RECOVERY FROM FOOD SUPPLY AND PUBLIC HEALTH PROBLEMS IN A HUGE NATURAL DISASTER: INDONESIAN EXPERIENCE

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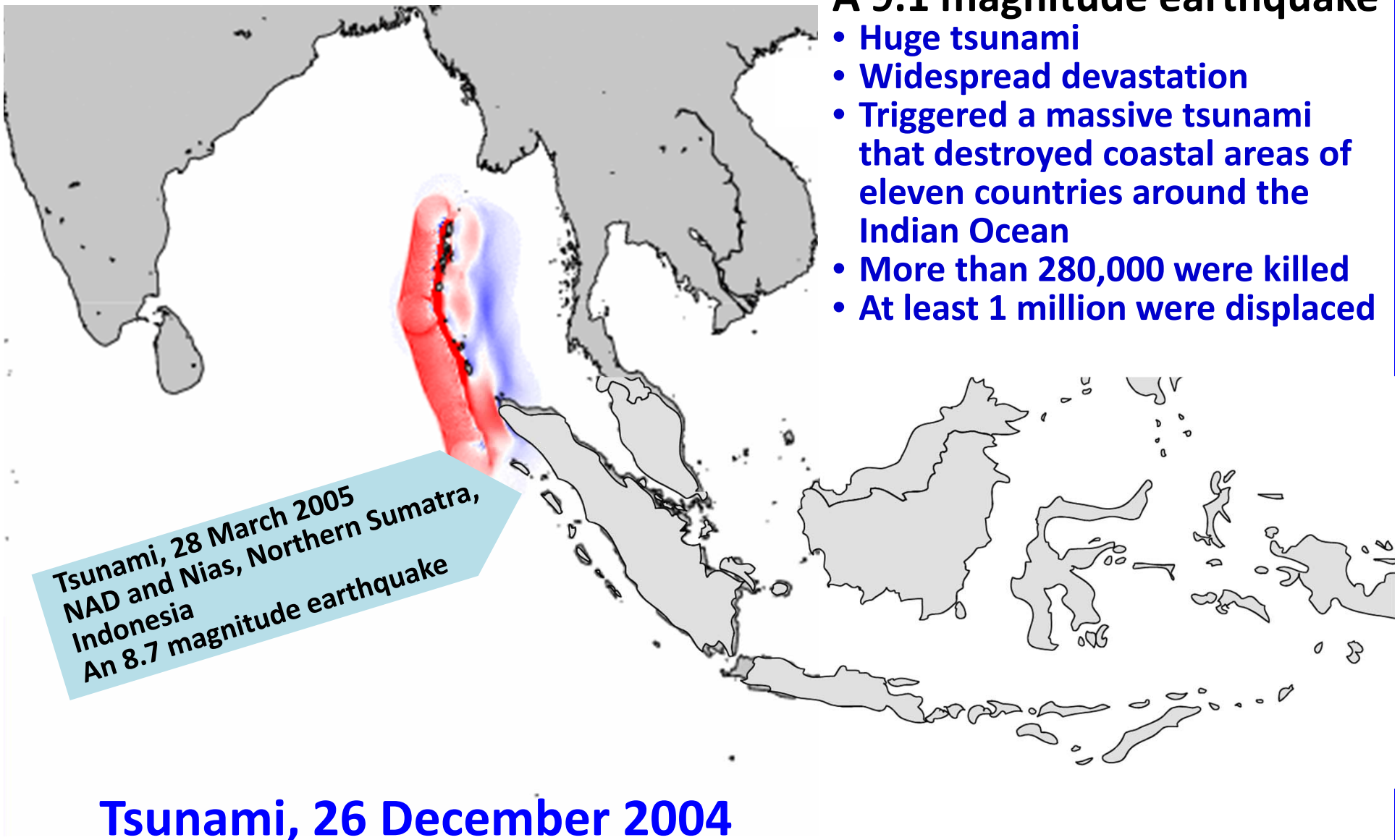


