

SUMBAWA REGENCY – NATURAL DISASTER VULNERABILITY PROFILE

This profile summarises the vulnerability of the Natural, Built, Social and Economic environments of Sumbawa Regency to natural hazards. The Disaster Risk reduction initiatives by the local government are also described.

2016



Villages located close to the coast can be at risk from tsunamis and more frequent flooding from storm surges and large waves.



NATURAL ENVIRONMENT

Sumbawa Regency is located in Nusa Tenggara Barat (NTB) province, Indonesia (Figure 1). The Regency is located on the island of Sumbawa and covers an area of 6,643.98 km². It includes the substantial island of Moyo, lying off the north coast of Sumbawa. The capital of the regency is Sumbawa Besar.

Hazards and Risks

Sumbawa Regency is at subject to many different types of natural hazards. Observed events include floods, extreme weather, drought, extreme waves and erosion, earthquakes, landslides, volcanic eruptions, tsunamis and social conflicts. In 1977, a magnitude 8.3 earthquake on the Sunda Trench created a large tsunami that caused significant damaged in Sumbawa and surrounding islands (Gusman et al, 2009). Sumbawa has a BNPB Disaster Risk Index Score of 150 (high) and is ranked 302nd out of the 496 districts assessed (BNPB 2013).

Natural Environment Vulnerability

The active geological processes associated with the collision of Indo-Australian and



Eurasian tectonic plates, makes Sumbawa vulnerable to natural disasters. The Sunda Trench, to the south of Sumbawa, can experience large earthquakes capable of generating tsunamis that can affect the region. In addition, the presence of local active faults north of the island increases the risk of earthquakes. The island is also at risk from the effects of future volcanic eruptions, particularly ashfall from Mount Rinjani and Mount Tambora.

The alluvial outwash plains are formed as streams exit their valleys on the island are vulnerable to frequent flooding, particularly in the rainy season. Low-lying coastal areas, where many villages are located, are influenced by coastal processes such as coastal abrasion, storm surges and tsunamis. The impacts of these coastal processes are likely to be exacerbated due to future climate change and seas level rise.

Table 1. Assessment of risk from hazards for Sumbawa Regency (Disaster Risk Index – 2013).

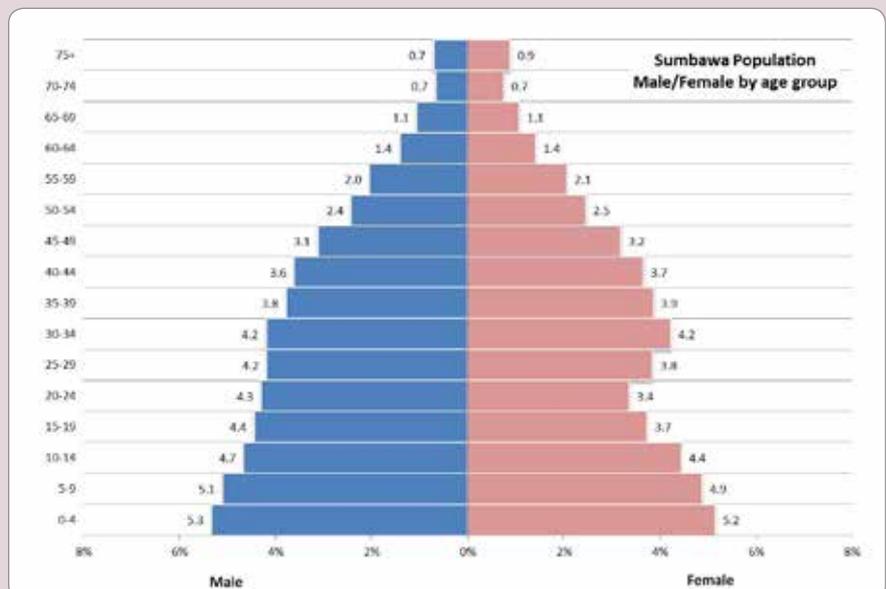
Threat	Earthquake	Tsunami	Extreme Weather	Landslide	Coastal Abrasion	Forest Fire	Drought
Risk	Moderate	High	Moderate	High	High	High	Moderate

SOCIAL ENVIRONMENT

The population of Sumbawa in 2013 was 431,924. The average population density of the district is 66 people per km². Sumbawa Besar sub-district is the most densely populated with 1,327 people per km². The population of Sumbawa is predominantly muslim and hindu.

