

Evacuation Planning





"Surviving a tsunami is a matter of getting out of the reach of tsunami waves and inundating waters in time"

What is an Evacuation Plan?



1. Get prepared, long before anything happens

- Study the evacuation map and get familiar with the evacuation procedures
- Discuss procedures within your family and neighbourhood
- Participate in drills and information events
- If you are a visitor to Bali, please check with your hotel for procedures

2. If you feel an earthquake, protect yourself

- Don't panic!
- Drop, cover and hold!

3. After an earthquake, be aware that a tsunami may follow

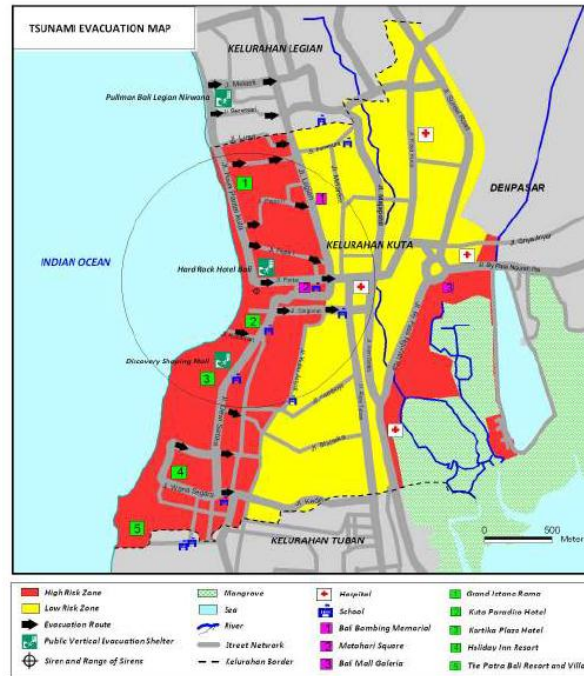
- Move away from the beach immediately as a precautionary measure!
- After strong and prolonged ground shaking, don't wait for an official warning. Leave the **RED ZONE** immediately!
- Listen to announcements from the local authorities and the radio for further information. Pay attention to the siren!

4. The sound of the siren is the official call for evacuation

- When the siren sounds, evacuate the **RED ZONE** immediately, or look for shelter in higher buildings!
- If you are in the **YELLOW ZONE**, seek shelter on higher floors
- If you are a visitor in a hotel, follow the instructions of hotel staff

After the first tsunami wave, more waves are likely to come!

Wait for an official "All Clear" message before leaving shelter



Tsunami Evacuation Plan for Sanur, Bali

A Documentation of the Process and Results of Tsunami Evacuation Planning

developed by
Evacuation Planning Working Group of Sanur Denpasar

with support from
District Government of Denpasar
BPSD Denpasar
Bali Hotel Association (BHA)
The Indonesian Red Cross, Bali Chapter
The Indonesian Red Cross, Denpasar Chapter
Kelurahan and villages authorities
Sanur Development Foundation

Facilitation and technical advisory by
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Principles of Evacuation Planning



Who has to be involved in the planning?

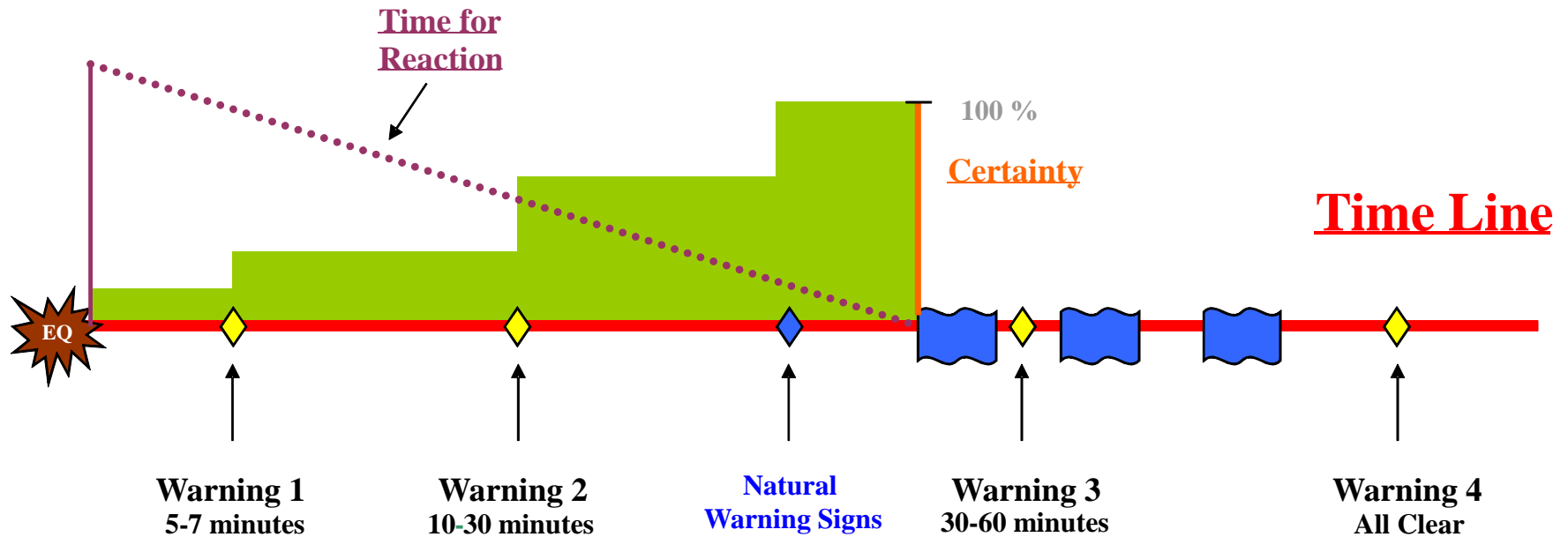
All relevant stakeholders from local government, universities, NGOs, ...

