 2007 – 2008 under UNDP's SCDRR Stakeholder mapping. Since then DRM stakeholder mapping has not been updated. The DRM stakeholder mapping needs to be updated on the basis of Sendai Framework priorities and actions by BNPB.

4.2 Stakeholders' shared responsibility towards the implementation of the Sendai Framework

The development of Road map for Sendai Framework Implementation is in process. BNPB is spearheading the preparation of this road map with technical assistance from its international partners. It will be based on the results of the Sendai Framework – National Baseline Report for DRM in Indonesia.

[172] BNPB and UNDP (2008), Profile Directory of Disaster Risk Reduction Organisations in Indonesia, http://www.pacificdisaster.net/pdnadmin/data/original/Asia_2008_Profile_Directory.pdf

5: KEY ISSUES, CHALLENGES AND PRIORITIES FOR SENDAI: FRAMEWORK IMPLEMENTATION

The below sections from 5.1 to 5.6 outline the sectors, policies and plans promoting DRR, investment or allocation of resources to implement DRR, the level of awareness the sectors have about DRR, the main entry points to mainstream DRR, and obstacles and challenges for achievement of the Sustainable Development Goals and the Sendai Framework. These are based on Indonesia's HFA reports, government reports and inputs from the Technical Working Group (TWG) members formed for the development of National Baseline Report on DRM for Sendai Framework (2015-2030). The development of thirteen sectoral reports are in progress.

The narrative in this section is based on the above analysis and aims to highlight the key issues and priorities for the country in implementing the Sendai Framework priorities for action and contributing to the achievement of global targets and outcome. A secondary intention is that, in future the report will assist Indonesia in setting up its national and local mechanisms for monitoring and reporting on Sendai Framework progress, embedded in the national DRR monitoring systems.

5.1 Achieving the SFDRR outcome, goal and targets: this section sets national targets to implement the framework, in line with national strategies and/or existing targets

The Baseline Report will serve as a reference document to develop the Road Map for Sendai Framework implementation.

The below sections – Priorities for Action and Timeframe have taken into account the inputs from BNPB and BNPB's Policy and Strategy for Disaster Reduction (JAKSTRA)

5.2 Understand disaster risk – issues, challenges and priorities for action

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Limited technical capacity in BPBDs to conduct risk assessment.	• Difficulty in enforcing laws and regulations at the provincial and lower levels of administration[173].				
JAKSTRA (2015 – 2019)	**Jakstra Action point 1.b Examination, assessment, and monitoring of disaster risks through studies and development of disaster risk maps with a scale of 1: 50,000 for districts and a scale of 1: 25,000 for cities that are focused on districts / cities with disaster high-risk.**	• Currently there is lack of comprehensive methodology for disaster risk assessment, and monitoring. • Limited number of high resolution disaster risk maps for high-risk districts and cities. • Maps need to be overlaid with poverty and vulnerability data.	• 1.b.3 Availability of Hazard Maps and assessments of all existing hazards in the region in accordance with the standards that have been set.	BMKG, KEMEN MoPW KEMEN ESDM, BIG, KEMENTAN	BNPB, BPPT, LAPAN, KEMENKES, KEMENSOS, KLHK, KEMENDES PDTT	2015-2019
			• 1.b.4 Availability of Vulnerability Maps and assessments of all existing hazards in the region	BNPB	BMKG, KEMEN PU-PERA, KEMEN ESDM, BIG, KEMENTAN, BPPT, LAPAN, KEMENKES, KEMENSOS, KLHK, KEMENDES PDTT	2015-2019
			• Availability of Capacity Maps and assessments	BNPB		2015-2019
	Need for agreement on risk assessment methodology	• Coordination arrangements require further development among sectors in order to agree on and use a common risk analysis methodology[124].				

[173] BNPB (2014). Indonesia National progress report on the implementation of the Hyogo Framework for Action (2013-2015): http://www.preventionweb.net/files/41507_IDN_NationalHFAprogress_2013-15.pdf

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Inclusion of vulnerable groups in disaster response, relief and transition.	• Currently there is a lack of linkages between the data available on vulnerable groups and connections with the disaster risk management planning and execution.	• Develop mechanisms to ensure that provision of assistance to vulnerable groups should be prioritised during an emergency rescue and evacuation process, and with security, health and psychosocial services. • Assistance for housing, WASH, education etc should be prioritised during transition.[174] This has been mandated by the National Disaster Management Law No 24/2007. According to the law, vulnerable groups are defined as including: a. Infants, children under five years of age and children b. Pregnant or lactating women c. People with disabilities; and d. The elderly (above 60 years of age).			

[174] (UNFPA (2015) Vulnerable Populations in Emergencies in Indonesia: http://indonesia.unfpa.org/publications/view/vulnerable-populations-in-emergencies-in-indonesia

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Limited capacity and methodological harmony for risk assessment across government institutions and line ministries.	• Enhance and sustain the monitoring of natural hazards/ phenomena such as seismic, meteorology, hydrology, geology, and volcanology etc. • Agreement on methodology and format of risk assessment and database that will be acceptable to all government line ministries/ institutions and stakeholders. • Enhanced coordination in risk assessments and database management to avoid duplication across government institutions. • At the lower government level, the challenge is more in terms of budget, limited human resources and technical know-how[124].	• Upgrade and increase the number of observation stations and assure their maintenance. • Efforts are being made to standardize this through the Indonesian National Standards (SNI) that will help in making the systems uniformed[97].			
	Limited outreach of Early Warning System (EWS) to the grassroots communities and low capacity of communities to respond to warnings	• Limited technical capacity to conduct risk analysis and mapping both for the national and local stakeholders[124]. • The EWS developed by line ministries and agencies at the national level mostly reaches district/city administration only. • Poor access in rural areas to power, television or radio networks. • Cultural obstacles preventing people to seek information about disaster risks.	• Identify the communities lacking access to EWS. Establish enhanced EWS and maintain it to deliver warning messages to reach every household in the hazard prone areas. • EWS needs to be included in hospitals. Only 10 percent of the roughly 1,200 hospital in Indonesia has a good EWS. Therefore, the standardized disaster risk management in hospitals needs to be addressed.[175]			

[175] Materi Inti 4: Fasilitas Rumah Sakit dalam Penanggulangan Bencana Training of Trainer : http://www.bencana-kesehatan.net/images/file/4.%20materi%20inti%204_fasilitas%20rumah%20sakit%20dalam%20penanggulangan%20bencana_bella%20dona.pdf

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
		• Capacity of BPBDs in managing risk information and communication needs to be further built by BNPB. BPBDs in some provinces require capacity support to manage risk information and communication[124].				
	Establishing a disaster early warning system for high-risk areas and ensure the proper functioning of the early warning system	• Inadequate implementation of Early Warning System for hazards such as tsunami, floods, landslides, droughts, forest and land fire, flash floods and volcanoes.	• 3.c.43. Implementation of Tsunami Early Warning Systems in risk areas.	BMKG	BNPB, KEMENDIKTI & RISTEK	2015 -2019
			• 3.c.44. Implementation of Flood Early Warning Systems in risk areas.	KEMEN PU-PERA	BNPB	2015 -2019
			• 3.c.45. Implementation of Landslide Early Warning Systems in risk areas.	KEMEN ESDM	BNPB	2015 -2019
			• 3.c.46. Implementation of Forest and Land Fire Early Warning Systems in risk areas.	KLHK	BNPB, BMKG, LAPAN	2015 -2019
			• 3.c.47. Implementation of Volcanic Eruption Early Warning Systems in risk areas.	KEMEN ESDM	BNPB	2015 -2019
			• 3.c.48. Implementation of Drought Early Warning Systems in risk areas	KEMENTAN, KEMEN PU-PERA	BNPB	2015 -2019
			• 3.c.49. Implementation of Flash Flood Early Warning Systems in risk areas	KEMEN PU PERA	LAPAN, BMKG, BNPB	2015 -2019
			• 3.c.50. Availability of Disaster Management Operations Control Centers (Pusdalops PB) with facilities that are able to provide an effective response for the	BNPB	KEMENDAGRI, BMKG, KEMEN PU-PERA, KEMEN ESDM, KEMENTAN, LAPAN, KEMENKES,	2015 -2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
			implementation of early warning and management of crises		KEMENSOS, KLHK, KEMENDES PDTT	
JAKSTRA (2015 – 2019)	**Jakstra Action Point 2.a. Promoting and cultivating disaster awareness as well as increasing public knowledge regarding disasters**		• 2.a.24. Establish cross-agency disaster communications in accordance with the mechanism that has been established, consisting of institutions at least from the government, public, and business sectors	KEMENDAGRI	BNPB	
JAKSTRA (2015 – 2019)			• 2.a.25.Establishment of Disaster Safe Schools and Madrasah (SMAB)	KEMENDIKDASBUD, KEMENEG	BNPB	
			• 2.a.26 Establishment of Disaster Safe Hospitals and Community Health Centers	KEMENKES	BNPB	
JAKSTRA (2015 – 2019)	**Jakstra Action Point 2.b Increased socialization and dissemination of disaster risk reduction to the public through print media, radio, and television**		• 2.b.27.Socialization on disaster prevention and preparedness through the available media	BNPB	BMKG, KEMEN PU-PERA, KEMEN EDSM, BIG, KEMENTAN, BPPT, LAPAN, KEMENKES, KEMENSOS, KLHK, KEMENDES PDTT	
			• 2.b.28.Availability of regulations on the dissemination of disaster information in the region	KEMENDAGRI	KOMINFO, BNPB	
JAKSTRA (2015 – 2019)	**Jakstra Action Point 2.c. Provision and dissemination of information regarding disasters to the public**		• 2.c.29 Establishing a means of delivering disaster information that directly reaches the public	KEMENKOMINFO	BNPB, BMKG, LAPAN, BPPT	

