

Learning From Earthquakes Virtual Earthquake Reconnaissance Team (VERT):

Phase 1 Response to M7.7 Ende, Indonesia Earthquake August 15, 2026

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Please Note: This report is based on publicly available data shortly following the event. The assessment provided in the report is performed by the judgment of the authors with limited access to ground-truthing.



About EERI

The Earthquake Engineering Research Institute (EERI) is the leading non-profit membership organization focused on understanding earthquake risk and increasing earthquake resilience worldwide. Through the Learning from Earthquakes (LFE) Program, EERI conducts post-earthquake investigations to improve the science and practice of earthquake engineering and increase learning from earthquake-induced disasters.

A key component of the LFE program is the Virtual Earthquake Reconnaissance Team (VERT). Following major earthquakes around the world, VERT activates and gathers best-available data on an earthquake and its impacts, synthesizing information into a report. This report is used by the broader Learning from Earthquakes Program and EERI to assess the need for field reconnaissance teams while providing a snapshot of earthquake impacts to EERI members and the public.

EERI's response to earthquakes through the Learning from Earthquakes program is made possible by the generous support of the many [donors to the Learning from Earthquakes Endowment Fund](#) and funding from the Federal Emergency Management Agency (FEMA).

Disclaimer

This report is a product of the Earthquake Engineering Research Institute (EERI) Learning From Earthquakes (LFE) Program Virtual Earthquake Reconnaissance Team (VERT).

This report was developed by volunteers to summarize and analyze engineering, scientific, and social impacts of this earthquake. The report serves as an important resource for researchers planning technical field investigations that aim to better understand the technical and policy practices that can improve community resilience and reduce the damages from future earthquakes. All external resources in this report were used in good faith and in consideration of the possibility of 'fair use.'

Executive Summary

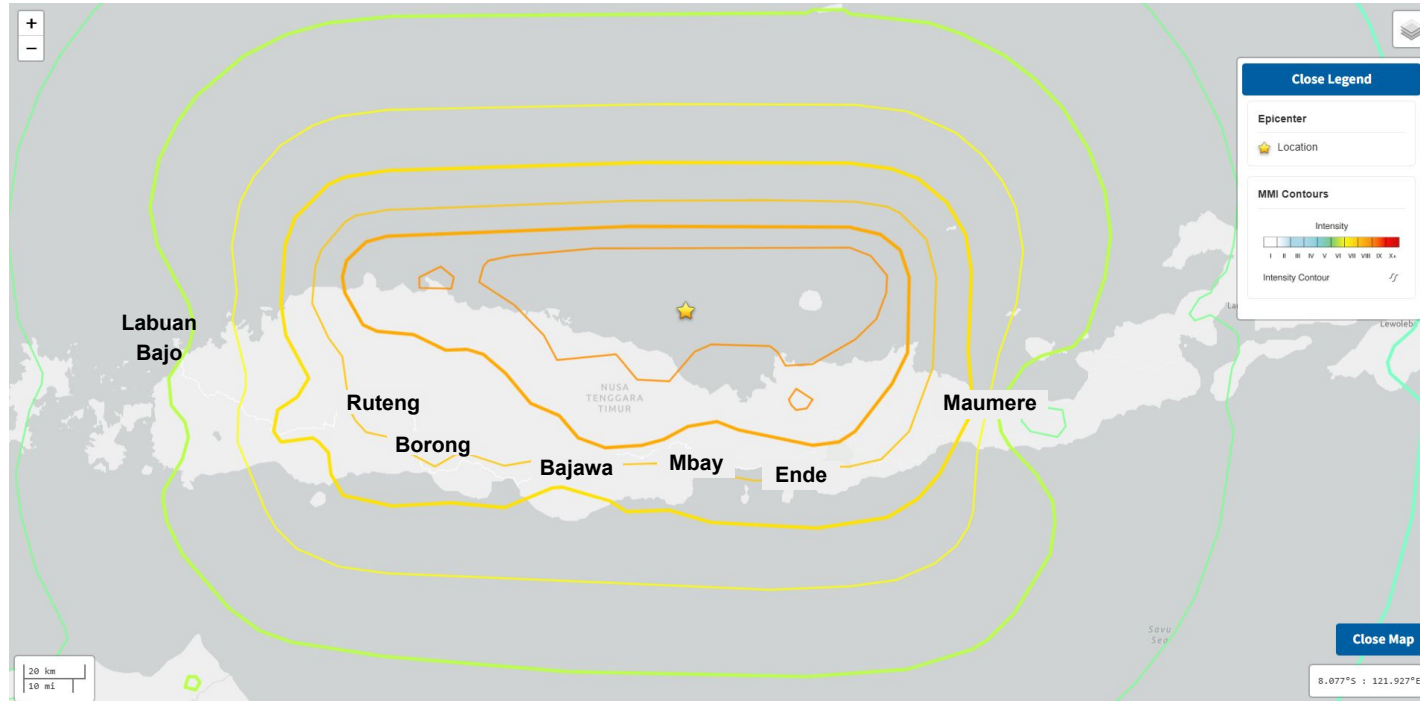
The earthquake produced very strong to severe shaking across Flores Island, exposing roughly 852,000 people and causing damage across seven regencies in East Nusa Tenggara. More than 130 fatalities and 1,700 injuries have been reported and nearly 183,000 people remain displaced - two-thirds of whom are self-evacuated outside official shelters. As of September 2, more than 11,300 aftershocks have been recorded, including 36 of magnitude 5.0 or greater, leading thousands to shelter outdoors under tarpaulins. Several aftershocks have caused additional damage to buildings already weakened by the mainshock. The region's tsunami early warning system was triggered and led to reported evacuations; recorded wave heights up to 1.6 meters struck the northern coast of Flores. Following the earthquake, landslides closed multiple sections of the Trans-Flores highway, including a full blockage of the Ende-Bajawa route that was not cleared until August 20, complicating rescue and relief efforts across remote, hilly terrain. National agencies were in some cases unable to reach affected communities for up to 24 hours. Widespread power and telecommunication disruptions were largely restored within days of the earthquake, though damage to drinking water and sanitation infrastructure was extensive. The regional economy relies heavily on agriculture, fishing, and tourism, and severe damage was reported at 47 hotels, restaurants, and cafes, with 11 tourist destinations still closed as of August 26. Hospitals, schools, ports, and religious buildings throughout the region have all reported damage, with patients relocated from hospitals in Ende, Ruteng, and Sikka, and more than 900 schools suspended.

Table of Contents

1. Earthquake Characteristics
2. Alerts and Early Warnings
3. Aftershocks
4. Emergency Response and Early Recovery
5. Context
 - 5.1. Built environment
 - 5.2. Socioeconomic characteristics
 - 5.3. Governance
 - 5.4. Health systems
 - 5.5. Hazard exposure
6. Secondary hazards
 - 6.1. Geotechnical
 - 6.2. Tsunami
7. Impacts
 - 7.1. Economic and Business Disruption
 - 7.2. Health
 - 7.3. Schools
 - 7.4. Housing
 - 7.5. Other buildings
 - 7.6. Utilities
 - 7.7. Transportation

1. Earthquake Characteristics

1. Overview of the Affected Areas



Capitals of the seven affected regencies labeled on the map.

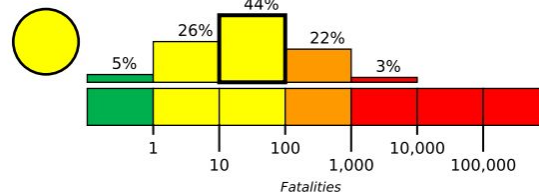
Map of Affected Areas and Shaking MMI Contours, adapted from USGS [3]

1. Earthquake Characteristics

Impact on human safety:

- 134* fatalities reported [1]
- 1,738* injuries reported [1]

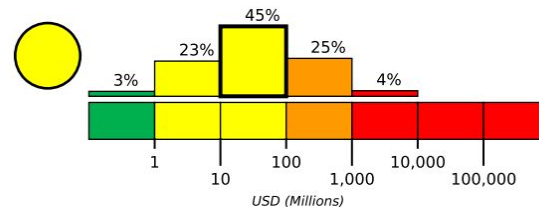
* updated September 5, 2026



USGS estimated fatalities [2]

Impact on society:

- USGS estimates losses between \$10 and \$100 million USD, less than 1% of the GDP, leading to a PAGER yellow alert [2].
- ~852k exposed to Very Strong-Severe (MMI VII-VIII) shaking [2].
- Cities experiencing Very Strong-Severe shaking: Ruteng, Jaong, Lungar [2]



USGS estimated economic losses [2]