Youthful Population

Sumbawa has a young population with over half of the population (53.4%) being 30 years old or younger. Younger people can be more vulnerable to disasters however this does present education opportunities on hazards and risks through schools. In addition, social media is a good education platform for children and young adults.



Source: Sumbawa Regency in Figures 2015.

ECONOMIC ENVIRONMENT

Catchment Management

Deforestation resulting in exposed land which is not replanted is very prone to erosion. Heavy rainfall efficiently moves large amounts of sediment down the catchment, exacerbating flooding while significantly impacting properties and infrastructure. The exacerbation of downstream flooding due to poor catchment management practices is a concern in Sumbawa.

BUILT ENVIRONMENT

Loose land use planning and control

There is no land use planning that identifies and restricts or reduces infrastructure development or buildings in natural hazard areas. As such, many buildings are at risk of flooding and new locations identified for development do not take either natural hazards or site ground conditions into consideration. There is little information or data on the specific location of buildings and their proximity to high risk natural hazard areas, such as floodplains.

Poor construction quality of buildings

Many buildings in Sumbawa do not adhere to design specifications or have been constructed using inferior materials. As such, the integrity of many structures is not strong meaning they would likely fail in an earthquake or other natural disaster.

DISASTER RISK REDUCTION CAPABILITY

The budget for Disaster Risk Management (DRM) in 2016 is 6.6B Rupiah (USD\$506 k) and has on average, increased since 2011. There is good political support in Sumbawa Regency for Disaster Risk Management.

Coordination

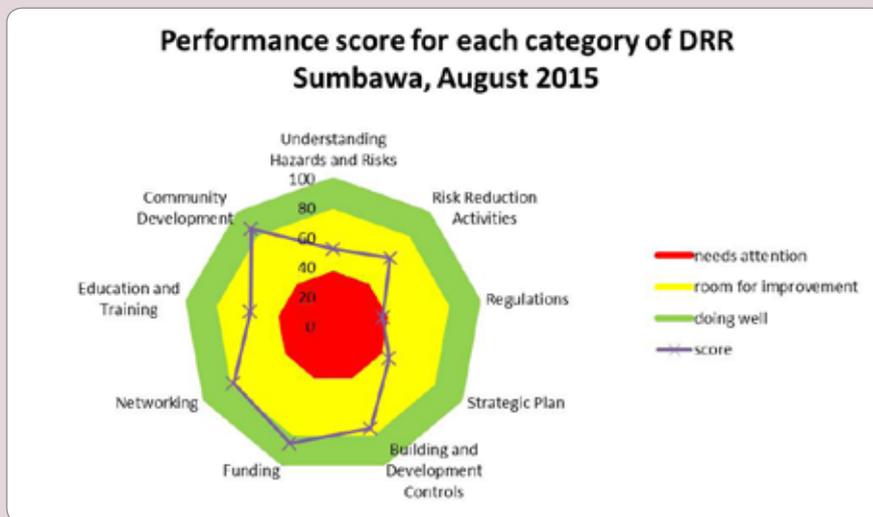
While there is a structure to facilitate DRR activities in place through regulation and the establishment of the BPBD; education, training and collaboration on DRR needs improvement in Sumbawa. Discussions identified that there is a lack of community participation and knowledge on DRR activities resulting in the community becoming more dependent on government authorities. A DRR Forum would help coordination and networking amongst stakeholders and would assist with stronger strategic planning.