A 9.1 magnitude earthquake

- Huge tsunami
- Widespread devastation
- Triggered a massive tsunami that destroyed coastal areas of eleven countries around the Indian Ocean
- More than 280,000 were killed
- At least 1 million were displaced

Tsunami, 26 December 2004
Nanggroe Aceh Darussalam (NAD), Indonesia

Main Shock
26 December 2004

Main Shock
28 March 2005
+ Aftershocks

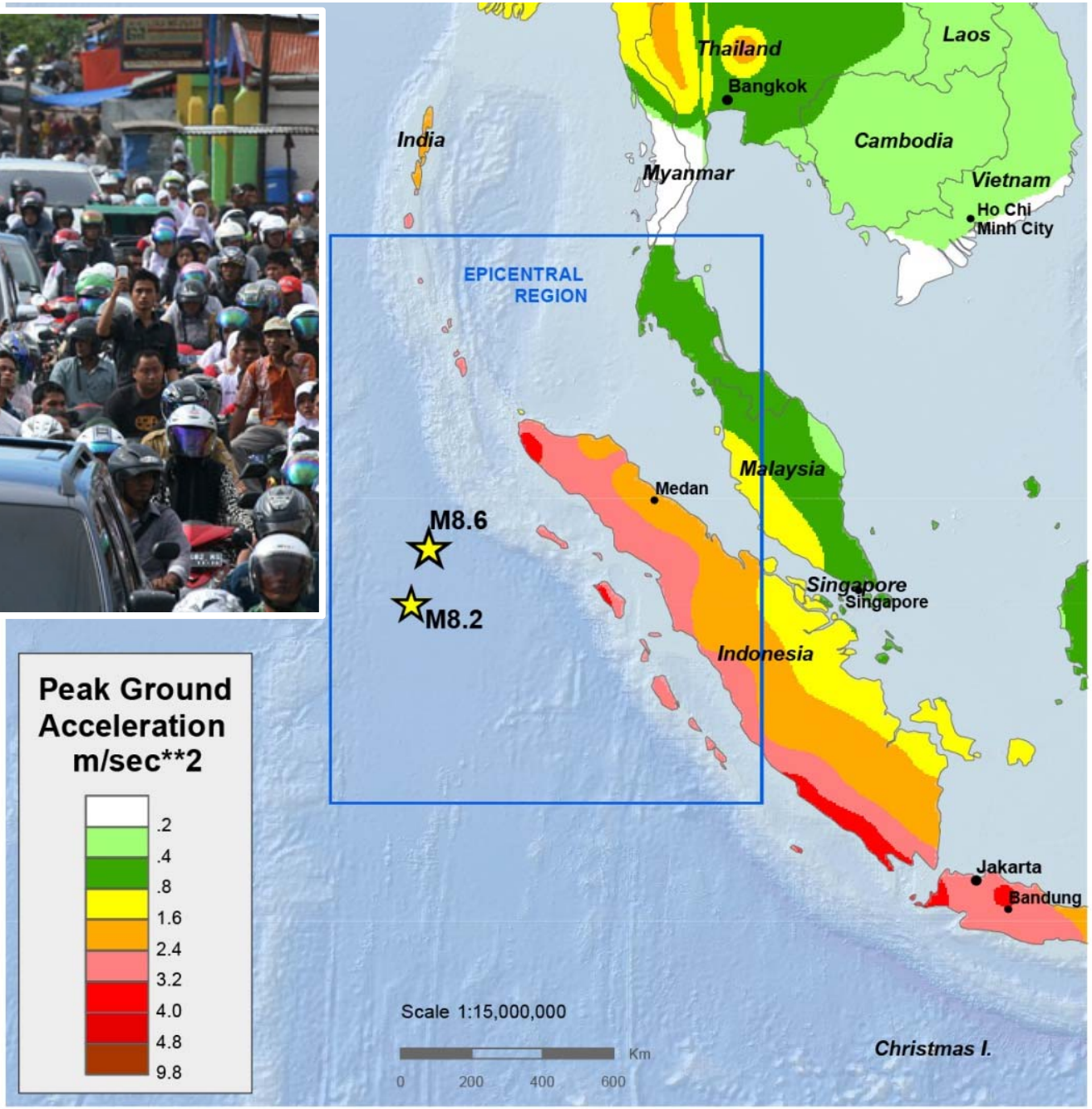
Rupture Zone
1861

Rupture Zone
1833

USGS, 2005

Rush to reach higher ground

Big earthquake again hit Aceh on 11 April 2012, but without tsunami



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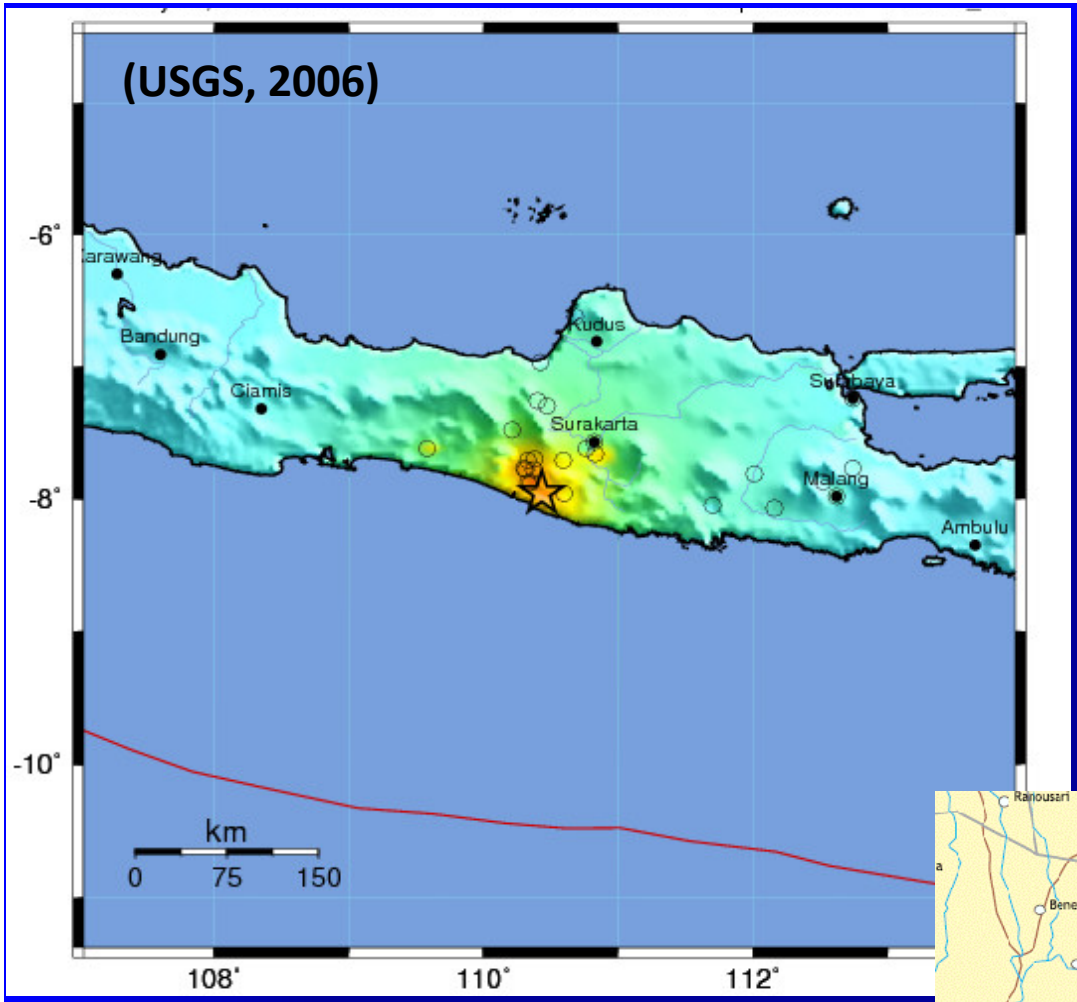