1. Earthquake Characteristics

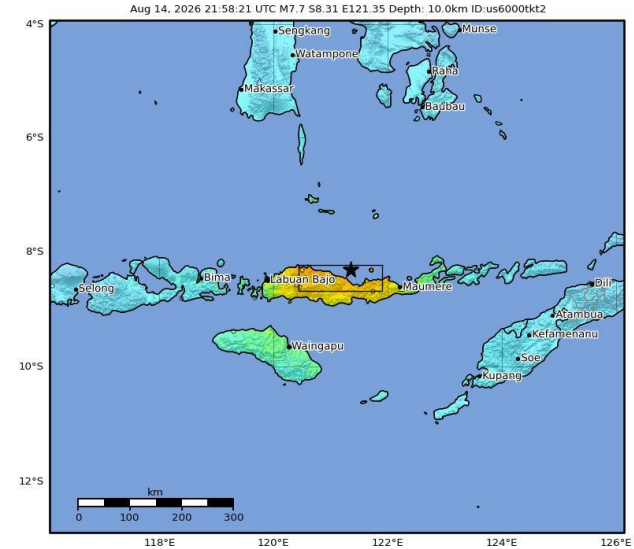
Date: August 15, 2026 (August 14, 21:58:21 UTC)
[3]

Magnitude: M_W 7.7 [3]

Location:

- Epicenter located 68 km (42 miles) north northwest of Ende, Indonesia [3]
- 8.310° S 121.352° E [3]

Depth: 10km [3]



SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
DAMAGE	None	None	None	Very light	Light	Moderate	Moderate/heavy	Heavy	Very heavy
PGA(%g)	<0.0464	0.297	2.76	6.2	11.5	21.5	40.1	74.7	>139
PGV(cm/s)	<0.0215	0.135	1.41	4.65	9.64	20	41.4	85.8	>178
INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X

Scale based on Worden et al. (2012) Version 6: Processed 2026-08-17T21:51:54Z

USGS ShakeMap [4]

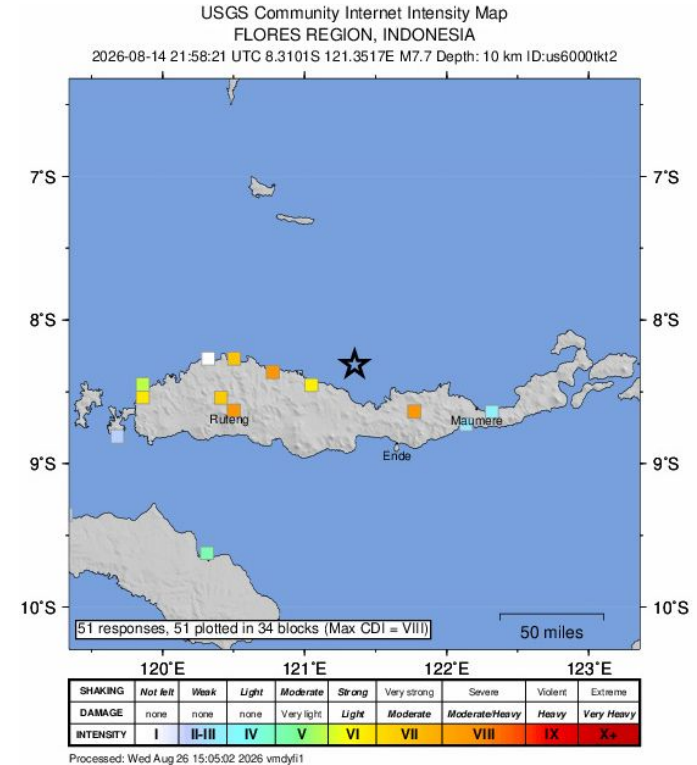
1. Earthquake Characteristics

Fault Mechanism:

- The earthquake resulted from a shallow rupture of a reverse fault within overriding Sunda Plate [3], likely associated with the Flores Back Arc Thrust fault system [5,8].
- Maximum Slip: 7m [6]

Max Intensity:

- Severe shaking [7]
- Moderate/Heavy damage [7]



USGS Community Intensity Map [7]

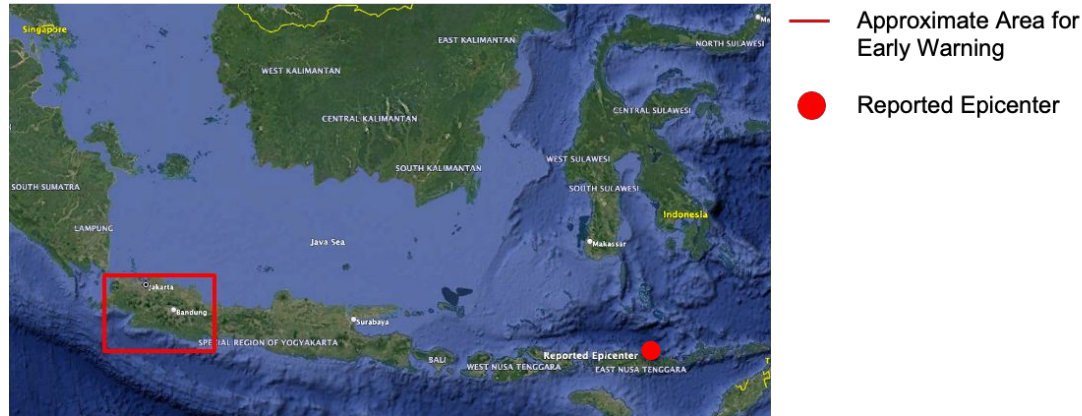
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2. Alerts and Early Warnings

Earthquake Early Warning System

- The early warning system did not activate during this event due to distance away from epicenter and outside of the pilot area [1,2].
 - InaEEWS (Indonesia Earthquake Early Warning System) is a prototype only currently available in 3 provinces in western Indonesia: Jakarta, West Java and Banten Province (shown schematically below) [1,2].
 - When triggered, alerts are sent via InaEEWS mobile app - closed group of beta testers [1].



Schematic map showing approximate coverage of existing InaEEWS system relative to the epicenter of this event

Tsunami Early Warning System

- The Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG) has an Indonesia Tsunami Early Warning System (Ina-TEWS) [3,9].
- BMKG sent out an alert at 5:00 WIB, 2 minutes after the seismic event [4,9].
 - BMKG sent out second alert at 5:09 WIB [4,9].
 - BMKG sent out third alert at 05:49 WIB; 06:28 WIB; 06:49 WIB and 07:05 WIB [4,9]
 - BMKG ended the alert at 07:30 WIB [4,9]
- Alerts were pushed through
 - Social media: X [5], Facebook [6], Instagram [7]
 - Website [8]
 - Television [10]
- People evacuated due to prior knowledge of earthquakes and tsunamis [10].
 - The effectiveness of InaTEWS and how people responded needs further evaluation [11].
- Please visit Section 6.2 of this report for detailed data on tsunami from this earthquake event.

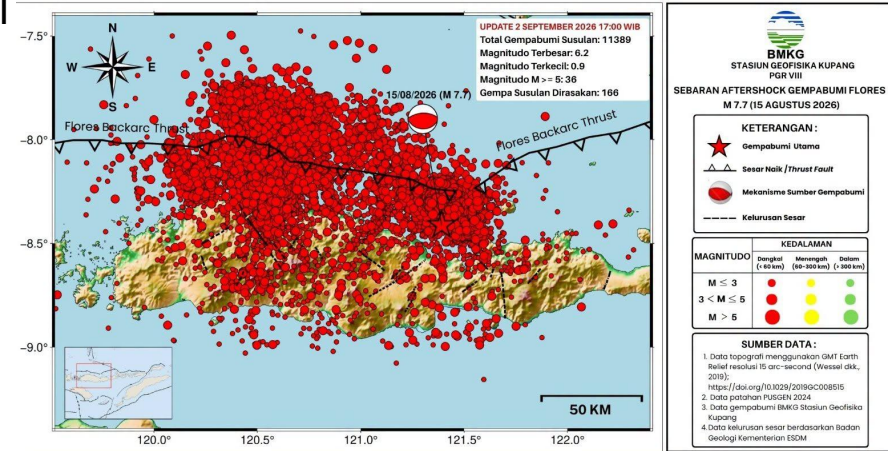
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3. Aftershocks

3. Aftershocks

- As of 17:00 WIB, 2 September, 2026, a total of 11,389 aftershocks have been recorded [1].
- 166 aftershocks were strong enough to be felt [1].
- Maximum Magnitude of Aftershocks: 6.2 [1]
- Minimum Magnitude of Aftershocks: 0.9 [1]
- Number of Aftershocks with $M \geq 5$: 36 [1]



Epicenter Distribution of the 2026 Flores Earthquake Sequence, 04:48 WIB, Aug 15 to 17:00 WIB, Sep 2. [1]

3. Aftershocks

- Initial phase of aftershocks showed a complex temporal pattern [2].
- Aftershocks did not spread homogeneously, but formed separate clusters [2].
 - Main cluster formed around the M7.7 earthquake source zone north of Nagekeo and stretches along the direction of the Flores Back-arc thrust [2].
 - Another follow up cluster appeared in the western part of the main source zone, in the north of Manggarai Regency [2].
- Aftershocks continue to cause damage [3-7].
 - Aftershocks caused additional damage to buildings already weakened by the mainshock [3].
 - Pregnant woman injured by falling debris during an aftershock [4].
 - Fatality reported due to panic during aftershock [5].
 - Aftershocks increased road/rockfall hazards and disrupted recovery [6,7].