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
			• 2.c.30 Availability of spatial planning information that is easily accessible to the public	KEMEN ATR	BAPPENAS, BNPB, KEMENDAGRI	
	Gender mainstreaming and inclusion of vulnerable groups in the government policies, plans and programmes.	• Awareness of policy makers on the importance of promoting gender equality and gender specific requirements needs to be further enhanced. • Gender disaggregated vulnerability and capacity assessments need to be a key component of disaster risk management planning. • The Government of Indonesia has developed gender disaggregated data census to the lowest administrative level. However, its use remains limited in decision-making in all development sectors[124]. • The importance of social aspects of vulnerability in mitigating natural hazards has also been acknowledged by the Indonesian government. • The efforts to assess social vulnerability to natural hazards are limited and needs to be accelerated[176].	• Enhance the capacity to manage gender-disaggregated database. • Involve mass media and NGOs in mainstreaming gender into DRR. • Comprehensively review disaster risk management planning and programming from the lens of vulnerable and marginalised groups such such as women and girls, people with disabilities,[177] children, the elderly, marginalized ethnic groups and the poorest .			
	Loss and Damage Methodology and data dissemination for public use	• Indonesia possess a sound methodology to calculate and				

[176] Social vulnerability to natural hazards in Indonesia: driving factors and policy implications Natural Hazards, January 2014, Volume 70, Issue 2, pp 1603-1617 by Tiodora Hadumaon Siagian, Purhadi Purhadi, Suhartono Suhartono and Hamonangan Ritonga http://link.springer.com/article/10.1007/s11069-013-0888-3

[177] Please see http://pld.uin-suka.ac.id/2014/09/difabel-dan-penyandang-disabilitas.html. According to Law No 8/ 2016 the term is "Penyandang Disabilitas" and also accepted by "differently abled" group

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
		analyse the monetary/ economic loss of disasters. However this data is not well disseminated and accessible for public use.				

5.3 Priorities Strengthen disaster risk governance - issues, challenges and priorities for action

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Law Enforcement and overlapping of regulations	• Difficulty in law enforcement, ineffective law enforcement, overlapping laws and regulations and limited inter-agency coordination[124].				
JAKSTRA (2015-2019)	**Jakstra Action Point 1.e. Harmonization of disaster management policies and regulations at the central and regional levels**		• 1.e.9 Availability of Regional Regulations on the Implementation of Disaster Management.	MoHA	BNPB	2015-2019
			• 1.e.10 Availability of Regional Regulations on the Establishment of Regional Disaster Management Agencies (BPBD).	MoHA	BNPB	2015-2019
			• 1.e.11 Availability of Regulations on the establishment of Disaster Risk Reduction Forums.	MoHA	BNPB	2015-2019
			• 1.e.12 Availability and implementation of a regional disaster data collection system that is connected with the national disaster data collection system.	BNPB	MoHA, BMKG, KEMEN PU-PERA, KEMEN ESDM, BIG, KEMENTAN, BPPT, LAPAN, KEMENKES, KEMENSOS, KLHK, KEMENDES PDTT	2015-2019
			• 1.e.13 Availability of regulations for Determining Emergency Response Status.	BNPB		2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
			• 1.e.14 Implementation of an emergency operation command system that is able to meet the needs of a takeover of command by higher government structures.	BNPB	TNI, POLRI, KEMENSOS, KEMENKES, KEMEN PU-PERA, KEMEN ESDM, KLHK, BMKG	2015-2019
			• 1.e.15 Availability of regulations and implementation of a mechanism for the Termination of Emergency Response Status.	BNPB		2015-2019
	Limited understanding about DRR	• The shift of the DRM paradigm from response to DRR has not been well socialized: at the local government level where risk management is often considered to be the same as emergency preparedness[124].	• Strengthen BPBDs in implementation of their duties and responsibilities as per RPJMN/SFDRR paradigm.	BNPB	Provincial and District Governments	2015-2019
JAKSTRA (2015-2019)	**Jakstra Action Point 1 (a) Mainstreaming of disaster risk reduction into national and regional development planning.**		• 1 (a) 1 The commitment of the Regional Legislative Councils (DPRD) towards approving/ allocating budgets for disaster management activities.	BNPB	BAPPENAS	2015-2019
			• 1 (a) 2 Establishment of Regional Regulations regarding Disaster Management Plans that are integrated into the RPJMD	MOHA	BNPB , BAPPENAS	2015-2019
	Mainstreaming DRR at the local level	• Limited resources and capacity of BPBDs and BAPPEDAs to implement resilient village programmes.	• Efforts to mainstream DRR into local development/resilient villages to be further enhanced.			2015-2019
	Jakstra Action Point 1.c Utilization of assessments and disaster risk maps for the preparation of the District / City Disaster Management Plan (RPB)		• 1.c.6 Preparation and implementation of Regional Disaster Management Plans	BNPB	BAPPENAS	2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	and the Regional Disaster Risk Reduction Action Plan (RAD PRB), which will serve as references for the preparation of the District / City RPJMD.					
	Jakstra Action Point 1.d Integration of disaster risk assessments and maps in the preparation and review of the Provincial / District / City RTRW		• 1.d.7 Availability of Regional Regulations on Spatial Planning based on Disaster Risk Reduction.	MOHA	ATR	2015-2019
JAKSTRA (2015-2019)			• 1.d.8. Implementation of Spatial Planning based on Disaster Risk Reduction	ATR	BAPPENAS, BNPB, MOHA	2015-2019
	Distribution of roles and responsibilities	• Clarity in the distribution of roles and responsibilities between BNPB and national actors, and BPBDs and local actors need to be enhanced.				
	Limited human resources	• Insufficient human and financial resources to cover all roles at all levels of governance[124].				
	Jakstra Action Point 3.a. Strengthening the capacity of disaster management institutions and personnel at the central and regional levels		• 3. a.41. Organization of training and certification for management and operational skills of Disaster Management officials			
	Jakstra Action Point 3.a. Strengthening governance, transparency and accountability in the implementation of disaster management		• 3.a.42 Establishment of Regional Disaster Management Agencies with good governance, transparency and accountability in disaster management implementation	MOHA	BNPB	2015-2019
	Jakstra Action Point 2.g.		• 2.g.38. Optimisation of surface water utilization to reduce the risk of floods and droughts	KEMEN PU-PERA	KEMENTAN, KLHK, BNPB	2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Building and fostering local knowledge for development and disaster mitigation		• 2.g.39.Periodic monitoring of upstream areas that are at risk of flash floods	KEMEN PU-PERA	KEMENTAN, KLHK, BNPB	2015-2019
			• 2.g.40.Enforcement of laws to prevent forest and land fires	POLRI	KLHK, BNPB, TNI	2015-2019
	Lack of a central database for HVCA.	• Responsibility to monitor, archive and disseminate data on key hazards and vulnerabilities lies in different line ministries. • The Ministry of Energy and Mineral Resources is largely responsible for geological hazards, particularly volcanic eruption and landslide. • The Ministry of Public Work is responsible for flood hazard. • BMKG is responsible for climate-related hazards and tsunami. • The Ministry of Forestry is responsible for forest and land fires.	• A central and comprehensive hazard and vulnerability database needs to be developed by the government of Indonesia (perhaps led by BNPB) to link and coordinate all the DRM information, activities and updates from all the relevant ministries.			
	Disaster risk reduction is not a strategic priority of the Government of Indonesia	• The Indonesian Government established BNPB in 2008 as a non-ministerial agency responsible for disaster management. BNPB is still a growing organization with limited technical expertise, capacity and resources required for networking/ coordination for disaster risk reduction in the development policies and plans of the line ministries.	• Enhanced clarity on BNPB's role to coordinate and guide the other line ministries on DRR mainstreaming in development policies and planning.			
	Need for more clarity in the roles and coordination structure and collaboration between the	• Disaster management emphasis within these agencies has been on response, and much less on	• National Response Framework (NRF)			

