CENTER FOR EXCELLENCE IN DISASTER MANAGEMENT AND HUMANITARIAN ASSISTANCE

FACT SHEET: Tsunami Risk to Indonesia

BLUF - Implications for PACOM

- Indonesia is one of UN OCHA's five priority countries in Asia highly vulnerable to large-scale natural disasters.
- Located within the Pacific Ring of Fire, Indonesia is one of the most seismically active regions in the world, and the source of the devastating 2004 Indian Ocean Tsunami.
- Indonesia has extensive capabilities in disaster preparedness and response, responding to nearly 300 major natural disasters annually over the last 30 years.
- Nonetheless, Indonesia remains highly vulnerable to future earthquakes and tsunamis (see seismic risk below).

Fast Facts

- **Capital:** Jakarta
- **Population:** 260,580,739 (July 2017 est.)
- **Land Area:** 1,811,569 km^2 (three times the size of Texas)
- **Island nation:** 17,508 islands, 922 permanently inhabited
- **Archipelago:** stretches 5,000 km (one-eighth of Earth's circumference), linking the Pacific and Indian Oceans.
- **Demographics:** over 730 indigenous languages and associated ethnic groups
- **Official language:** Bahasa Indonesia

Seismic Risk

The Sunda megathrust is the name of the boundary between three major tectonic plates; the Indian-Australian, the Pacific, and the Eurasian. This fault line extends approximately 5,500 km from Myanmar, along the Indonesian archipelago, to Australia. The Sunda megathrust is one of the most active faults on Earth and responsible for the 2004 Indian Ocean Tsunami.

Scientists believe that past ruptures of the fault have increased the failure probability of the Mentawai Islands segment of the Sunda megathrust, predicting a major earthquake within this century. Padang, population 1 million and capital of the province of West Sumatra, lies on the coastal plain opposite the Mentawai Islands. Earthquakes in 1797 and 1833 (see map right), estimated at magnitude 8.5+, generated tsunamis that impacted Padang. In September 2009, a magnitude 7.9 earthquake resulted in over 1,000 deaths in Padang. USPACOM responded with communications and logistical support.

Indian Ocean Tsunami Warning System

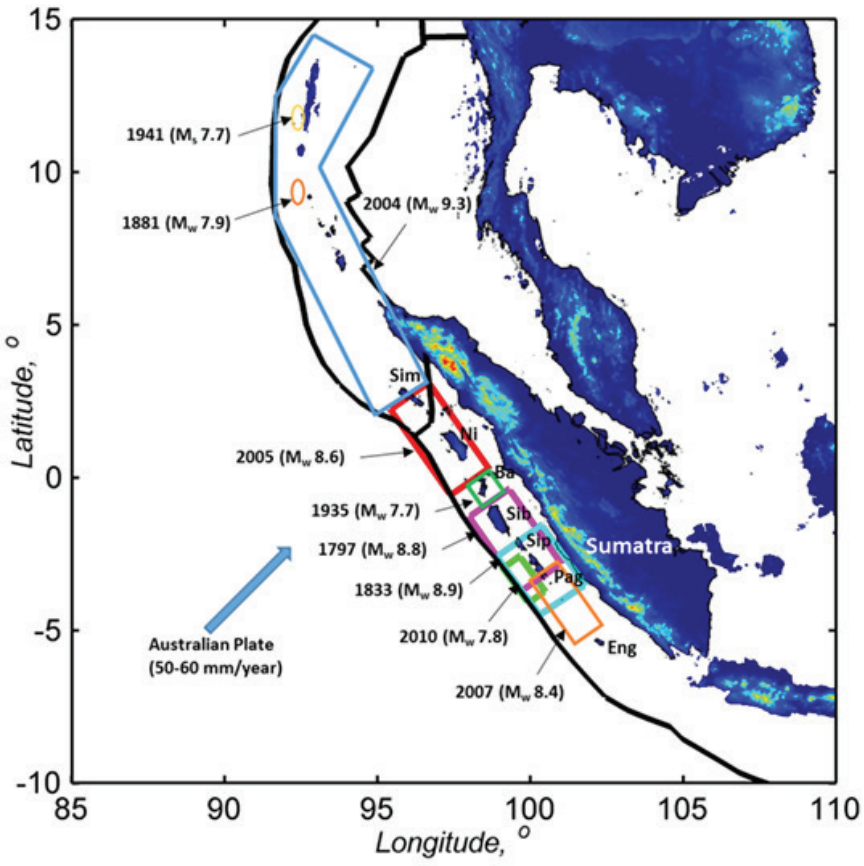
An Indian Ocean Tsunami Warning System was established in the aftermath of the 2004 Indian Ocean Tsunami. It provides alerts through three regional watch centers (India, Indonesia, Australia) and a network of 26 national tsunami information centers.