3. Aftershocks

- On August 21, BMKG Director of Earthquakes and Tsunamis predicted that the aftershocks will continue for 3 to 4 weeks after the event [2,7].

Magnitude (M) of aftershock	within 1 Day	within 1 Week	within 1 Month	within 1 Year
M 7 or higher	1 in 300 chance of 1 or more	2% chance of 1 or more	5% chance of 1 or more	17% chance of 1 or more
M 6 or higher	3% chance of 1 or more	16% chance of 1 or more	43% chance of 1 or more	84% chance of 1 or more
M 5 or higher	29% chance of 1 or more	86% chance of 1 or more	Expect about 7	Expect about 28
M 4 or higher	Expect about 4	Expect about 28	Expect about 90	Expect about 360
M 3 or higher	Expect about 56	Expect about 353	Expect about 1133	Expect about 4509

USGS Aftershock Forecast [8]

References

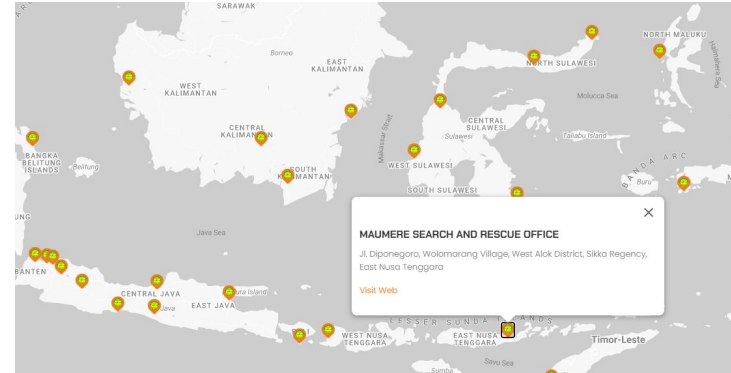
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4. Emergency Response

4. Emergency Response and Early Recovery

List of Responding Agencies (Governmental, Religious and Volunteers)

- National Agency for Disaster Management (Badan Nasional Penanggulangan Bencana) is the main governmental response agency [1].
 - Logistical assistance is being prepared from the BNPB warehouse in Larantuka, East Flores [2].
- Basarnas (Badan Nasional Pencarian dan Pertolongan) is the national search and rescue agency [3].
 - Posts of S&R from the earthquake can be found on their Instagram, or TikTok [3].
 - Rescue App available for download [3].
- Kemenko PMK (Human Development and Culture) [4].
- Indonesian National Armed Forces (TNI), and the Indonesian National Police (Polri) [2].



Map of available Basarnas response offices [3]

4. Emergency Response and Early Recovery

List of Responding Agencies (Governmental, Religious and Volunteers)

- Flores Island is Catholic Majority [5].
 - Caritas Indonesia mobilized the global Catholic Relief network [5].
- CARE Emergency packages being distributed through Kemenko PMK [6].

Shelter and Shelter Needs

- Shelter Needs
 - 185,000+ people evacuated as of 8/25, current (8/28) dashboards report 175,000+ evacuated, with 73,000+ damaged homes [7].
- Shelters
 - Thousands camped outside under tarpaulin tents due to aftershocks [9].
 - Accurate numbers for available shelter space are hard to come by, reported 12,800 people dispersed to local temporary shelters in Flores [9].



Total Logistik terkirim
15 - 24 Agustus 2026

1.381,6 Ton

Logistik dikirim ke dua
daerah/pos dengan
rincian logistik terkirim:

965,2 Ton

Labuan Bajo

416,4 Ton

Maumere

Emergency response logistics [7]

4. Emergency Response and Early Recovery

Early Response and Recovery Priorities

- Indonesian joint operations prioritized search and rescue from land, air, and sea, with logistical teams distributing food, clothing, and medicine [3,8,9].
- Affected areas were often remote, in hilly terrain, which made it difficult for logistical transport. Landslides were a large issue, blocking off critical access points. [3,8].
 - Visit Section 6.2 of this report for additional detail on landslide and geotechnical impacts from this earthquake event.
- In several areas, local authorities were unable to reach the affected regions. National agencies were forced to respond up to 24 hours later [8].



Excavator clears landslide on the Trans-Flores road (spanning Labuan Bajo–Ende–Mauwere) [8]

4. Emergency Response and Early Recovery

Early Response and Recovery Priorities

- Shelter recovery process is as follows [8]:
 - Expedite the registration and management of displaced persons based on the severity of home damage. Collaboration with the UGM Construction Management Team will be undertaken to assess conditions and document homes damaged by the disaster.
 - For homes with minor (RR) or moderate (RS) damage, repairs will be carried out in-situ, accompanied by the provision of basic food supplies and financial assistance to stimulate repair efforts [8].
 - For homes with severe damage (RB), the approach—whether to construct temporary shelters (Huntara), provide housing assistance funds (DTH), or proceed directly to in-situ construction of permanent housing (Huntap)—will be determined based on proposals from local governments [8].
 - Visit Section 7.4 for additional details on possible financial assistance for housing reconstruction.

4. Emergency Response and Early Recovery

Funding mechanisms

- Emergency phase: BNPB's Dana Siap Pakai (on-call fund) is being drawn on by responding ministries [10].
- Recovery phase: post-disaster rehabilitation and reconstruction grants to regional governments are governed by BNPB Regulation No. 4 of 2024, the route through which the damaged homes will be funded [11].

Access for external reconnaissance teams

- As of 21 August 2026 the Ministry of Foreign Affairs stated that Indonesia is relying on national capacity and has not opened a request for international assistance; offers from partner countries are acknowledged but not activated [12].
- Foreign researchers require a research permit issued by BRIN (Government Regulation No. 41/2006), applied for online and normally requiring an Indonesian counterpart institution [13].

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5. Context

5.1 The Built Environment

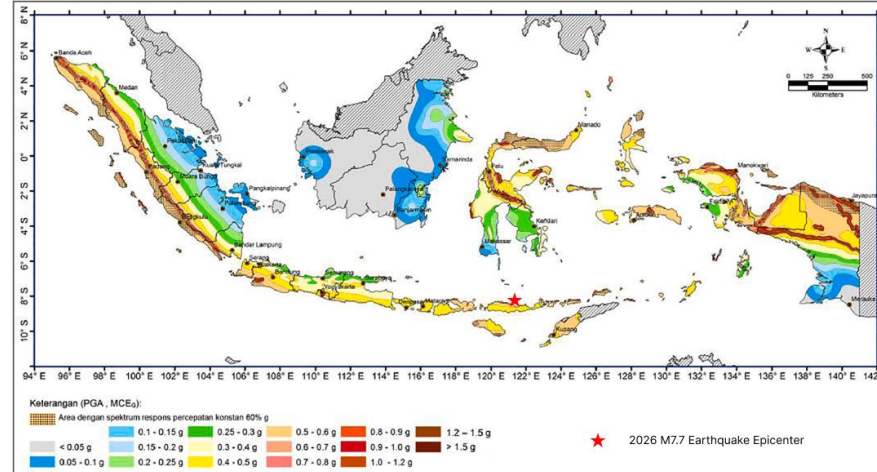
- The main building code is Standar Nasional Indonesia (SNI), encompassing all parameters related to construction and buildings [1].
 - SNI 1726:2019 - Seismic Design Code
 - SNI 2847:2019 - Structural Concrete
 - SNI 7860:2020 - Seismic provisions for structural steel
 - SNI 1729:2020 - Structural Steel Buildings
- Prevalent construction materials, in order of relevance, are Reinforced Concrete, Steel, Bricks and Concrete Blocks, and Wood [2].
 - Confined masonry although not explicitly listed as a seismic-force-resisting structural system in SNI 1726:2019 is a dominant construction type among single story school buildings [3,4].
- Regarding structural design, the SNI mostly aligns with the IBC/ASCE 7 [5].
- SNI 1726:2019 increased seismic design level compared to older codes [1].