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Ministry of Home Affairs, BNPB, BAPPENAS, BAPPEDAS and BPBDs.	mitigation. • BAPPENAS is assigned the mandate to coordinate development planning and BNPB has the mandate of coordinating disaster management efforts. • Coordination framework has been established between BNPB and BAPPENAS but requires further elaboration. • Progress toward taking full advantage of these ministries' capacities and potential capacities has therefore been slower than otherwise possible. • This is true also at the local level, where the ministries have similar responsibilities for disaster management activities, and are relied upon by the BPBDs/BAPPEDAS to provide funding for preparedness, yet their awareness of and commitment to disaster management is less consistent[178].				
	Enhancement in capacity and role of Planas	• The National Platform for DRR requires stronger support to play a more prominent role and serve as the government's partner in promoting and advocating DRR[97].				

[178] Harkey Jeremy (2014)Experiences of National Governments in Expanding Their Role in Humanitarian Preparedness and Response, Feinstein International Centre, Tufts University : fic.tufts.edu/assets/TUFTS_13118_Humanitarian_response_V3print.pdf

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Absence of complaint and public grievance redressal mechanism for DRM activities.	• Create a complaint and grievance redressal mechanism for DRM issues.				
	Small scale and climate change related disasters	• Small scale disasters are frequent. Large-scale disasters draw national attention[179] and inflows of foreign aid while the regular smaller-scale disasters are frequent but do not attract the same level of attention[180].				
	Coordination of International organisations.	• There is a need to enhance the country's capacity of coordinating international organizations; for instance the responsibilities of UNOCHA needs to be merged or transferred to BNPB in the next few years.				
	There is a need to empower local authorities and stakeholders through the establishment of appropriate coordination mechanisms at local level, which will create clearer steps to address disaster and conflict related risks to cultural heritage.	• Limited capacity of the BPBDs in the area where the World Heritage and cultural heritage sites are located in Indonesia in applying disaster risk management for cultural heritage sites according to their duties and responsibilities. BPBDs are more focused in conducting emergency response in case of disasters.	• To build the capacity of the local authorities (BPBDs and Cultural Heritage Preservation Offices in managing disaster risks at cultural heritage sites. • To engage with the local disaster risk reduction platforms (such as Local Disaster Risk Management Forums/ *Forum Pengurangan Resiko Bencana)* in joint efforts in mainstreaming DRR at cultural heritage sites in the regions.	BNPB Kemendikbud		

[179] GFDRR (2014), Institutionalizing Post-Disaster Recovery: Learning from Mentawai Tsunami and Merapi Eruption, Recovery Framework Case Study. Page 47 https://www.gfdrr.org/sites/gfdrr/files/Indonesia%20Post-Disaster%20Recovery%20Institutionalization.pdf

[180] Rush, John V. (2013), The Impact of Natural Disasters on Poverty in Indonesia, Department of Economics, University of Hawaii

5.4 Invest in DRR for resilience - issues, challenges and priorities for action (with time frame)

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Awareness and Understanding about DRR	• Decision makers, particularly members of national and local legislatures, still need to completely understand the importance of implementation and budget allocation for DRR. "Most decision makers still consider DRR as non-essential".	• Awareness generation for decision makers on SFDRR and importance of investing in and implementing DRR.			
	Absence of clear regulation for disaster budget at national and local levels.	• Absence of clear regulations that govern the disaster budget at the national and local levels, which has made it difficult for decision makers to allocate resources to the disaster management budget.	• Formulate clear regulations related to disaster budget and make fund disbursement more responsive and easier, while still maintaining transparency and accountability.			
	Less allocation of budget for DRR	• The current emphasis and culture is focusing on allocating more funds for emergency response and for post-disaster recovery programmes rather than to prevent/reduce disaster.	• Increase the budget allocation for DRR at national, provincial and local levels.			
	Cost- Benefit Analysis	• The economic cost-benefit of DRR investment has not been commonly agreed by majority of decision makers[124]. • It is still a challenge to establish assessment methods that will be commonly agreed and used by the different ministries and agencies, as most institutions have the interests of developing their own methods[124].	• To develop an integrated and comprehensive research policy in disaster management and risk reduction that also covers the relevant cost-benefit analysis[97].			
	Limited coverage of risk transfer/ micro insurance/ finance	• Currently there is a lack of clarity in the criteria of the selection of poor and vulnerable people and				

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
		information about the whereabouts of these groups. This makes it difficult to ensure that the micro insurance /finance and risk transfer schemes reach all the vulnerable groups.				
	Jakstra Action Point 3.h. Development of disaster resilient villages in disaster risk areas in support of the super villages movement		• 3.h.65.Establishment of Disaster Resilient Villages	BNPB	KEMENDAGRI, KEMENSOS, KKP, KEMENDESPDTT, KEMENKES, KEMEN-KOMINFO	
JAKSTRA (2015-2019)	**Jakstra Action Point 2.d. Building international partnerships, and partnerships with development partners, civil society organizations and the business community in the implementation of disaster management**		• 2.d.31. Establishment of Disaster Risk Reduction Forums	BNPB	MOHA	2015-2019
			• 2.d.32. Mobilization of emergency aid for disaster-affected communities	BNPB	TNI, POLRI, KEMENSOSKEMENKES	2015-2019
JAKSTRA (2015-2019)	**Jakstra Action Point 3.d Development and utilization of science, technology, and education for disaster prevention and preparedness**		• 3.d.51. Construction of infiltration wells and / or biopores in domestic and commercial districts	KEMEN PU-PERA	KLHK, BNPB	2015-2019
			• 3.d.52. Construction of earthquake safe buildings in domestic and commercial areas	KEMEN PU-PERA	BMKG, BNPB	2015-2019
			• 3.d.53. Availability of plants and / or buildings capable of retaining tsunami waves	KEMEN PU-PERA, KKP	KLHK, BNPB	2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
			• 3.d.54. Revitalization of dikes, ponds, reservoirs and city parks	KEMEN PU-PERA	KLHK, BNPB	2015-2019
			• 3.d.55. Restoration of peatlands	BRG	KEMENTAN, KLHK, BNPB	2015-2019
			• 3.d.56. Vegetative conservation of watersheds prone to landslides	KLHK	KEMEN PU-PERA, BNPB	2015-2019
	Jakstra Action Point 2.f Environmental maintenance and management of areas prone to natural disasters		• 2.f.35. Protection of water catchment areas in areas at risk of flooding, landslides and droughts	KLHK	KEMEN PU-PERA, BNPB	2015-2019
			• 2.f.36. Restoration of rivers in areas at risk of flooding and drought	KEMEN PU-PERA	KLHK, BNPB	2015-2019
			• 2.f.37. Strengthening of hillsides in areas at risk of landslides and flooding	KEMEN PU-PERA	KLHK, BNPB, KEMEN ESDM	2015-2019
	There is need to strengthen the preparedness of the cultural heritage sites in the region, towards disasters and conflicts, and to harness their significant potential for contributing to the resilience of our communities. Some of the good initiatives to protect and mitigate the risk of natural disasters have been applied to some UNESCO's World Heritage Sites in Indonesia such as Borobudur and Prambanan. However, more support, guidance and coordination in this area are still needed.	• Enhanced coordination between the mainline Ministries dealing with cultural heritage and BNPB to conduct joint action in mainstreaming disaster preparedness for Indonesia's cultural heritage sites • Unavailability of national risk mapping across cultural heritage sites in Indonesia • The limited budget and resources from the mainline ministries to address the issues of DRR at cultural heritage sites	• To increase awareness and strengthen the capacity of all relevant audiences in the value of cultural heritage and the importance to include consideration for heritage in national and local policies and plans for DRR • To strengthen the resilience of World Heritage properties and heritage sites to disasters through appropriate structural measures, which do not have any adverse impact on their cultural and natural heritage value, integrity and authenticity as appropriate	BNPB Kemendikbud	BMKG	