Ownership of DRR Responsibilities

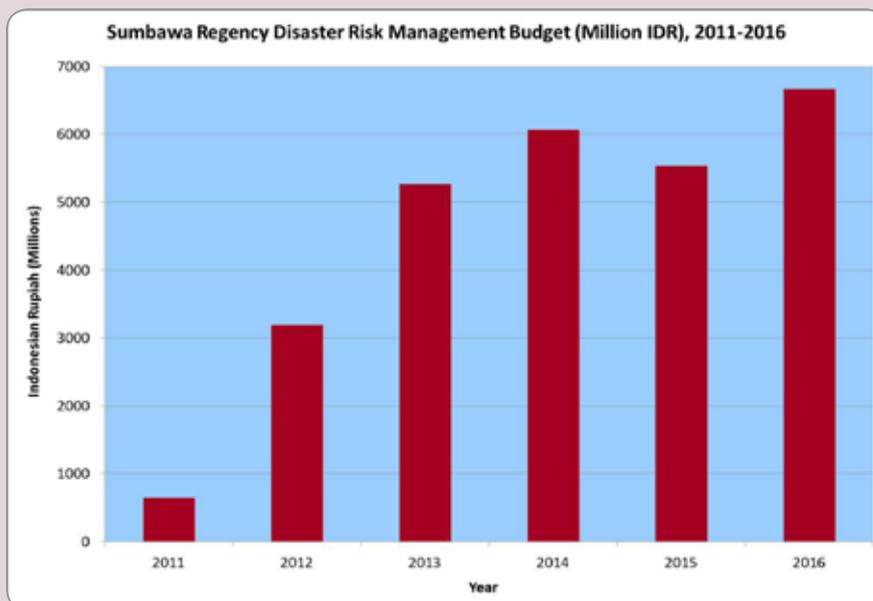
In Sumbawa, it is not well understood that government agencies other than BPBD, private sectors and communities have a responsibility to implement disaster risk reduction measures. As such, DRR activities are not well coordinated or integrated across these groups and agencies. These stakeholders typically have the view that disaster risk management is the sole responsibility of the government and specifically BPBD.

Lack of Regulations

Results from the LG-SAT survey indicate that there is a severe lack of DRR regulation in Sumbawa. It is important that local regulations that are developed complements existing national legislation. In addition, good compliance and enforcement must accompany any regulations that are implemented



The Local Government – Self Assessment Survey (LG-SAT) diagram summarises the strengths and weaknesses of the DRR environment for Sumbawa Regency, August 2015.



Source: BPBD Morowali, 2016.

ABOUT StIRRRD

STRENGTHENED INDONESIAN RESILIENCE: REDUCING RISK FROM DISASTERS



With funding support from the New Zealand Aid Programme, Universitas Gadjah Mada (UGM) is partnering with GNS Science in an Activity which supports the Indonesian Government to reduce the impacts of natural disasters through increasing the disaster risk reduction (DRR) capability of local government and local universities. The Activity assists 10 districts and associated universities to understand their DRR issues and priorities, helps develop their capability to understand and manage these issues, and then to develop an action plan and implementation programme.

A key part of this involves cementing relationships between local government and local universities who will develop teaching and research programmes in aspects of disaster risk management to support their local communities. The districts involved in the Activity will also provide peer support to each other on the learning journey. The Project is supported by the Indonesian National Agency for Disaster Mitigation (BNPB) and Kemendesa.

Sources:

BNPB, 2013. *Indeks Rawan Bencana Indonesia*. Badan Nasional Penanggulangan Bencana, 2013.

BPS 2015: *Statistik Daerah Kota Sumbawa 2015*. Badan Pusat Statistik, Sumbawa, 2015.

Gusman, A. R.; Tanioka, Y.; Matsumoto, H.; Iwasaki, S. (2009), "Analysis of the Tsunami Generated by the Great 1977 Sumba Earthquake that Occurred in Indonesia", *Bulletin of the Seismological Society of America (Seismological Society of America)* 99 (4): 2169–2179.

Notes from StIRRRD Introductory Visit Workshop.

Notes from StIRRRD Preliminary Action Plan Workshop.

Notes from StIRRRD Women's Focus Group Discussion.

FOR MORE INFORMATION:

<http://StIRRRD.org> or

CONTACT:



Michele Daly

Risk and Society Department
GNS Science
Wellington, New Zealand
m.daly@gns.cri.nz



Dr. Teuku Faisal Fathani

Department of Civil and
Environmental Engineering
Gadjah Mada University
Yogyakarta, Indonesia
tfathani@ugm.ac.id



Nico Fournier

Head of Volcanology
GNS Science
Wellington, New Zealand
n.fournier@gns.cri.nz



Esti Anantasari

Gadjah Mada University
Yogyakarta, Indonesia
esti.anantasari@ugm.ac.id