5.1 The Built Environment

- The local code is mainly based on ASCE 7-16 and IBC 2018 [6].
- Enforcement of the codes varies widely depending on the region and type of project [7].
- An updated seismic hazard map was produced in 2024, but seismic design continues to be governed by provisions in SNI 1726:2019 [8].
- Seismic design categories (SDC) range from A through F based on spectral accelerations and risk categories, adapted from ASCE 7-16 [4].
 - Ordinary moment Frames are prohibited in SDC C,D, E and F.
 - Intermediate moment Frames are prohibited in SDC D, E, and F.
 - Special Moment frames are required for higher seismic risk categories and have no height limitations.

5.1 The Built Environment

- Key Parameters in SNI 1726:2019 include Geographic Location & Seismicity, Local Geotechnical Conditions, Site amplification coefficients and Building importance category [4].



Maximum Considered Earthquake Geometric Mean (MCEG) Peak Ground Acceleration (SNI 1726:2019) [4], taken from [1]

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5.2 Socioeconomic Characteristics (Demographics)

Indonesia

- **Population:** 285.7M [1]
- **Population density:** 151.7 /km² [2]
 - (U.S.:37.4/km²)
- **Male to female ratio:** 1:1 [2]
- **Age structure:** 26.1% aged 0–14; 6.2% aged 65+ [2]
- **Rate of population change:** 0.79%/yr [1,3]
- **Religious Identity:** 87.2% Muslim, 7% Protestant, 2.9% Catholic, 1.7% Hindu, 0.9% Buddhist, Confucian, or other [4]

Ende Regency

- **Population:** 286,900 [5]
- **Population density:** 138/km² [5]
 - (U.S.: 37.4/km²)
- **Male to female ratio:** 1:1 [5]
- **Age structure:** 29.7% aged 0–14; 5.9% aged 65+ [5]
- **Rate of population change:** 0.080%/yr [5]
- **Religious Identity:** 75.57% Catholic, 22.63% Muslim, 1.73 Protestant, 0.07 Hindu [6]

5.2 Socioeconomic Characteristics (Economics)

Indonesia

- **GDP:** Rp 23.8 quadrillion or USD 1.45 trillion (2025) [1]
- **GDP growth:** 5% [7]
- **Dominant industry:** Manufacturing [8]
- **Poverty:** Relative poverty rate = 8.57% [9]; child poverty rate (age ≤ 17) = 11.8% [10]

Ende Regency

- **GDP:** Rp 4.88 trillion [11]
- **Dominant industry:** Agriculture, Forestry, Fishing [11]

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5.3 Governance

Administrative Structure, Emergency Status and Leadership

Administrative levels

- Indonesia is divided into provinces, then regencies (kabupaten) and cities (kota), then districts (kecamatan), then villages (desa/kelurahan) [1].
- Affected area: East Nusa Tenggara (NTT) Province. BNPB reports damage assessment across seven regencies on Flores; Nagekeo (epicentral area), Ngada, Ende and Manggarai are named most often in the response [2,3].

Emergency status

- Under Law No. 24 of 2007, disaster status is declared by the Regent/Mayor (regency), the Governor (province) or the President (national); the declaring level then leads the response [1].
- The Governor of NTT declared a provincial 14-day emergency response status after the 15 August event, extended by a further 14 days to 12 September 2026. The province therefore leads, with BNPB and national ministries providing backing rather than taking over [1,3].

5.3 Governance

Administrative Structure and Emergency Status

Leadership

- President Prabowo Subianto visited Nagekeo and delivered Rp 200 billion in central government aid to the NTT provincial government [4].
- Governor of East Nusa Tenggara: Emanuel Melkiades Laka Lena [3]
- Each affected regency has its own Regent (Bupati) and BPBD, which lead at regency level [1].

Response Agencies and Legal Framework

Legal framework

- Disaster management is governed by Law No. 24 of 2007, which established BNPB and mandates joint national and regional responsibility across the pre-disaster, emergency response and post-disaster phases [1].
- The law creates a two-tier structure: BNPB at national level and BPBD at provincial and regency level. BPBD is the day-to-day operational agency in the affected regencies [1].

5.3 Governance

Response Agencies and Legal Framework

Agencies deployed

- BNPB (National Disaster Management Agency) is the lead coordinating body and reports directly to the President [5].
- Basarnas (National Search and Rescue Agency) leads search-and-rescue operations [6].
- Ministries deployed: Coordinating Ministry for Human Development and Culture (Pratikno), Ministry of Home Affairs (Tito Karnavian), Ministry of Public Works (Dody Hanggodo) [7].
- TNI (armed forces) and Polri (national police) deployed roughly 3,500 personnel for search, rescue and logistics support [9].

Reconstruction lead

- The Ministry of Public Works leads infrastructure reconstruction [8].
- As of 20 August 2026: 107 roads restored, 43 bridges, 178 water systems, and 1,794 of 1,914 planned temporary housing units completed [8]

5.3 Governance

Funding Mechanisms, Risk Transfer, and Access for External Teams

Funding pathways

- Pooling Fund for Disasters (Pooling Fund Bencana): central government self-insurance mechanism, operational since April 2025 under Regulation No. 28/2025, funding relief, premium subsidies and preparedness [10].
- State Assets Insurance Program (ABMN): launched 2019, insures over 10,000 government buildings (schools, hospitals, offices) across 70+ ministries [11].

Protection gap

- Indonesia has a large natural-catastrophe protection gap: non-life insurance penetration is roughly 0.55-0.6% of GDP, far below the Asia average of ~1.26%, and less than 5% of at-risk properties carry earthquake coverage [12].
- UNDRR reporting places Indonesia among the most severe protection gaps in Asia [13].

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5.4 Health Systems

Structure, Financing and Crisis Coordination

Governance and service structure

- The health system is under the Ministry of Health of the Republic of Indonesia (Presidential Regulation No. 161 of 2024) [1].
- Care is delivered in tiers: puskesmas (community health centres) provide primary care at district level, regency public hospitals (RSUD) provide secondary care, and complex cases are referred onward, Flores has no tertiary referral center of its own [2,6].

Facilities in East Nusa Tenggara (NTT) Province - 1,826 in total [2,3]

65 hospitals, 444 community health centres (puskesmas), 196 clinics and health posts, 1,121 other facilities

Financing

Care is financed mainly through JKN, the national health insurance scheme administered by BPJS Kesehatan; national coverage reached approximately 98% of the population in 2024 [4].

5.4 Health Systems

Structure, Financing and Crisis Coordination

Health crisis coordination

- The Ministry of Health's Health Crisis Centre (Pusat Krisis Kesehatan) is the standing body for health emergencies and publishes the event dashboard used in this report [2]
- Its standing instruments are Health Emergency Operation Centres (HEOC), Health Crisis Management Teams and Emergency Medical Teams (EMT), all of which were activated for this event [5].

Pre-Event Capacity Constraints and Population Health Baseline

Specialist workforce is the binding constraint on Flores

- RSUD Ruteng (Manggarai Regency) had 14 specialist doctors against an assessed requirement of 74, including only two obstetric specialists [6].
- RSUD Komodo (Manggarai Barat) had 20 specialists against a requirement of at least 26, and no radiologist after August 2024 [6].
- Several regency hospitals have no obstetric or neurological specialists at all [6].

5.4 Health Systems

Pre-Event Capacity Constraints and Population Health Baseline

Referral chains are long and cross water or air

- Neurological cases from Flores and its islands are referred to RSUD Prof. Dr. W.Z. Johannes in Kupang; cardiac intervention cases are referred to RS Prof. Ngoerah in Denpasar, Bali [6].
- Implication for this earthquake: surge capacity for trauma surgery on Flores is thin, and the referral pathway for severe cases runs off the island.

Population health baseline

- NTT recorded a stunting prevalence of 37% in the 2024 national nutrition survey (SSGI), the second highest of any province, against a national figure of 19.8% [7,8].
- A displaced population with this nutritional baseline is more vulnerable to the secondary health effects of prolonged sheltering.