5.5 Strengthen disaster preparedness for effective response and to 'Build Back Better' - issues, challenges and priorities for action (with timeframe)

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
	Limited understanding and coordination between different departments to "build back better"	• There is a limited awareness and understanding of the issue as well as a need for stronger coordination among different sectors. • Local communities, particularly minority and vulnerable groups, need to be engaged in risk sensitive post-disaster rehabilitation and reconstruction[124].	• Enhance collaboration between BNPB and the Ministry of Public Works and other institutions for integration of DRR into post-disaster recovery.			
JAKASTRA (2015-2019)	**Jakstra Action Point 2.e. Improving the quality of life of the people residing in post-disaster areas, by accelerating environmental rehabilitation and reconstruction of post-disaster areas**	•	• 2.e.33. Recovery of community livelihood	BNPB	TNI, POLRI, KEMENSOSKEMENKESKEMENKU	2015-2019
			• 2.e.34. Post-disaster repair of houses of affected residents	KEMEN PU-PERA	BNPB	2015-2019
	Jakstra Action Point 1.f. Preparation of contingency plans for high-risk districts / cities as a guide for emergency preparedness and emergency response operations in the event of disaster	•	• 1.f.16 Availability of an Earthquake Contingency Plan	BNPB		2015-2019
			• 1.f.17 Availability of Tsunami Contingency Plan	BNPB		2015-2019
			• 1.f.18 Availability of a Flood Contingency Plan	BNPB		2015-2019
			• 1.f.19 Availability of a Landslide Contingency Plan	BNPB		2015-2019
			• 1.f.20 Availability of a Forest and Land Fire Contingency Plan	BNPB		2015-2019
			• 1.f.21 Availability of a Volcanic Eruption Contingency Plan	BNPB		2015-2019
			• 1.f.22 Availability of a Drought Contingency Plan	BNPB		2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
		• 1.f.23 Availability of a Flash Flood Contingency Plan		BNPB		2015-2019
		•				
	Gaps in Contingency Plans	• Contingency plans have mostly been prepared to respond to emergency situations and not for continued basic service delivery[124]. A limited number of threse plans incorporate sufficient gender sensitivities. • A limited number of BPBDs have been able to implement contingency plans through regular disaster drills and rehearsals. • Both government and community have limited awareness, on the importance of contingency and preparedness plans to enhance disaster preparedness[124].				
	Strong political will	• Further focus on the need to integrate human security and social equity approaches into DRR and recovery activities[124].				
	Need for comprehensive response mechanisms	• Vulnerability assessments should consider age, gender and other socio-economic vulnerabilities of the affected population. This will help national and international actors to consider specific needs in humanitarian response. • Currently, there are limited considerations of the nutritional needs and access to other protective elements such as education, water, sanitation and hygiene (WASH), and				

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
		livelihoods. These are essential for the effectiveness of the response.				
JAKSTRA (2015 -2019)	**Jakstra Action Point 3.e. Implementation of regular and continuous simulations and disaster preparedness drills in disaster-prone areas**		• 3.e.57.Organization of periodic preparedness exercises (drills)	BNPB	TNI, POLRI, BMKG, KEMEN PU-PERA, KEMEN ESDM, KEMENTAN, KEMENKES, KEMENSOS	2015-2019
	Jakstra Action Point 3.f. Provision of mitigation and preparedness infrastructure (shelters, evacuation routes and evacuation signs) in the event of disaster, particularly in disaster-prone and high-risk areas		• 3.f.58. Availability of necessary Tsunami Evacuation Plans and facilities	BNPB	BMKG, KKP	2015-2019
			• 3.f.59. Availability of Volcanic Eruption Evacuation Plans along with necessary facilities	KEMEN PU-PERA	BNPB, KEMEN ESDM	2015-2019
	Jakstra Action Point 3.g. Development and protection of vital infrastructure to ensure continuity of public services, economic activities, safety and order during emergency and disaster situations		• 3.g.60. Emergency Repair of public facilities during disaster emergency response periods	KEMEN PU-PERA	BNPB, TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
			• 3.g.61. Restoration of government basic services during disaster emergency response periods	KEMENDAGRI	BNPB, KEMEN PU-PERA, KEMENKES	2015-2019
			• 3.g.62. Recovery of critical infrastructure during disaster emergency response periods	KEMEN PU-PERA	BNPB	2015-2019
			• 3.g.63. Deployment of Rapid Assessment Teams to disaster sites as an initial disaster response	BNPB	TNI, POLRI, KEMENSOS, KEMENKES, KEMEN PU-PERA, KEMEN	2015-2019

	Issue	Challenge	Priority for Action	Responsible		Timeframe
				Primary	Secondary	
					ESDM, KLHK, BMKG	
			• 3.g.64. Deployment of Victim Rescue and Relief Teams as an initial disaster response	BNPB	BASARNAS, TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
	Jakstra Action Point 3.i. Increasing the capacity of disaster management and distribution logistics, through the construction of disaster logistics centres in each island region, which can reach remote disaster areas		• 3.i.66. Availability of assessments on regional disaster equipment and logistic requirements	BNPB	TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• 3.i.67.Procurement of disaster equipment and logistical requirements	BNPB	TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• 3.i.68.Availability of Disaster Management logistical mechanisms and storage / warehousing facilities	BNPB	TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• 3.i.69.Periodic maintenance of logistical equipment and supply chain	BNPB	TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• 3.i.70.Availability of electricity during emergencies	KEMEN ESDM	BNPB, TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• 3.i.71.Capacity to provide regional emergency food supply	KEMENTAN	BNPB, TNI, POLRI, KEMENSOS, KEMENKES	2015-2019
		•	• Availability of telecommunication capacity and reach			

5.6 Integrating the monitoring of SFDRR in national systems

Issue	Challenge	Priority for Action	Timeframe
Limited awareness about SFDRR	• Senior and mid-level officials of line ministries and government counterparts require familiarisation with Sendai Framework implementation, its monitoring and evaluation.		
Limited Information Management	• No comprehensive database exits of DRM activities being undertaken by the line		
Limited coordination	• Coordination among stakeholders especially relevant line ministries is a key challenge. "It is still very difficult to coordinate the stakeholders in commonly shared issues that need to be followed-up together." • There are no regular coordination meetings with all the line ministries together their units for mainstreaming DRR in development planning.		

CONCLUSION

Between 2005 and 2015, Indonesia made significant progress in mainstreaming DRR into national and local development. Substantial work has been done to improve disaster management during the last decade at the legislative, institutional and regulatory levels, as well as at planning and programmatic levels. Disaster Management Offices have been established with operational disaster management plans in all the provinces of Indonesia. More than eighty per cent of the districts and cities in the country have also set-up their Local Disaster Management Offices (BPBDs).

The Indonesian government has mobilized all the line ministries and agencies including the Ministry of Finance and the State Planning Board to support the effective integration of DRM into national and provincial development planning. Indonesia continues to take strides to ensure that all elements of disaster risk management are addressed, including DRR, from national to the community levels. Disaster risk reduction is being integrated into emergency preparedness through contingency planning processes at the national and local levels.