- A 6.2 magnitude earthquake hit **the densely populated area** of Yogyakarta and Central Java
- **May 27, 2006**
- no tsunami was reported from the quake.
- more than 5,700 people were killed
- over 5,000 people injured
- more than 1.6 millions people made homeless

190,025 homes severely damaged
139,895 homes totally destroyed
164,000 household wells to be cleaned or repaired
155,000 latrines to be repaired or rebuilt
USD 3.1 billion in total damages
(UNDP, 2008)

(FAO Indonesia Tsunami Atlas, 2005)

The Impact of the Huge Tsunami

Because of powerful tsunami the seawater penetrated up to 5.5 km inland devastated coastal areas that host a wide range of human activities, from inland rice-based systems and wetlands, to mangrove and coastal strips used primarily for fisheries.

Satelite images of the coastline in Aceh Besar

Lost and Recovery in Agricultural and Fisheries Sectors

Agriculture represents a major share of the local economy in NAD and Nias, and rice is the major food crop for farming and staple food for the people.

Before tsunami NAD dan Nias

Total wetland area	:	391,000 hectares
Paddy harvested	:	370,000 hectares (in 2004)

After tsunami

Paddy land damaged	:	37,500 hectares (16 % of paddy land)
Lightly damaged	:	18.9 % (normal Ag production can start)
Moderately damaged	:	26.7 % (requires simple intervension)
Heavily damaged	:	46.7 % (requires complex intervention)
Totally lost to the sea	:	7.7 % (2,900 hectares unsuitable for farming)

933,000 tonnes rice produced for 2005/2006 marketing year

(FAO and WFP, 2005)

Lost and Recovery in Agricultural and Fisheries Sectors

The fisheries sector contributes to 6.5 % RGDP and providing direct employment for over 80,000 people (16 % of total coastal population)

Fish output: 158,578 tonnes (in 2003)
133,976 tonnes captured from marine fishery
24,602 tonnes harvested from aquaculture

The sector is relatively more important in terms of household income and food consumption in several coastal parts of Aceh (FAO and WFP, 2005)

Damages or Lost After tsunami

19 units of fish auction hall (0.37%),
32 units of fish landing base (44.44%),
10,961 units of fish-catching fleet (61.81%)
10,800 units of boat,
15 % of fishermen died.

By 2006 much of the fishing industry returned to almost normal.

Two year rehabilitation progress in agricultural and fishery sectors in Aceh and Nias, 2005-2006

District	Agri Land Damaged (ha)	Agri Land Rehabilitated (ha)	Fishponds Damaged (ha)	Fishponds Restored (ha)	Fishing Vessels Damaged (unit)	Fishing Vessel Replaced (unit)
ACEH	73,869	48,830	27,593	6,800	12,766	3,902
NIAS	0	1,510	0	0	1,062	518
TOTAL	73,869	50,340	27,593	6,800	13,828	4,420
Source	BRR 2005	BRR Nov 2006	BRR 2005	BRR, FAO, ADB ETESP Fisheries Nov 2006	FAO, Sept 2005	BRR, Nov 2006

With rehabilitation of about 50,000 ha of fields the farming activity back into normal production.

This is because of excellent combined efforts of the communities, government agriculture services, BRR, ADB, FAO, and numerous NGOs.

About 25% of the damaged ponds (6,800 ha) was rehabilitated end of 2006 with the support of BRR, ADB, FAO, UNDP and NGOs.

Another progress in 2006: shrimp hatcheries, and various small-scale aquaculture activities such as marine fish cages, and grouper and milk fish nursing.