5.4 Health Systems

Top causes of death, 2017-2022, Nusa Tenggara Timur (NTT) Province [9]

	Cause of death	Number of Deaths (people)	Mortality rate (per 100,000 population)	Percentage of total deaths (%)
1	Non-communicable diseases	130,084	446	86.2%
2	Other	11,386	39	7.5%
3	Communicable diseases	3,236	11	2.1%
4	Traffic accident	2,857	10	1.9%
5	Other accidents	2,723	9	1.8%
6	Poisoning	683	2	0.5%

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5.5. Hazard Exposure

Previous earthquakes within 2 degrees Latitude/Longitude (ordered biggest to smallest) [1,2,3,4,5]

Magnitude	Type	Date	Depth (km)	Coordinates	Impact
7.9	M _{wc}	6/17/1996	587.30	-7.137, 122.589	No significant damage reported (deep intraslab event) [1,3]
7.8	M _w	12/12/1992	27.70	-8.48, 121.896	~2,500 deaths; tsunami run-up to 26.2 m; ~90% of buildings destroyed at Maumere; ~90,000 homeless [1,3,4,6]
7.7 (Current)	M_{ww}	8/14/2026	10.00	-8.3101, 121.3517	134 deaths, 1,738 injured (BNPB, 31 Aug 2026); 73,818+ homes damaged [2,5]
7.3	M _{ww}	12/14/2021	14.27	-7.6033, 122.2274	1 death, 173 injured [1,2,4]
7.1	M _w	5/24/1990	588.90	-7.363, 120.363	No significant damage reported (deep intraslab event) [1,3]
7.0	M _{ww}	2/27/2015	552.06	-7.2968, 122.5348	No deaths [1,2]

5.5. Hazard Exposure - Other Natural Hazard

Other Hazards Within $\pm 2^\circ$ of the Current Earthquake Epicenter

- **Tsunami (most recent ones in the East Nusa Tenggara (NTT) region) [4,6]**
 - 1992 Flores: ~2,080 deaths, run-up to 26.2 m — the deadliest tsunami in NTT
 - 1979 Lembata: ~530 deaths
- **Tropical Cyclones (Usual season: November-April)[4,7]**
 - 1973 Flores Cyclone (April 1973) - Around 1,650 casualties, massive mudslides and inundation
 - Cyclone Bunnie (April 2002) - 19 casualties
 - Cyclone Inigo (April 2003) - 58 casualties, affected Indonesia from March 31 to April 2
 - Cyclone Seroja (April 2021) - Around 272 casualties
- **Volcanic eruptions (highly volcanic region; Ende Regency itself hosts Kelimutu and Iya) [8,11]**
 - Lewotobi Laki-Laki (2023–2025): 5,304 people still displaced in Flores Timur as of Feb 2025, some households displaced for two years [8,9,10]
 - The 2026 mainshock cracked the rim of Kelimutu Crater I over ~100 m; Badan Geologi warns of collapse into the crater if aftershocks continue or heavy rain falls [11].

References

For Section 5.5

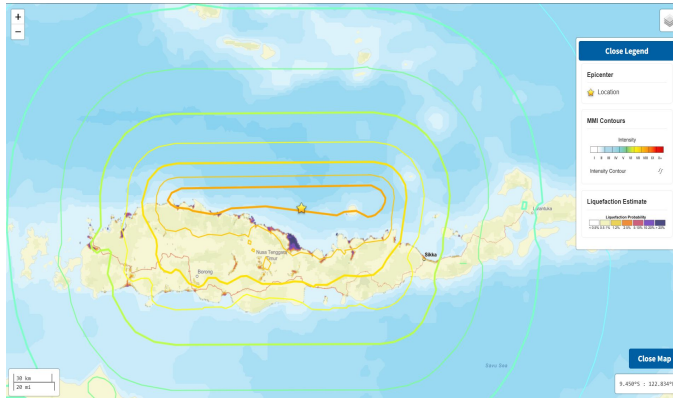
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6. Secondary Hazards

6.1. Geotechnical Hazards

Liquefaction:

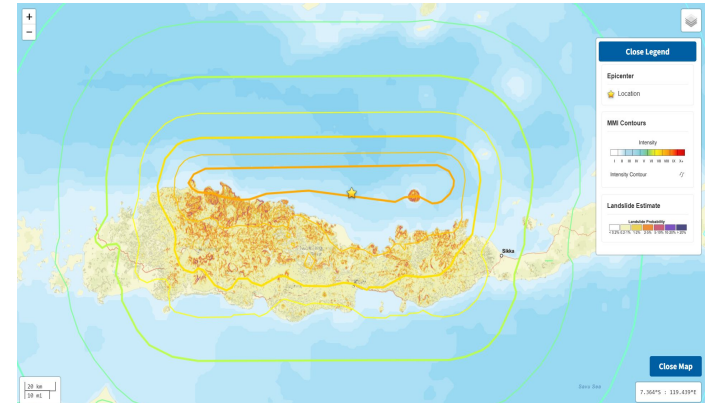
- Estimated exposed area: 38 km² [1].
- Estimated exposed population: 6,700 [1].
- Sand/Water ejection was observed at Aesesa District [2].



USGS-Estimated Earthquake-Triggered
Liquefaction Probability [1]

Landslides:

- Estimated exposed area: 95 km² [1].
- Estimated exposed population: 7,300 [1].
- 75 landslides with 34 areas identified in Flores as of 8/23, however, the inventory is still under development [3].



USGS-Estimated Earthquake-Triggered
Landslide Probability [1]

6.1. Geotechnical Hazards

Slope failures

- Balai Pelaksanaan Jalan Nasional (BPJN) initially identified 94 damaged road and bridge locations, comprising 75 landslide sites, three road-subsidence sites, and 16 bridges or culverts. By 20 August, field inspections had been completed at 34 landslide sites and nine bridges or culverts. The assessment covered the Ruteng–Reo–Kedindi, Ruteng–Km 210, Aegela–Ende, Ende–Detusoko, and Wolowaru–Lianunu corridors, where rockfall and landslide debris were cleared and slopes evaluated for stabilization [3]*.

Liquefaction and settlement

- Localized liquefaction was confirmed in Aesesa District, where sand-and-water ejection formed isolated sand boils. No quantitative measurements of associated settlement or lateral-spreading displacement are available at this time [2,4].

**reported statistics vary according to reporting sources [3,9]*

6.1. Geotechnical Hazards

Ground Deformation and Infrastructure Impacts

- The Badan Meteorologi, Klimatologi, dan Geofisika (BMKG) event-spanning InSAR gives ascending LOS -15.47 cm near Mbay to $+31.45$ cm near Reok (6–18 Aug), and descending LOS -26.44 to $+3.77$ cm (9–21 Aug), for coherence ≥ 0.4 [5].
- Light damage was observed at the 6 airports with the Soa Bajawa Airport observing longitudinal cracks in the runway. However, all airports remained operational using access restrictions, portable communication equipment (see Section 7.7 - Transportation) [6].
- The Ministry of Public Works reported that physical repairs to two dams, two irrigation areas, and two affected wells were required [7].

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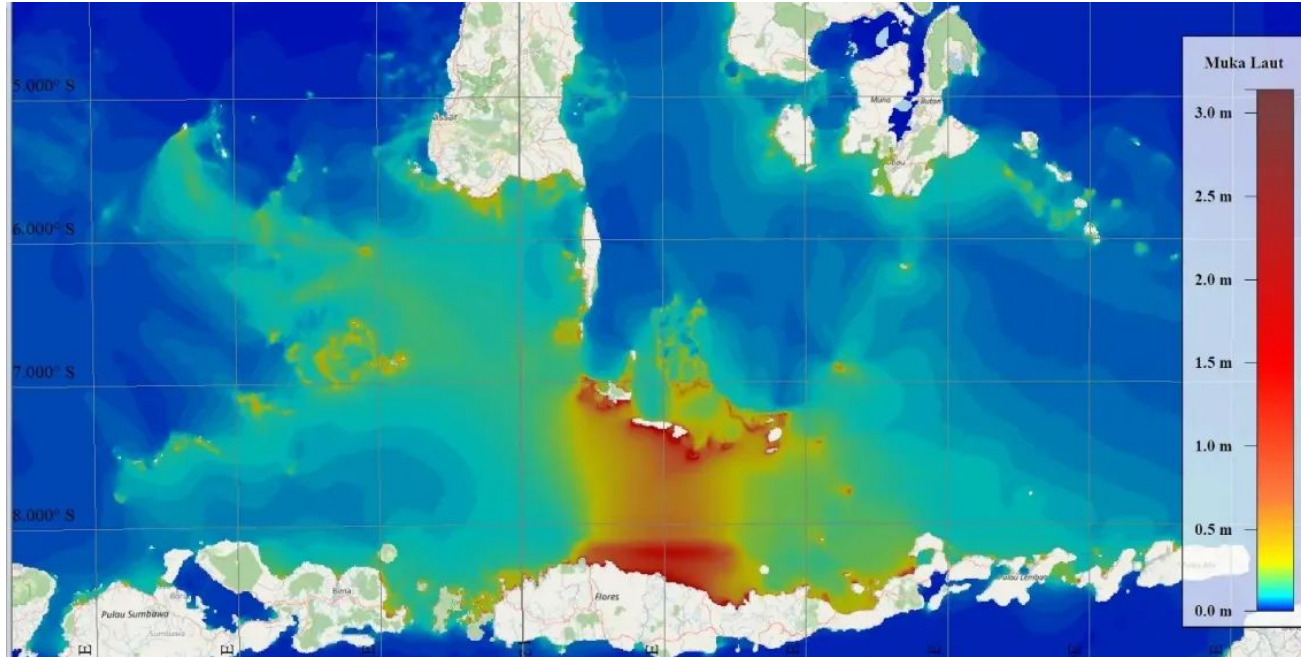
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6.2. Tsunami