Post-disaster reconstruction policies have applied the principles of "building back better" and integrated DRR through human recovery principles. Several post-disaster areas have also developed specific programmes and activities with the aim of reducing physical and socio-economic vulnerabilities of the most disadvantaged communities. The government of President Joko Widodo has strongly maintained that it will focus national development efforts at the local/village level. Greater budget has been allocated to villages, and it is expected that DRR will become one of the priority programmes. The Government's *Nawacita* or nine-point priorities are intrinsically intertwined and support disaster risk management:

The future for disaster risk management in *Nawcita*

First Nawacita ordains the state to protect all citizens and to provide a safe environment including against the twelve hazards mentioned under Indonesia's Disaster Management Law (2007).

Second Nawacita encourages participation of vulnerable groups in effective governance including the communities prone to or affected by crisis and disasters.

Third Nawacita supports Indonesia's resilient villages developed on the foundation of empowered communities. These villages can be made further resilient if they are prepared for and insured against disasters impacts.

Fourth Nawacita aims to reform the law enforcement agencies and legislation which will also assist in effective disaster risk management.

Fifth Nawacita seeks to improve the quality of life and build resilience of poor communities to survive and emerge out of the impacts of recurrent disaster shocks.

Sixth Nawacita plans to boost infrastructure and the service sector to improve the local economy. The infrastructure needs to be disaster resistant so that it can withstand disasters and does not cause loss of lives, assets and the infrastructure itself.

Seventh Nawacita aims to promote economic independence by developing domestic strategic sectors including ensuring food security and livelihoods for disaster prone or affected communities.

Eighth and Ninth Nawacita seek to overhaul the character of the nation by strengthening the spirit of "unity in diversity" and social reform. This includes instilling social harmony and reducing the emergence of intolerance, social conflicts and terrorism.

Much progress has been made, but many steps still need to be taken to further strengthen Indonesia as a disaster resilient nation with disaster ready communities. This baseline status and priorities of action included in this report will help the government to analyze, monitor and report on the existing gaps and progress made in disaster risk management in Indonesia in line with the RPJMN, Jakstra, SDGs and SFDRR.

ANNEXES

Annex A: Report on National Level First Multi Stakeholder meeting for development of Indonesia's National Baseline Status Report on DRM (2015 -2030).

Annex B: Terms of Reference for Technical Working Group (TWGs) for Sector Reports for Indonesia's National Baseline Status Report on DRM.

Annex C: International and National Clusters.

Annex D: Indonesian Legislative Framework for DRM.

Annex E: Line ministries and their roles and responsibilities.

ANNEX F: List of Volunteer Organisations registered with BNPB for Disaster Risk Management

Annex G: RPJMN – GOI National Indicators – Linkages with Sustainable Development Goals and SFDRR targets

Annex H: Timeline and process for development of the Indonesia's Disaster Risk Management Baseline Status Report 2015: *Towards identifying national and local priorities for the implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030)*

REFERENCES

1. ADB (2012) Water Supply and Sanitation Sector Assessment, Strategy, and Road Map Indonesia: http://www.adb.org/sites/default/files/institutional-document/33808/files/indonesia-water-supply-sector-assessment.pdf
2. ADB (2012). Transport Sector Assessment, Strategy, and Road Map: www.adb.org/sites/default/files/institutional-document/33652/files/ino-transport-assessment.pdf
3. ADB (2012). Validation Report: Indonesia: Earthquake and Tsunami Emergency Support Project:http://www.adb.org/sites/default/files/evaluation-document/36080/files/pvr-237.pdf
4. ASEAN (2005) ASEAN Agreement on Disaster Management and Emergency Response : http://www.aadmerpartnership.org/wp-content/uploads/2014/04/AADMER-Bahasa-Unofficial-small.pdf
5. BAPPENAS (2015). Regional Planning Handbook 2015: Building Resilience Through the Nation Disaster Risk Reduction Efforts:http://rc.bappenas.go.id/id/publikasi-informasi-aplikasi-dan-tautan/publikasi/buku-pegangan-perencanaan-pembangunan-daerah-2015-membangun-ketangguhan-bangsa-melalui-upaya-pengurangan-risiko-bencana/
6. BAPPENAS (2010). National Action Plan for Disaster risk Reduction, 2010-2012: http://www.bnpb.go.id/uploads/migration/pubs/451.pdf
7. BAPPENAS & BNPB (2011), Rencana Aksi Rehabilitasi dan Rekonstruksi Wilayah Pasca Bencana Erupsi Gunung Merapi di Provinsi DI Yogyakarta dan Jawa Tengah, Tahun 2011-2013: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/448.pdf
8. BAPPENAS & BNPB (2010). Rencana Aksi Rehabilitasi dan Rekonstruksi Pasca Bencana Banjir Bandang Wasior di Kabupaten Teluk Wondama, Provinsi Papua Barat, Tahun 2010-2012: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/447.pdf
9. BAPPENAS (2006). Yogyakarta and Central Java Natural Disaster ,Preliminary Damage and Loss Assessment, The 15th Meeting of The Consultative Group on Indonesia Jakarta, June 14, 2006: www.adb.org/sites/default/files/damage-assessment-indonesia-earthquake.pdf
10. BNPB (2016) Disaster Information and Database (DIBI): http://dibi.bnpb.go.id/data-bencana
11. BNPB (2015). Draft of National Resource Profile for Disaster Management 2015, Jakarta.
12. BNPB (2015).Development Framework for National Disaster Management Plan 2015-2019, Jakarta.
13. BNPB (2015). BNPB Wajar Tanpa Pengecualian: http://bnpb.go.id/berita/2492/bnpb-wajar-tanpa-pengecualian
14. BNPB (2014). Indonesia National progress report on the implementation of the Hyogo Framework for Action (2013-2015): http://www.preventionweb.net/files/41507_IDN_NationalHFAprogress_2013-15.pdf
15. BNPB (2014) Rekruitmen Fasilitator Desa Tangguh Bencana: http://bnpb.go.id/berita/2137/rekruitmen-fasilitator-desa-tangguh-bencan a
16. BNPB (2014). BNPB Kembali Memperoleh WTP:http://bnpb.go.id/berita/2129/bnpb-kembali-memperoleh-wtp
17. BNPB (2013). Indonesia's National progress report on the implementation of the Hyogo Framework for Action (2011-2013): http://www.preventionweb.net/files/28912_idn_NationalHFAprogress_2011-13.pdf
18. BNPB (2013). Indonesia Disaster Prone Index (Index Rawan Bencana Indonesia/IRBI)