Who should be aware of the evacuation plan?

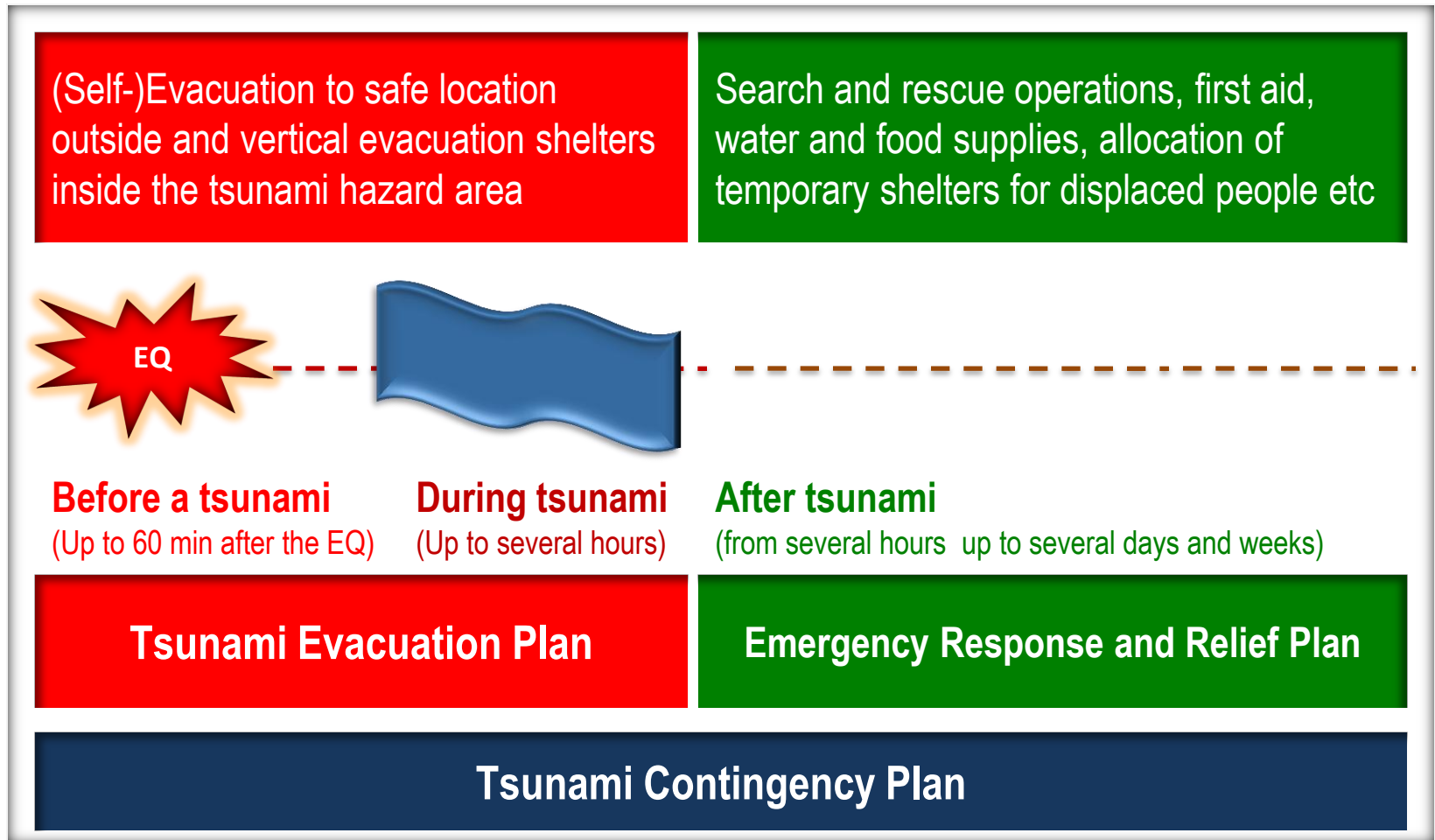
Everyone in the community



As Indonesia faces local tsunami threat... ...time is the most critical factor!

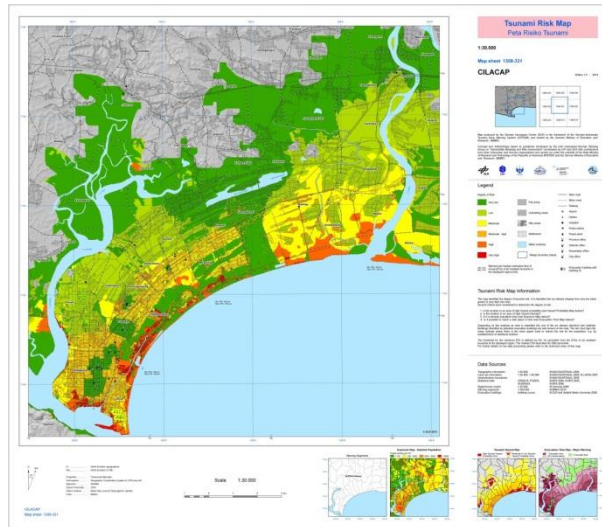


Tsunami evacuation covers the time span before and during a tsunami...