- The Indonesia's Agency for Meteorology, Climatology and Geophysics (BMKG) issued a Tsunami warning [1-6], as described in Section 2.
- According to news published on Aug 26, "a tsunami occurred in several areas in the northern part of Flores Island, with waves reaching up to 2.5 meters in height" [5].
- At Approximately 7:30 WIB the Tsunami Warning was lifted by the BMKG [4-6].
- Previous experience with the Tsunami triggered by the 1992 earthquake left "trauma" within the community which were heightened by the 2026 events [6].
- Given the similarity in earthquake magnitude, an argument is made that one cannot rely solely on the fault mechanism to understand the difference in Tsunamis for the 1992 and the 2026 earthquakes [7,8]:
 - One hypothesis is that submarine landslides may have been triggered and that in conjunction with tectonic deformation, and steep bathymetry can lead to amplification of a Tsunami [7,8].
 - Furthermore, the 26.2 meter run-up measurement for the 1992 event represents a different physical quantity than the 1.61 meter wave height captured by a local station [7,8].

6.2. Tsunami



Predicted Sea Level Change by BRIN (National Research and Innovation Agency) [7]

6.2. Tsunami

Recorded heights of Tsunami Wave by Indonesia's Agency for Meteorology, Climatology and Geophysics (BMKG) [2 - 4] as of Aug 15.

Arrival Time (WIB)	Station/Location	Wave Height (m)	Comments	Reference
5:16	Sikka	0.2	First Wave	[2], [4]
5:24	Kewapante Port, Sikka	0.38		[2], [4]
5:26	East Flores	0.25		[2], [4]
5:27	Labuan Bajom	0.36		[2], [4]
5:29	Dompu	0.17		[2], [4]
5:29	Maurole, Ende	0.94		[2], [4]
5:41	Bakalang, Alor	0.14		[2], [4]
5:47	Baubau	0.3		[2], [4]
5:58	Bulukumba	0.54		[2], [4]
6:27	Kolaka	0.27		[2], [4]
x	Bima	>0.5	No specified Value or timestamp	[3]
x	Sape	>0.5	No specified Value or timestamp	[3]
			Highest Wave recorded as of 08/15/2026,	
x	Reo, Manggarai	1.91	no timestamp	[3], [4]

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7. Earthquake Impacts

7.1 Economic and Business Disruption

Essential Businesses

- Local grocery stores, gas stations, and shops opened again four days after the earthquake [1].
- Following the earthquake, 20 of the 52 local gas stations were closed on day one (see Section 7.6 Utilities - Oil & Gas). By day two, only 5 remained closed, and all stations were back in full operation by August 22, 2026. [2,3,4].
- The provincial government implemented a 'take first, pay later' policy for essential goods through August 28, 2026. Under this policy, residents could take up to a two-day supply of needed items from grocery stores, with the government settling the payments later [5].

7.1 Economic and Business Disruption

Tourism

- Severe damage to 47 hotels, restaurants, and cafes [6,7].
- As of 8/26, 7 tourist destinations reopened, while 11 remain temporarily closed [6].
- The Association of Indonesian Tour and Travel Agencies (ASITA) is advocating to accelerate the recovery of Flores' tourism sector [6].

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7.2 Health

Overview of Deaths and Injuries

- At least 134 reported deaths, 1738 reported injured as of September 5 [1].

Overview of Hospital Damage

- As of September 5, 40 health facilities were severely damaged, 58 had moderate damage, and 59 had minor damage [2]

Communications

- Indonesian Ministry of Health is communicating to the public which hospitals are operational [4]
 - As of August 18, the Ministry of Health aimed to restore hospitals within one week and health centers within two weeks [4].



Post-earthquake health services [3]

7.2 Health

Hospital Status

- Patients were evacuated from hospitals in Ruteng, Ende, and Sikka [5-7]
 - 70 inpatients and eight babies were relocated from Ende Regional Hospital, with dozens more relocated from TC Regional Hospital [7].
 - RSUD Nagekeo and RSUD Ruteng were targeted as facilities requiring the most attention [8].
 - RSUD Dr. TC Hillers Maumere, RSUD Ende, dan RSUD Nagekeo were in partial operation a day after the event [9].
- As of Aug 18, among the affected community health centers and hospitals, 68 health centers and 5 hospitals lost some or all functionality [8]; power was unstable at 52 facilities [2].

7.2 Health

Health care services

- Health care services are limited by diminishing supplies, loss of utilities, and lack of staff [5, 10]
 - Some health care sites, such as Dampek and other regions across Manggarai have a single physician for hundreds of patients [5, 10].

Bed Availability

- 9 emergency field hospitals have been set up across East Nusa Tenggara [3, 8].
- Indonesian Navy deployed KRI Dr. Soeharso (990 hospital ship) to Manggarai equipped with 2 rooms with 20 beds each [12].
- Two temporary field hospitals were built [13].



Damaged hospital room [11]

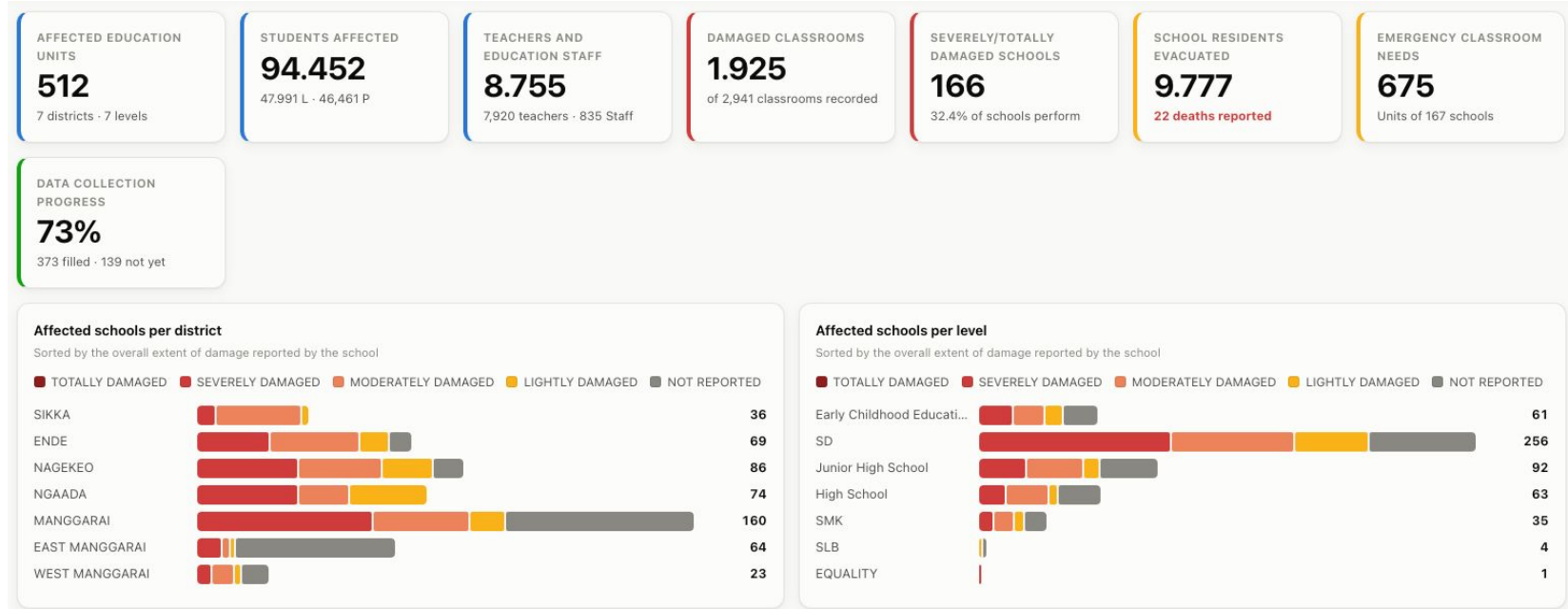
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7.3 Schools