19. BNPB (2013). National Contingency Plan for Haze Disaster Caused by Forest and Land Fire:http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/501.pdf
20. BNPB (2013). Gema BNPB: Ketangguhan Bangsa Dalam Menghadapi Bencana, vol. 4, no.1: http://bnpb.go.id/uploads/migration/pubs/577.pdf
21. BNPB (2011). Indonesia National progress report on the implementation of the Hyogo Framework for Action (2009-2011): http://www.preventionweb.net/files/15941_idn_NationalHFAprogress_2009-11.pdf
22. BNPB and BAPPENAS (2011). Rencana Aksi Rehabilitasi dan Rekonstruksi Wilayah Pasca Bencana Erupsi Gunung Merapi di Provinsi DI Yogyakarta dan Jawa Tengah, Tahun 2011-2013: http://www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/448.pdf
23. BNPB (2011). Guidelines for Contingency Plan: www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/501.pdf
24. BNPB (2010). Data dan Informasi Bencana Indonesia: www.bnpb.go.id/ViewerJS/#../uploads/migration/pubs/442.pdf
25. BNPB and UNDP (2008). Profile Directory of Disaster Risk Reduction Organizations in Indonesia: http://www.pacificdisaster.net/pdnadmin/data/original/Asia_2008_Profile_Directory.pdf
26. BPK RI (2013). BPK Menyerahkan Laporan Hasil Pemeriksaan atas Laporan Keuangan Tahun 2012 kepada 37 K/L dengan Opini WTP pada 24 entitas dan WDP pada 13 entitas: http://www.bpk.go.id/news/bpk-ri-menyerahkan-laporan-hasil-pemeriksaan-atas-laporan-keuangan-tahun-2012-kepada-37-kementerianlembaga-dengan-opini-wtp-pada-24-entitas-dan-wdp-pada-13-entitas
27. BPS (2015). Indonesia - Human Development Index: www.bps.go.id/website/pdf_publikasi/Booklet-IPM-Metode-Baru.pdf
28. BPS (2015). Statistics- Indonesia's 70 years of Freedom: www.bappenas.go.id/files/data/Pengembangan_Regional_dan_Otonomi_Daerah/Statistik%2070%20Tahun%20Indonesia%20Merdeka.pdf
29. BPS et al (2013) Indonesia Demographic and Health Survey 2012, Statistics Indonesia (Badan Pusat Statistik—BPS), National Population and Family Planning Board (BKKBN), and Ministry of Health (Kemenkes), and ICF International: https://dhsprogram.com/pubs/pdf/FR275/FR275.pdf
30. CIA (2005). Indonesia: www.cia.gov/library/publications/the-world-factbook/geos/id.html
31. Darwanto Herry (2012). Preliminary Examination of Existing Methodologies for Allocating and Tracking National Government Budget for Disaster Risk Reduction (DRR) in Indonesia: http://www.unisdr.org/files/32377_32377indonesiadraftdrrinvestmenttra.pdf
32. Doocy, S., Rofi, A. et al (2007). Tsunami mortality in Aceh Province, Indonesia. Bulletin of the World Health Organization, 85(4), 273–278: http://doi.org/10.2471/BLT.06.033308
33. Encyclopaedia Britannica Online (2015). "Quaternary", accessed December 03, 2015: www.britannica.com/science/Quaternary
34. ESDM (2016) Geological Agency Ministry of Energy and Mineral Resources Republic of Indonesia: http://www.dpri.kyoto-u.ac.jp/gsri/list/2015/Indonesia_Geological%20Agency,%20Ministry%20of%20Energy%20and%20Mineral%20Resources,%20Republic%20of%20Indonesia.pdf
35. Fatimah Dati (2007) Perempuan dan Kerelawanan dalam Bencana, Studi Kasus Penanganan Bencana di Kabupaten Bantul, DIY https://www.academia.edu/2382201/Perempuan_dan_Kerelawanan_dalam_Bencana
36. GFDRR (2014). Institutionalizing Post-Disaster Recovery: Learning from Mentawai Tsunami and Merapi Eruption, Recovery Framework Case Study. Page 47 : https://www.gfdrr.org/sites/gfdrr/files/Indonesia%20Post-Disaster%20Recovery%20Institutionalization.pdf

37. Global Diasability (2016) Indonesia to set up national disability commission www.globaldisability.org/2016/03/10/indonesia-set-national-disability-commission

38. GOI (2016) Undang-Undang Republik Indonesia , Nomor 8 Tahun 2016 ,tentang Penyandang Disabilitas http://www.kemendagri.go.id/produk-hukum/2016/05/11/penyandang-disabilitas
39. GOI (2016) Disaster management policies and strategies 2015-2019 : http://prb-bnpb.apwebs.info/terasconfig/downlot.php?file=KEBIJAKAN%20STRATEGIS%20PB%202015-2019.pdf
40. GOI and UN (2015) United Nations Partnership For Development Framework (UNPDF) 2016 – 2020 , www.un.or.id/counter/download.php?file=unpdf_2016_2020.pdf
41. GOI (2014) Law of the Republic of Indonesia , Number 6, 2014 about Village:
42. GOI (2014) UGM and Geological Agency Installed LEWS at 20 Landslide-Prone Locations: www.reliefweb.int/report/indonesia/ugm-and-geological-agency-installed-lews-20-landslide-prone-locations
43. GOI (2013). National Assessment Report on Disaster Risk Reduction 2013: http://www.bnpb.go.id/uploads/migration/pubs/573.pdf
44. GOI (2013). National Assessment Report on Disaster Risk Reduction 2013: http://www.bnpb.go.id/uploads/migration/pubs/573.pdf
45. GOI (2010) Intended Nationally Determined Contribution , Republic of Indonesia http://www4.unfccc.int/submissions/INDC/Published%20Documents/Indonesia/1/INDC_REPUBLIC%20OF%20INDONESIA.pdf.
46. GOI (2009) West Sumatra and Jambi Natural Disasters: Damage, Loss and Preliminary Needs Assessment: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/11/03/000334955_20091103042447/Rendered/PDF/514090WP0Box34110DALA0West0Sumatera.pdf
47. GOI (2012). PP No. 47 Tahun 2012 tentang Tanggung Jawab Sosial dan Lingkungan Perseroan Terbatas: http://www.kemendagri.go.id/media/documents/2012/05/21/p/p/pp_no.47-2012.pdf
48. GOI (2008). Head of BNPB Regulation No. 6/2008 on Guidelines for the Utilization of On-Call Budget: www.bnpb.go.id/uploads/migration/pubs/43.pdf
49. GOI (2008). Head of BNPB Regulation No. 11/2008 on Guidelines for the Post-Disaster Rehabilitation and Reconstruction: http://www.bnpb.go.id/uploads/migration/pubs/52.pdf
50. GoI (2008), Minister of Health Decree No. 406/Menkes/SK/IV/2008 on DASIPENA Establishment: http://www.penanggulangankrisis.depkes.go.id/__pub/files74608KMK_No_406_ttg_Pembentukan_Pemuda_Siaga_Peduli_Bencana_(DASI_PENA).pdf
51. GOI (2007). Law of Republic of Indonesia ,Number 24, Year 2007 concerning Disaster Management, Government of Indonesia: http://www.preventionweb.net/files/10841_indonesialaw242007concerningdisaste.pdf
52. GOI (2007). UU No. 40 Tahun 2007 tentang Perseroan Terbatas: http://aria.bapepam.go.id/reksadana/files/regulasi/UU%2040%202007%20Perseroan%20Terbatas.pdf
53. GoI (2006), Minister of Social Affairs Regulation No. 82/HUK/2006 on Taruna Siaga Bencana: http://www.bphn.go.id/data/documents/06pmsos082.pdf
54. The Guardian (2016) Indonesia tsunami warning buoys failed when quake hit – officials: https://www.theguardian.com/world/2016/mar/03/indonesia-tsunami-warning-buoys-failed-when-quake-hit-officials
55. HAP(2015).Humanitarian Accountability Partnership: http://www.hapinternational.org/what-we-do/hap-standard.aspx

56. Hardjasoemantri, K (2007), 'Peran Pemuda Pelajar Indonesia dalam Perjuangan Bangsa: Sebuah Refleksi dan Harapan', *Jurnal Sejarah*, vol. 13, no. 13, pp. 1-12.
57. HelpAge International (2016) , Indonesia: http://www.helpage.org/where-we-work/east-asia/indonesia/
58. Herliana, L; Parsons, D (2011) The Impacts and Benefits of Structural Reforms in the Transport, Energy and Telecommunications Sectors in APEC Economies
59.
60. Heribertus Jaka Triyana. (2014). Indonesian compliance and its effective implementation of international norms on disaster response. In: Andrej Zwitter et al. (eds.) Humanitarian Action. pp. 330-348. [Online]. Cambridge: Cambridge University Press. Available from: Cambridge Books Online http://dx.doi.org/10.1017/CBO9781107282100.021
61. Human Rights Watch (2010), "Policing Morality: Abuses in the Application of Shar ia in Aceh, Indonesia**",** New York.
62. www.hrw.org/sites/default/files/reports/indonesia1210WebVersionToPost.pdf
63. INDONESIA: Pluralism in Peril, The rise of religious intolerance across the archipelago: http://www.stefanus.no/filestore/Rapporter_notater_blader_etc/Indonesia-PluralisminPeril.pdf
64. IDMC (2016) Indonesia: Concerted efforts needed to find solutions for protracted IDPs: http://www.internal-displacement.org/south-and-south-east-asia/indonesia/2015/indonesia-concerted-efforts-needed-to-find-solutions-for-protracted-idps
65. IDMC (2014) Indonesia, Durable solutions needed for protracted IDPs as new displacement occurs in Papua. Internal Displacement Monitoring Centre ,Norwegian Refugee Council (NRC): www.internal-displacement.org/south-and-south-east-asia/indonesia/2014/indonesia-durable-solutions-needed-for-protracted-idps-as-new-displacement-occurs-in-papua-/
66. IPCC(2014) Climate Change 2014, Synthesis Report, Fifth Assessment Report: http://www.ipcc.ch/
67. Jones Sidney (2002) Causes of Conflict in Indonesia: www.asiasociety.org/causes-conflict-indonesia?page=0,2
68. Oxfam (2012)Post-Earthquake Response and Reconstruction, Gender-sensitive advocacy in Indonesia: http://reliefweb.int/sites/reliefweb.int/files/resources/Full%20Report_1052.pdf
69. Human Rights Watch (2010), "Policing Morality: Abuses in the Application of Sharia in Aceh, Indonesia", New York : www.hrw.org/sites/default/files/reports/indonesia1210WebVersionToPost.pdf
70. IBA (2012). Law Firm Management News October 2012 - CSR regulation in Indonesia, Corporate social responsibility regulation in Indonesia: www.ibanet.org/Article/Detail.aspx?ArticleUid=103427a1-0313-4d6c-b7f7-c5deb0bedbb5
71. IFRC (2007). Indonesia: Jakarta Floods -Information Bulletin no. 4/2007, Appeal no. MDRID003 , 26 September 2007: www.reliefweb.int/sites/reliefweb.int/files/resources/56F1A0AF0071751DC125736200433E9A-Full_Report.pdf
72. Kementerian Ristekdikti (2014), *Grafik Jumlah Mahasiswa Aktif Berdasarkan Jenis Kelamin* :http://forlap.dikti.go.id/mahasiswa/homegraphjkKwarda DKI Jakarta Gerakan Pramuka (2014), *Anggota Pramuka Indonesia Terbesar Sedunia*: http://www.kwardadki.or.id/berita/2014/01/anggota-pramuka-indonesia-terbesar-sedunia
73. Kwarnas Gerakan Pramuka (2007), Petunjuk Penyelenggaraan Pramuka Peduli: https://kwartircabangjepara.files.wordpress.com/2012/06/petunjuk-penyelenggaraan-pramuka-peduli.pdf