Indian Ocean Tsunami

On December 26, 2004, a magnitude 9.2 earthquake triggered a devastating tsunami that killed nearly 230,000 people in 14 countries around the Indian Ocean. Of those, 130,000 were from Indonesia's westernmost Aceh Province. The earthquake originated within the Sunda megathrust, located off the northern Sumatra coast, rupturing a segment 1,600 km long that had lain dormant for one thousand years.

The 2004 tsunami was a major turning point for the Government of Indonesia. Following the event, the country enacted legislation on disaster management in 2007, and the National Disaster Management Agency (BNBP) was established a year later. BNPB's budget has grown 500% between 2010 and 2014.

The U.S. Department of Defense, in support of the U.S. Agency for International Development's Office of Foreign Disaster Assistance (the lead federal agency for the U.S. in overseas disasters), established Operation Unified Assistance, led by Combined Support Force 536. Carrier Strike Group Nine, led by the USS Abraham Lincoln, an Expeditionary Strike Group led by the USS Bonhomme Richard, and the USNS Mercy all delivered vital humanitarian assistance and disaster relief supplies. In all, nearly 13,000 U.S. servicemen and women took part in the operation.



Historical seismic activity along Sunda Megathrust
Source: Tsunami Hazard Analysis of Future Megathrust Sumatra Earthquakes in Padang, Indonesia

Major Actors in Disaster Response

Domestic

- National Disaster Management Authority of Indonesia (BNPB)
- Indonesian National Military (TNI)
- Indonesian National Police (POLRI)
- Ministries of Health, Foreign Affairs, Immigration
- Indonesian Customs
- Indonesian Red Cross Society
- Numerous national non-governmental organizations (NGOs).

International

- United Nations organizations:
  - Office for the Coordination of Humanitarian Affairs (OCHA)
  - World Food Program (WFP)
  - World Health Organization (WHO)
  - UN Children's Fund (UNICEF)
  - UN High Commissioner for Refugees (UNHCR)
  - International Organization for Migration (IOM)
- The International Federation of Red Cross & Red Crescent Societies (IFRC)
- Numerous international non-governmental organizations.

Recent US-Indonesia Disaster Preparedness Engagement

- Gema Bhakti (GB, Sept 2017): GB17 was the fifth iteration of the bilateral, joint exercise held in Indonesia. The exercise focused on Maritime Security and Humanitarian Assistance and Disaster Relief (HA/DR). The exercise was designed to improve Joint, Operational-level staff planning and processes.
- Pacific Partnership (PP, Aug 2016): The U.S. Navy hospital ship USNS Mercy, docked in Padang, served as the platform for the 5th iteration of PP that included partner nations' military forces from Australia, Canada, Japan, New Zealand, Republic of Korea, and the U.S. Pacific Partnership visited Indonesia to strengthen ties between partner nations in order to improve multinational cooperation in HA/DR.
- Pacific Resilience (PR, June 2013): The U.S. Army Pacific-sponsored Pacific Resilience Disaster Response Exercise and Exchange was the seventh annual event between the two nations. In this year's event, U.S. military, Indonesian military and civilian disaster relief organizations worked side by side in the first ever joint HA/DR Field Training Exercise in Indonesia.

Sources:

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Waves of Hope - The U.S. Navy's Response to the Tsunami in Northern Indonesia: https://www.researchgate.net/publication/235195647_Waves_of_Hope_The_US_Navy's_Response_to_the_Tsunami_in_Northern_Indonesia



Tsunami damage at Pasi, coastline of Aceh Province, 2004

ASEAN Joint Disaster Response Plan (AJDRP)

The Association of Southeast Asian Nations (ASEAN) Joint Disaster Response Plan (AJDRP) provides a common framework to deliver a timely, at-scale and joint response through mobilization of required assets and capabilities. Indonesia's disaster planning within the AJDRP focuses on a large scale earthquake, which triggers a tsunami, leading to a subsequent industrial accident necessitating a hazardous materials response.

AJDRP Objectives:

- Increasing the speed of the ASEAN response by supporting ASEAN Member States in making timely and informed decisions
- Expanding the scale of the ASEAN response by strengthening the ASEAN Standby Arrangements
- Enhancing the solidarity of the ASEAN response by strengthening coordination and cooperation among ASEAN Member States, ASEAN partners, and other humanitarian actors

Other Disaster Risks

Indonesia is threatened by many natural disasters beyond earthquakes and tsunamis. These include volcanic eruptions, flooding, and drought. Indonesia has suffered nearly 300 significant natural disasters annually over the last 30 years. Over the last ten years, northern Sumatra's Mt. Sinabung, dormant for nearly 400 years, has erupted on several occasions, forcing the evacuation of thousands. Jakarta endured severe flooding in 2007.



CFE-DM Resource: Indonesia Disaster Management Reference Handbook

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