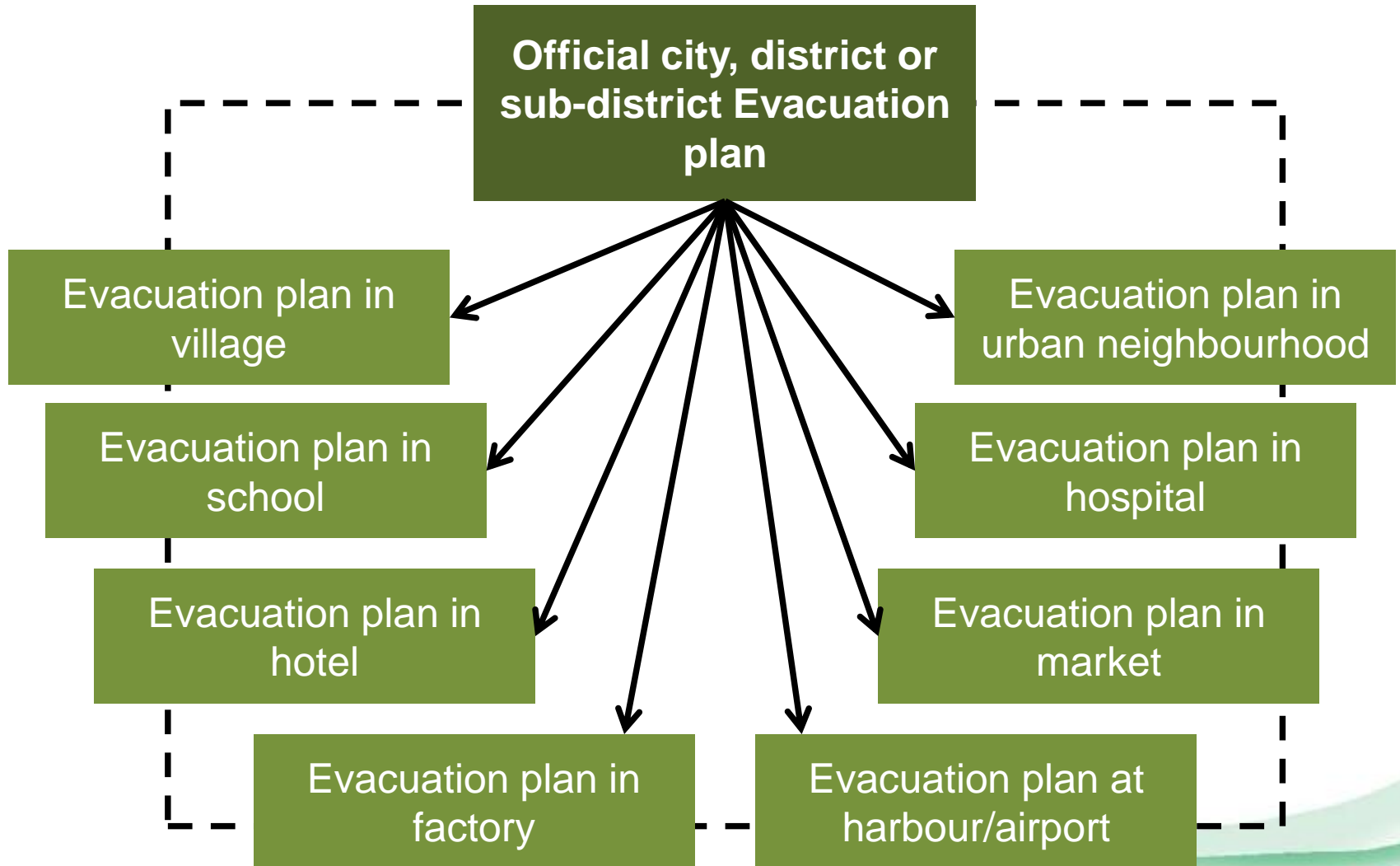


...and is part of a Tsunami Contingency Plan

Evacuation planning requires a good understanding of the community's risk



Official evacuation plans provide credible and binding references for lower levels & institutions



Evacuation Plans must be tailored to specific local condition



Evacuation plans must inform people when to evacuate

Natural warning and official warning or information based on information from the NTWC

Expected Community Reaction

Ground Shaking (not too strong but long shakes)

Ground Shaking (Strong and long shakes)

People move away from the beaches and river banks and to designated safe locations



5-10 minutes after the earthquake

Warning and guidance from local authorities <i>and</i> Warning and advice broadcast by TV and radio stations	Major Warning	Evacuate immediately!
	Warning	
	Advisory	Stay away from beaches and river banks!
	EQ Info	No tsunami threat!

People evacuate hazardous areas and move to designated safe locations
People stay away from the
People resume normal activities (depending on EQ damage)

Evacuation Planning Process

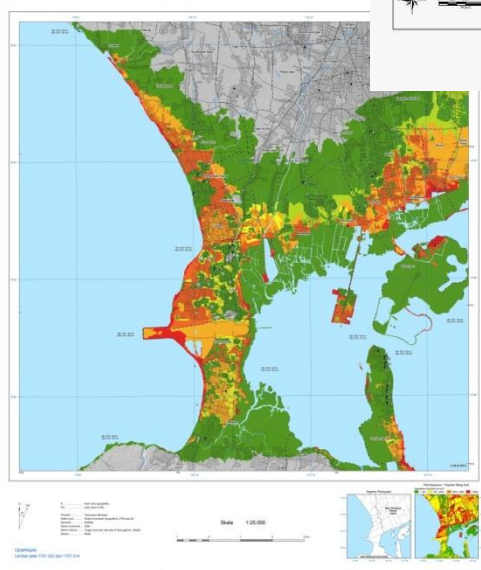
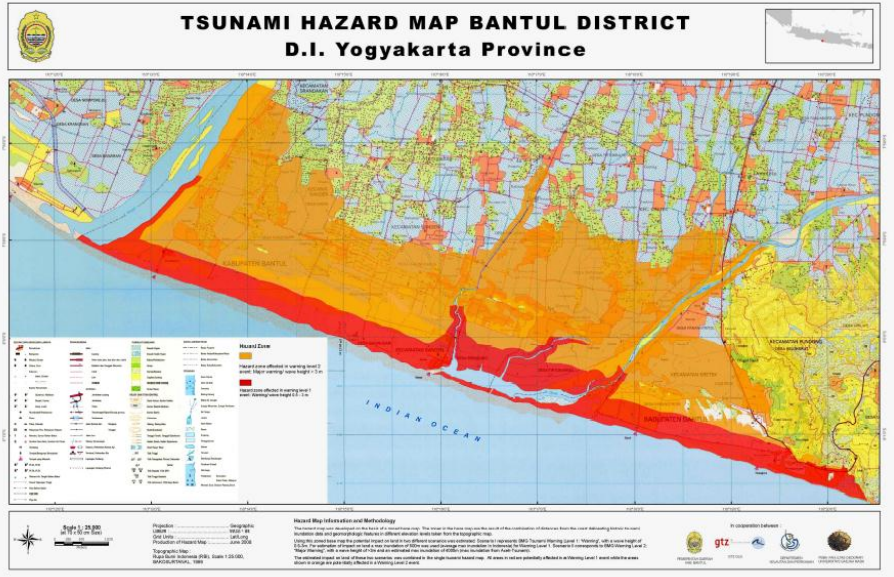
The planning steps	Topics to be discussed	Output
Step 1: Prepare for the planning	Mandates, planning team and resource persons, data and information, resources, planning process and timeframe	Work plan
Step 2: Understand your community's tsunami risk	Hazard: inundation area and arrival time Vulnerability: physical exposure of population and facilities, capability to evacuate, preparedness and readiness to evacuate, early warning system Potential evacuation routes and shelter, high risk areas	Maps, data inventory, mind map, and assessment report
Step 3: Design your evacuation strategy and map	Evacuation strategy: evacuation time, evacuation zone(s), safe areas, assembly areas, modes of evacuation, evacuation shelter buildings, evacuation routes, when to (self-)evacuate Support during evacuation: traffic management, vulnerable facilities, evacuation signage	Preliminary evacuation plan: document that includes map, strategy and recommendations; draft public evacuation map
Step 4: Assess, endorse and disseminate your evacuation plan	Public assessment of the plan, endorsement by local authorities, dissemination to institutions and public, outreach strategy	Endorsed evacuation plan, dissemination and outreach plan
Step 5: Test, evaluate and improve your evacuation plan	Tsunami simulation exercises, means of observation and evaluation, revision of evacuation plan	Plan to test, evaluate and improve the evacuation plan