74. Kwarnas Gerakan Pramuka (2010), *Petunjuk Teknis Pramuka Peduli Penanggulangan Bencana*: http://www.kwardasulsel.or.id/?wpdmpro=petunjuk-teknis-pramuka-peduli-penanggulangan-bencana
75. Kwarnas Gerakan Pramuka (2011), *Kesepakatan Bersama Antara BNPB dengan Kwarnas Gerakan Pramuka*: https://lordscout67.files.wordpress.com/2013/09/naskah-mou-kwarnas-gerakan-pramuka-dengan-bnpb-dan-unit-siaga-bencana.pdf
76. Met Office (2011) Climate: Observations, projections and impacts, Indonesia: http://www.metoffice.gov.uk/media/pdf/8/f/Indonesia.pdf
77. MOEC (2014). Ministry of Education and Culture (MOEC), Presentation - Achievement of the Indonesian Safe School Implementation: http://www.worldbank.org/content/dam/Worldbank/Feature%20Story/japan/pdf/event/2014/121014-GogotSuharwoto.pdf
78. MoEF (2015) Data and Information System on Vulnerability http://ditjenppi.menlhk.go.id/program/liputan-khusus-cop-21-2015/operationalization-of-technology-and-system-in-directorate-general-of-climate-change
79. MoSA (2012). Permensos No. 13 Tahun 2012 tentang Forum Tanggung Jawab Sosial Dunia Usaha dalam Penyelenggaraan Kesejahteraan Sosial: http://www.djpp.kemenkumham.go.id/arsip/bn/2012/bn722-2012.htm
80. PMI (2014), Pokok-pokok Kebijakan, Rencana Strategis dan Rencana Operasional PMI 2014-2019: http://www.pmi.or.id/index.php/berita-dan-media/k2-categories/e-library/416-rencana-strategis-pmi-tahun-2014.html
81. Oxfam (2012)Post-Earthquake Response and Reconstruction, Gender-sensitive advocacy in Indonesia http://reliefweb.int/sites/reliefweb.int/files/resources/Full%20Report_1052.pdf
82. Oxfam (2005). The tsunami's impact on women Oxfam Briefing Note: http://www.preventionweb.net/files/1502_bn050326tsunamiwomen.pdf
83. Palutikof Jean P. (2013). Editor. , Boulter Sarah L., Ash Andrew J., Smith Mark Stafford, Parry Martin, Waschka Marie, Daniela Guitart, Climate Adaptation Futures, Wiley-Blackwell
84. Petz Daniel (2014). Strengthening Regional and National Capacity for Disaster Risk Management: The Case of ASEAN: http://www.brookings.edu/~/media/research/files/reports/2014/11/05-south-east-asia-drm-petz/strengthening-regional-and-national-capacity-for-drm--case-of-asean-november-5-2014.pdf
85. Robertua Verdinand (2013), Gender and our Disaster Management http://www.kalyanamitra.or.id/en/2013/04/gender-and-our-disaster-management/
86. Reuters (2016) Indonesia's early tsunami warning buoys down when big quake hit: http://www.reuters.com/article/us-indonesia-quake-idUSKCN0W41J2
87. Rush, John V. (2013). The Impact of Natural Disasters on Poverty in Indonesia, Department of Economics, University of Hawaii
88. Siagian Tiodora, Purhadi et al. (2014).Social vulnerability to natural hazards in Indonesia: driving factors and policy implications Natural Hazards, January 2014, Volume 70, Issue 2, pp 1603-1617 : http://link.springer.com/article/10.1007/s11069-013-0888-3
89. Susilowati (2014) The impacts of modern market to traditional traders (a case in Malang city - Indonesia) International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume-2, Special Issue 8 (Nov-Dec 2014), PP. 38-44: http://www.ijtra.com/special-issue-view/the-impacts-of-modern-market-to-traditional-traders-a-case-in-malang-city-indonesia.pdf
90. TNP2K (2014) Old-Age Poverty in Indonesia: Empirical Evidence and Policy Options , A Role for Social Pensions:

www.tnp2k.go.id/images/uploads/downloads/Old%20Age%20Poverty%20April%201%20%20Approved%20for%20Publication_EV-2.pdf
91. Twigg John (2015)Disaster Risk Reduction Good Practice Review 9 Humanitarian Practice Group : http://goodpracticereview.org/9/
92. UN (2015). Sendai Framework for Disaster Risk Reduction, 2015 – 2030 : http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf
93. UN (2015). UN Indonesia brochure: www.un.or.id/counter/download.php?file=un_indonesia_brochure_2015.pdf
94. UNDP (2009). Institutional and Legislative Systems for Early Warning and Disaster Risk Reduction: www.snap-undp.org/elibrary/Publications/EWSReportIndonesia.pdf
95. UNRC (2015). United Nations Resident Coordinators Office (UNRC) Office: http://un.or.id/en/who-we-are#gkBottom1-2
96. UNRC Indonesia (2015). What We Do / Partnership For Development/Disaster Management: Challenges and Opportunities : http://www.un.or.id/en/what-we-do/partnership-for-development/disaster-management
97. UNDP (2015).Human Development Report 2015, Work for human development Briefing note for countries on the 2015 Human Development Report – Indonesia: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf
98. UNDP (2014). Human Development Report, Sustaining Human Progress Reducing Vulnerabilities and Building Resilience, Technical notes: Calculating the human development indices—graphical presentation:www.hdr.undp.org/sites/default/files/hdr14_technical_notes.pdf http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf http://www.undp.org/content/dam/undp/library/corporate/HDR/2014HDR/HDR-2014-English.pdf
99. UNDP (2012). Disaster Risk Reduction Investment Tracking: Case Study Indonesia.
100. UNDP (2010). Human Development Report, 20th Anniversary Edition. The Real Wealth of Nations - Pathways to Human Development: http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf
101. UNDP (2010). Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience Explanatory note on the 2014 Human Development Report composite indices for Indonesia: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf
102. UNESCAP (2015). Financing Disaster Risk Reduction for sustainable development in Asia and the Pacific , Draft Discussion Paper , Asia-Pacific High-Level Consultation on Financing for Development Jakarta, Indonesia , 29-30 April 2015 http://www.unescap.org/events/hlcffd2015
103. UNIC (2015).Marking 10 years since Indian Ocean tsunami, UN says world better prepared for natural disasters: http://www.un.org/apps/news/story.asp?NewsID=49691#.VkiZezi6Fhg
104. UNICEF (2014) Child-Centred Risk Assessment, Regional Synthesis of UNICEF Assessments in Asia: http://www.preventionweb.net/publications/view/36688
105. UNICEF (2011)The impacts of climate change on nutrition and migration affecting children in Indonesia: http://www.unicef.org/eapro/Indonesia_climate_change_report.pdf.org/eapro/Indonesia_climate_change_report.pdf
106. UNFPA (2015) Background Paper "VULNERABLE POPULATIONS IN EMERGENCIES IN INDONESIA" An Overview of Needs and Interventions Addressing Women and Young People http://indonesia.unfpa.org/application/assets/publications/Vulnerable_Populations_in_emergencies.pdf