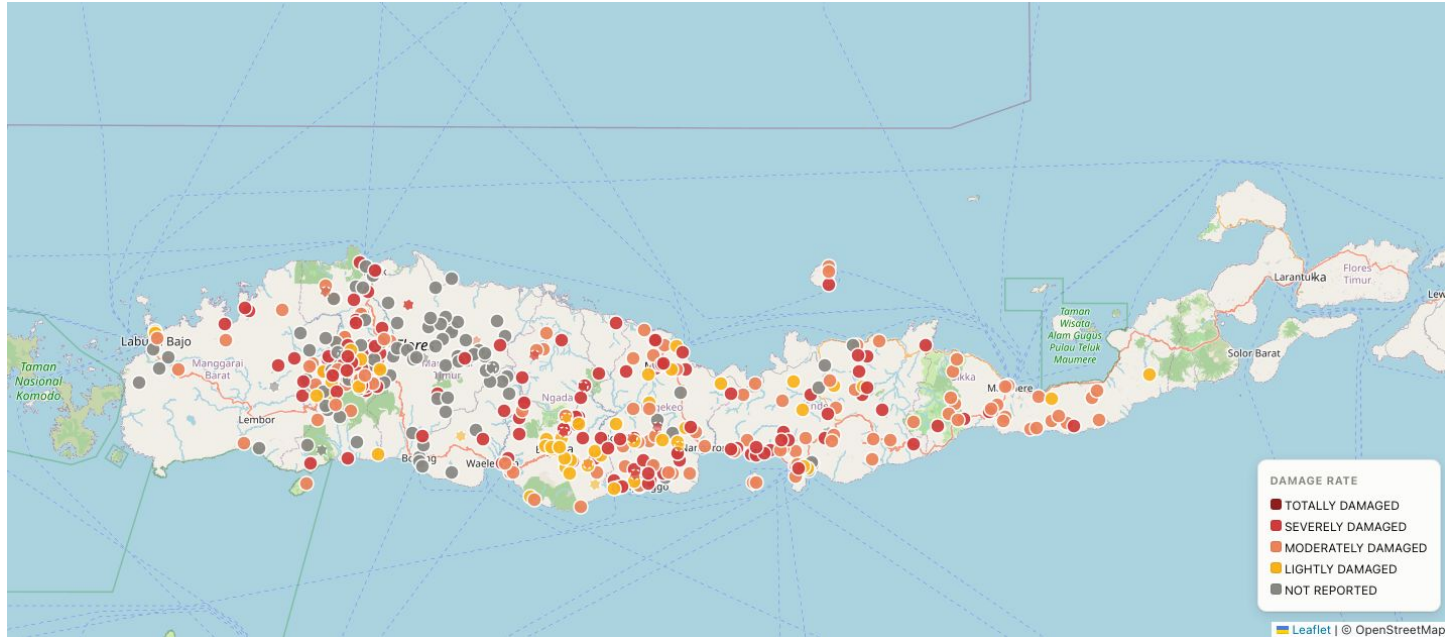
Education Sector Impacts (as of Aug 27*)



Education sector impacts and school damage by regency and education level [1]

7.3 Schools

Spatial Distribution of School Damage



Distribution of affected schools across Flores by reported damage level [1].

7.3 Schools

Overview of Damage

- As of Aug 21,
 - The National Disaster Management Agency (BNPB) and the Ministry of Primary and Secondary Education (Kemendikdasmen) reported 1,378 damaged education units across seven regencies on Flores [2, 3].
 - 5,521 classrooms were damaged and 502 school buildings were classified as severely damaged.
 - The damage affected 177,678 students and 21,166 teachers and staff [2].
 - Among the schools reporting their learning mode, 171 shifted to online learning and 30 continued in-person classes [2].
- As of August 22,
 - 116,324 students were still affected [3].



A damaged elementary school
in East Manggarai [4]

7.3 Schools

School Damage by Regency

- As of August 17, Manggarai regency had the highest number of damaged schools (104), followed by Manggarai Timur (52), Nagekeo (44), Ende (39), Ngada (35), Sikka (27), and Manggarai Barat (23) [5].
- As of August 18, in Ruteng town of Manggarai regency, several schools sustained heavy damage [6]:
 - 13 classrooms at Setia Bakti Catholic Senior High School (SMAK),
 - 8 at Imakulata Catholic Junior High School (SMPK),
 - and 6 at Inviolata Kindergarten (TKK) became unusable.
- As of August 21, 1378 schools were still damaged (502 were heavily damaged) and 923 schools were not in operation [7].



A damaged junior high school in East Manggarai [4]

7.3 Schools

School Damage by Regency

- In Anakoli village lying in Nagekeo regency, more than 350 people were attending a school scouting activity when the earthquake and tsunami occurred.
- Several people were injured in a stampede, but no tsunami-related deaths were reported [8].

Response and Recovery

- On August 16, Kemendikdasmen sent 50 emergency classroom tents, along with family and school kits, to the affected areas [4].
- On August 22,
 - 100 additional tents were reportedly being sent, along with 5,000 school kits, 1,500 family kits, 6,238 furniture items, 3,956 whiteboards, and 123,522 books [3].
 - Psychosocial support was provided to students and teachers in the affected areas [3].

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7.4 Housing

Overview of Damage

- As of August 24, BNPB's emergency-response dashboard reported 73,818 damaged houses: 23,276 severely damaged, 17,563 moderately damaged, and 32,979 lightly damaged [1].
- A post-earthquake multisource visual review found widespread damage in brick/concrete-block masonry houses with reinforced-concrete frames, ranging from cracking around openings to partial wall collapse [2].
- As of August 30, 95,967 houses were reported to suffer damage: 27,414 severely damaged, 21,992 moderately damaged, and 46,161 lightly damaged [3].
- A lot of damaged houses were concentrated in the regencies of Manggarai, Manggarai Barat, Nagekeo, Ngada, dan Manggarai Timur [4].



A severely damaged residence in
Desa Traslok, Macang Tanggar [3]

7.4 Housing

Predominant Damage Types

- Cripple-wall damage: Conventional cripple walls were not identified. The closest observed failure was collapse of poorly confined masonry walls lacking kolom praktis [2].
- Wall/frame damage: Observed damage included cracking around openings, partial wall collapse, wall–column separation, and roof/frame damage [2,5].
- Foundation/site damage: Reported warning signs included ground cracking, differential settlement, and adjacent slope instability [5].
- Some houses with reinforced-concrete ring beams showed limited visible damage, though this remains a preliminary observation [2].

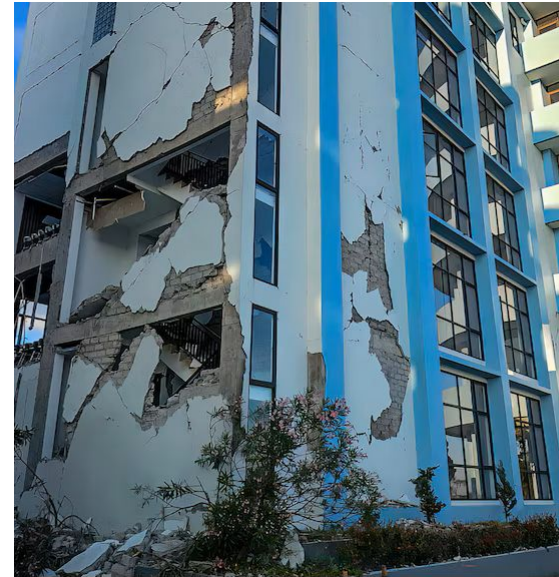


Example of masonry housing performance observed after the earthquake [2]

7.4 Housing

Multi-Family Homes

- Official BNPB/BPBD data do not distinguish single- from multi-family housing; multi-family damage therefore cannot be quantified [1].
- Damage to multi-storey buildings was reported, but residential occupancy was not consistently confirmed [6].
- BMKG identified multi-storey buildings in Reok as a priority for further structural evaluation and microzonation-informed reconstruction [7].