107. United Nations (2015) The Sendai Framework for Disaster Risk Reduction 2015-2030: http://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf
108. United Nations (2015) Summary of Proceedings, El Niño: Learning from Past Experiences to Inform Planning and Response: http://un.or.id/elNiño/images/download/008_ElNiño_SoP_7-Sept-final_v2.pdf
109. UNICEF (2009) Reducing the Risks Facing Vulnerable Children : www.unicef.org/rosa/Report1.pdf
110. UNIFEM (2009).Women Building their Future Gender Breakthroughs in Post-Tsunami Aceh: http://www.preventionweb.net/files/19842_unifemenarsonacehgenderbreakthrough.pdf
111. UNISDR (2015). Country Landscape of Disaster Risk Reduction: www.unisdr-apps.net/confluence/download/attachments/16416845/Country%20Landscape%20of%20DRR-04May2015.docx?version=1&modificationDate=1432091525000&api=v2
112. UNISDR (2015). Disaster Risk Reduction and Resilience in the 2030 Agenda for Sustainable Development
113. UNISDR (2015). Meeting Report – First ISDR Asia Partnership Meeting of 2015: http://amcdrrindia.net/wp-content/uploads/2015/10/Report-of-IAP-Meeting-3-5-June-2015.pdf
114. UNISDR (2011). UN Secretary-General honours Indonesian President as first global champion of disaster risk reduction : https://www.unisdr.org/archive/23632
115. UNISDR (2012) 5th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR): http://www.unisdr.org/we/inform/events/23540
116. UNISDR and World Bank (2010) Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment, ASEAN Disaster Risk Management Initiative http://www.unisdr.org/files/18872_asean.pdf
117. UNISDR (2007). Disaster Reduction in Asia Pacific Issue 03, 2007: http://www.unisdr.org/files/8573_InformAsia3.pdf
118. University of Sydney (2015), Promoting the Inclusion of People with Disabilities in Disaster Management in Indonesia, Disability Centre for Disability Research and Policy, Technical Report 1 : Mapping of Organisations in Indonesia in Disaster Risk Reduction (MOIDRR), University of Sydney: https://sydney.edu.au/health-sciences/cdrp/publications/technical-reports/Technical%20Report%20pdfs/Tech_Report_1_MOIDRR_Report.docx.
119. USAID/OFDA (2014). Indonesia: Disaster Response and Risk Reduction, USAID'S Office of U.S. Foreign Disaster Assistance, 24 October 2014: https://www.usaid.gov/sites/default/files/documents/1866/FactSheet_Indonesia_DRRR_2014.pdf
120. Verdinand Robertua (2013), Gender and our Disaster Management: http://www.kalyanamitra.or.id/en/2013/04/gender-and-our-disaster-management/
121. Verstappen H. Th. (2010). Indonesian Landforms and Plate Tectonics, The International Institute for Geo-Information Science and Earth Observation (ITC), Jurnal Geologi Indonesia, Vol. 5 No. 3 September 2010: 197-207: www.bgl.esdm.go.id/publication/index.php/dir/article_download/275
122. Witvorapong N, Muttarak R, Pothisiri W (2015). Social Participation and Disaster Risk Reduction Behaviors in Tsunami Prone Areas. PLoS ONE 10(7): http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130862
123. WFP (2016) The Impact of Drought on Households in Four Provinces in Eastern Indonesia: http://documents.wfp.org/stellent/groups/public/documents/ena/wfp282160.pdf
124. WHO AND UNICEF (2012) Progress on Drinking Water and Sanitation, Joint Monitoring Programme Update 2012: http://www.who.int/water_sanitation_health/publications/jmp_report-2012/en/

125. World Bank (2015) Indonesia's Fire and Haze Crisis - World Bank: http://www.worldbank.org/en/news/feature/2015/12/01/indonesias-fire-and-haze-crisis
126. http://www.indolaw.org/UU/Law%20No.%206%20of%202014%20on%20Villages.pdf
127. World Bank (2015) Indonesia - Country Summary Brief: http://siteresources.worldbank.org/EXTCDD/Resources/430160-1435154813801/Indonesia_Country_Brief.pdf
128. World Bank (2015). Indonesia – Overview: http://www.worldbank.org/en/country/indonesia/overview
129. World Bank (2015). Indonesia Disaster Recovery TF: http://mptf.undp.org/factsheet/fund/IDR00
130. World Bank (2015). Education in Indonesia : http://www.worldbank.org/en/country/indonesia/brief/world-bank-and-education-in-indonesia
131. World Bank (2015). Damage, Loss and Needs Assessment – Tools and Methodology: https://www.gfdrr.org/Track-III-TA-Tools
132. World Bank (2014). Brief - World Bank and World Bank (2014), World Bank and Health in Indonesia:http://www.worldbank.org/en/country/indonesia/brief/world-bank-and-health-in-indonesia
133. World Bank (2014).Reducing inequality in Indonesia: http://www.worldbank.org/en/country/indonesia/brief/reducing-inequality-in-indonesia
134. World Bank (2013) Poor Sanitation Impedes Indonesia's Growth Potential: http://www.worldbank.org/en/news/press-release/2013/10/28/Poor-Sanitation-Impedes-Indonesia-8217-s-Growth-Potential
135. World Bank (2013) Building Resilience, Integrating Climate and Disaster Risk into Development, The World Bank Group Experience, http://www.worldbank.org/content/dam/Worldbank/document/SDN/Full_Report_Building_Resilience_Integrating_Climate_Disaster_Risk_Development.pdf
136. World Bank (2012). FY2013-2015, Country Partnership Strategy for Indonesia: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/04/10/000442464_20130410105833/Rendered/PDF/765010ESW0P1320A0CPS0EN003290lowres.pdf
137. World Bank (2011). Indonesia - Advancing a National Disaster Risk Financing Strategy – Options for Consideration, October 2011: http://documents.worldbank.org/curated/en/2015/07/18191656/indonesia-advancing-national-disaster-risk-financing-strategy-options-consideration
138. World Bank (2011). Indonesia - Advancing a National Disaster Risk Financing Strategy – Options for Consideration, October 2011: http://documents.worldbank.org/curated/en/2015/07/18191656/indonesia-advancing-national-disaster-risk-financing-strategy-options-consideration
139. World Bank (2010). Damage and Loss Assessment (DaLA): www.web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTDISMGMT/0,,contentMDK:20196047~menuPK:1415429~pagePK:210058~piPK:210062~theSitePK:341015,00.html
140. World Bank(2010). Disaster risk Management in east Asia and the Pacific, Working Paper Series No.19: https://openknowledge.worldbank.org/bitstream/handle/10986/10132/566090BRI0REVI10BOX353820B01PUBLIC1.pdf?sequence=1
141. World Bank and UNISDR (2010). Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment , ASEAN Disaster Risk Management Initiative: www.unisdr.org/files/18872_asean.pdf

142. World Bank and UNISDR (2009).Disaster Risk Management Programs for Priority Countries Summary: http://www.unisdr.org/files/14757_6thCGCountryProgramSummaries1.pdf
143. World Bank (2006) Yogyakarta and Central Java Natural Disaster ,Preliminary Damage and Loss Assessment, The 15th Meeting of The Consultative Group on Indonesia Jakarta, June 14, 2006 http://www.unisdr.org/files/14757_6thCGCountryProgramSummaries1.pdf
144. World Bank (2005).Rebuilding a Better Aceh and Nias Stocktaking of the Reconstruction Effort Brief for the Coordination Forum Aceh and Nias (CFAN): www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2005/11/10/000012009_20051110101558/Rendered/PDF/342010rev.pdf
145. WOSM (2013), WOSM Membership Census *2013:* https://www.scout.org/node/9767

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