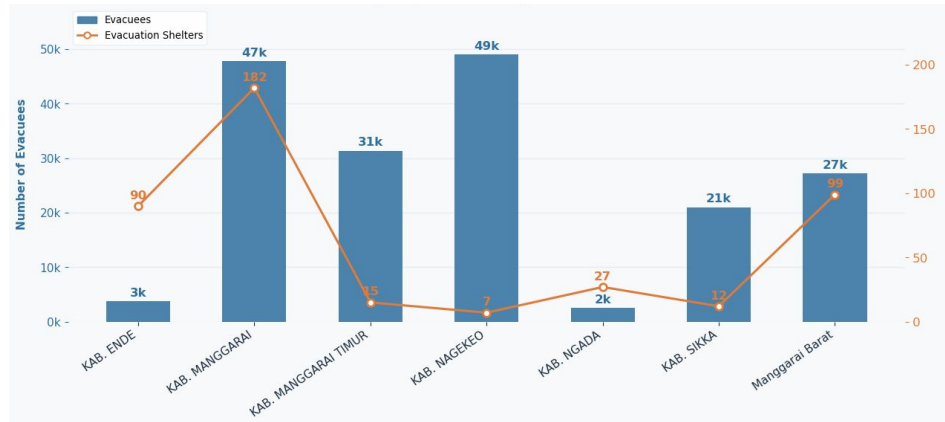


Damage to a multi-storey building in East Nusa Tenggara; residential occupancy was not confirmed [6]

7.4 Housing

Displacement

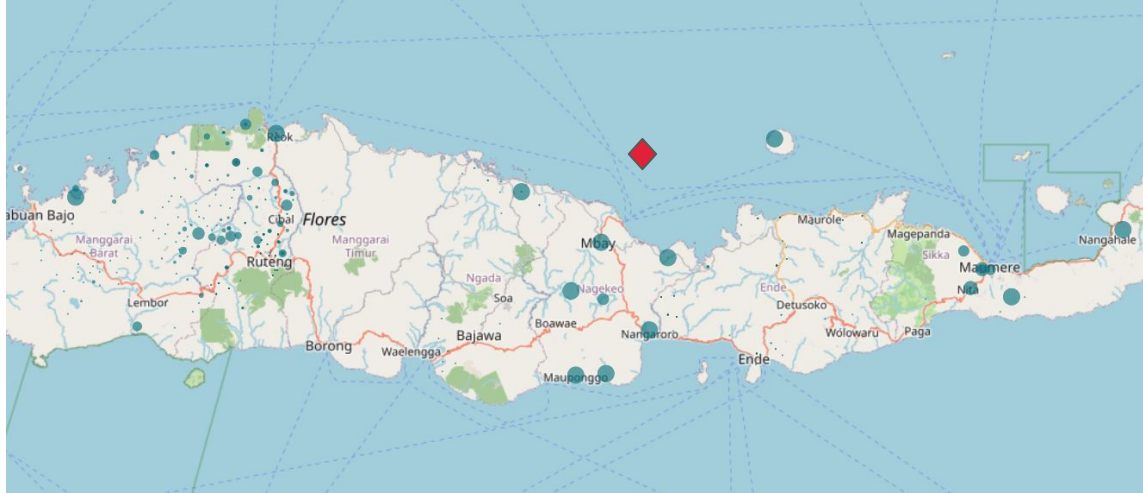
- Total number of displaced population = 182,765 [1]
 - Self-evacuated and not living in official evacuation shelters = 123,939 [1]
 - Displaced Persons in Centralized Evacuation Shelters = 58,826 [1]



Number of Evacuation shelters and Evacuees by Regency in Flores Region, Indonesia [1]

7.4 Housing

Displacement



Location of centralized evacuation shelters. Size of blue circle is proportional to number of evacuees. Red rhombus represents earthquake epicenter. [1]

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For Section 7.4

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7.5 Other Building Damage

- According to the National Disaster Management Agency , the BNPB on August 17, 2026, 84 places of worship were damaged along with 744 public facilities and infrastructure [2,3]
- Damage occurred across a wide variety of occupancies, including banks, ports, airports, offices, warehouses, and places of worship [4,5,6,7,8]



Ruteng, Manggarai, East Nusa Tenggara [1]

7.5 Other Building Damage

Reported Building Collapses / Partial Collapses

- **Bima City**
 - Warehouse - partial wall collapse [4]
 - Mutmainnah Hotel Mosque - ceiling collapse [4]
- **Maumere Town**
 - Pelni Maumere port in Sikka Regency - partial collapse [5, 6]
- **Ruteng City**
 - Frans Sales Lega Airport (Ruteng Airport) - roof panels fell [7]
 - Campus Building at St. Paul's Catholic University (Unika St. Paulus) - partial collapse [7]
- **Borong Town**
 - BRI Borong Branch Office - complete collapsed [8]



Maumere, East Nusa Tenggara. Handout / Indonesia's National Search and Rescue Agency (BASARNAS) / AFP [1]



Maumere, East Nusa Tenggara [5]

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7.6 Utilities - Oil & Gas

- 20 out of 52 gas stations in Flores were closed to due earthquake damage according to the VP of Communications of Pertamina Patra Niaga, with two stations sustaining structural damage to their filling areas [1].
 - “Some closed stations face power outages, damaged facilities, or unsafe surroundings. Others are structurally safe by remain closed as operators prioritize safety.” - VP of communications [1], noting that fuel supplies are maintained.
- 12 kerosene distributors were affected by the earthquake, with road access serving as the primary challenge for distribution (specifically, landslides blocking section of the Reo-Ruteng road, the Ende-Bajawa Trans Flores route, and the Trans Marapokot road) [1].

7.6 Utilities - Electric

- 11 substations had gone offline and had been restored and 58 out of 59 feeders (98.3%) resumed operations by the next morning (Sunday August 16, 2026) [2].
 - Several power poles collapsed in landslide-hit areas [2].
- About 566,797 people lost electricity, and 99.5% of those customers had their energy restored by August 17, 2026 [3].
 - Also by August 17, 2026, 95.4% telecommunications network recovered in Flores Island and 76.3% recovered in East Managgarai [3].
- 812 cellular sites were knocked out of service by the earthquake, which also triggered widespread infrastructure damage across 11 regencies and cities [4].
 - As of August 19, 2026, the Communication and Digital Affairs Minister confirmed that digital telecommunication infrastructure that was disrupted in East Nusa Tenggara has been restored to nearly full operation, with only one tower in the Manggarai District under active repair [4].

7.6 Utilities - Water

- 495 water infrastructure units were affected by the earthquake and 481 of those sustained heavy damage, and damage was largely concentrated on rainwater harvesting tanks by residential owners [5].
 - “Damage to clean water infrastructure is one of the most significant post-disaster impacts in Sikka” [5].
 - As of August 24, 2026, minor to moderate damage to public water company infrastructure has already been repaired but to clean water and sanitation is still limited according to the Ministry of Public Works [5].
- 371 sanitation facilities damaged and 302 of those sustained heavy damage [5].
- Acute water storage in East Nusa Tenggara according to the Public Works Minister [6].
- Nearly the entire drinking water supply systems in the Nagreg area are disrupted due to landslides that blocked river channels, water supplied through the SPAM system became seriously distributed and turbid due to soil in the system and shifts in river flows [7,8].

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7.7 Transportation - Roads & Bridges

- Preliminary road impacts: 11 national-road sections, 64 landslides, 7 road-body fractures, and 14 bridges/culverts were affected were impacted as of August 20 [1] *.
- Ende–Bajawa Trans-Flores was fully blocked by ~30 m of landslide debris; motorcycles passed Day 1, four-wheel traffic Day 3, and all lanes reopened Aug. 20. [2]
- Other disruptions affected Ruteng–Reo–Kedindi, Ruteng–Km 210, Aegela–Ende/Ende–Wolowaru, and Mapitara; the Mapitara detour lengthened aid and ambulance routes. [3,4]
- Wae Pesi and Wae Longe were inspected Aug. 17–20 for damage, structural safety/connectivity, and repair needs. [5]
- Road closures were communicated through iBena and BNPB/Kemenhub web-news updates; sea transport also helped bypass blocked roads. [2,3,6,10]



Trans-Flores Ende–Bajawa after landslide clearance, Aug. 20 [2]

**reported statistics vary according to reporting sources [1,14]*

7.7 Transportation - Airports, Rail & Public Transport

- **Airport damage:** Komodo, Ruteng and Maumere remained operational after inspection; Soa Bajawa had a runway crack and building damage. [7]
- **Ende/flight impacts:** local notices reported all-flight cancellation Aug. 15 and closure Aug. 18–20, conflicting with central DGCA reporting that Flores airports remained operating. Other airports had localized restrictions/contingency communications; no island-wide delay total was published. [7,8,9]
- **Rail/train:** no event-specific rail disruption was identified in Kemenhub's earthquake transportation update, which focused on roads, terminals, airports and ports. [10]
- **Public transportation:** repairs to terminals, airports and ports aimed to restore public transit/connectivity; sea transport was promoted to bypass blocked roads. [6]

7.7 Transportation - Ports & Ferries

- Laurentius Say (Maumere) had dock/waiting-room collapse; Reo had office/terminal damage; Nangakeo had ceiling/wall damage. [10]
- Port/ferry closures: Nangakeo pioneer service was temporarily suspended; ASDP sheltered vessels during the tsunami warning, with selected ferry routes resuming later Aug. 15. [10,11]
- By Aug. 19, Maumere was again handling passengers, cargo and relief/aid vessels; maritime links supported mobility/logistics while roads were disrupted. [6,12]
- Barge/cargo: no separate barge-delay metric was published in reviewed official/operator sources; cargo and relief-vessel movement continued. [11,12]



Damage at Laurentius Say Port, Maumere, Aug. 15 [13]

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