Step 1: Prepare for the Planning

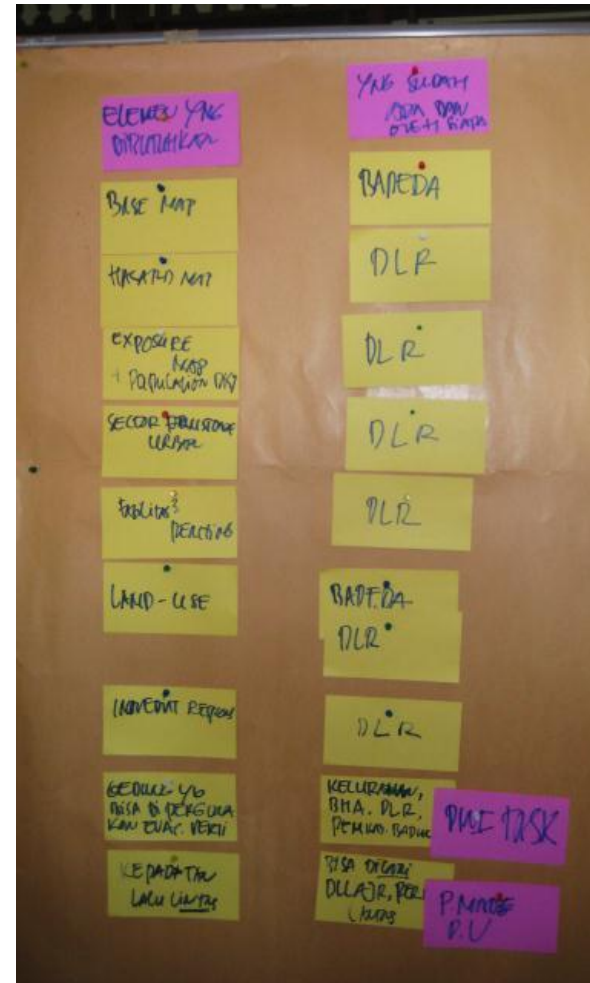
Potential local stakeholders of tsunami evacuation planning

Government institutions	Non-government and scientific/academic institutions
BPBD (Local Disaster Management Agency) or Kesbanglinmas (Local Civil Defence Agency) BAPPEDA (Regional Planning Agency) POLRI (police) TNI (military) Fire brigade DEPSOS (Department of Social Affairs) DINKES (Department of Health) DISHUB (Department of Transportation) DEPDIK (Department of Education) PU (Department of Public Works)	PMI (the Indonesian Red Cross) SAR (search and rescue organisation) Beach and lifeguards (like <i>Balawista</i> in Bali) Other specific local rescue organisations Local NGOs concerned with disaster risk reduction Universities and schools
Community representatives and groups	Private sector
Kepala Desa/Lurah (village head) Kepala Dusun/RW/RT (representative of hamlets or neighbourhood units) Ketua Adat (traditional/customary leader) Religious leaders Traditional local security organisations RAPI / ORARI (Radio Amateur Associations) Women's groups (such as PKK) Other specific local community-based organisations and respected community figures	Hotels Tourism operators Markets/Malls Fishermen associations Other industries and business associations

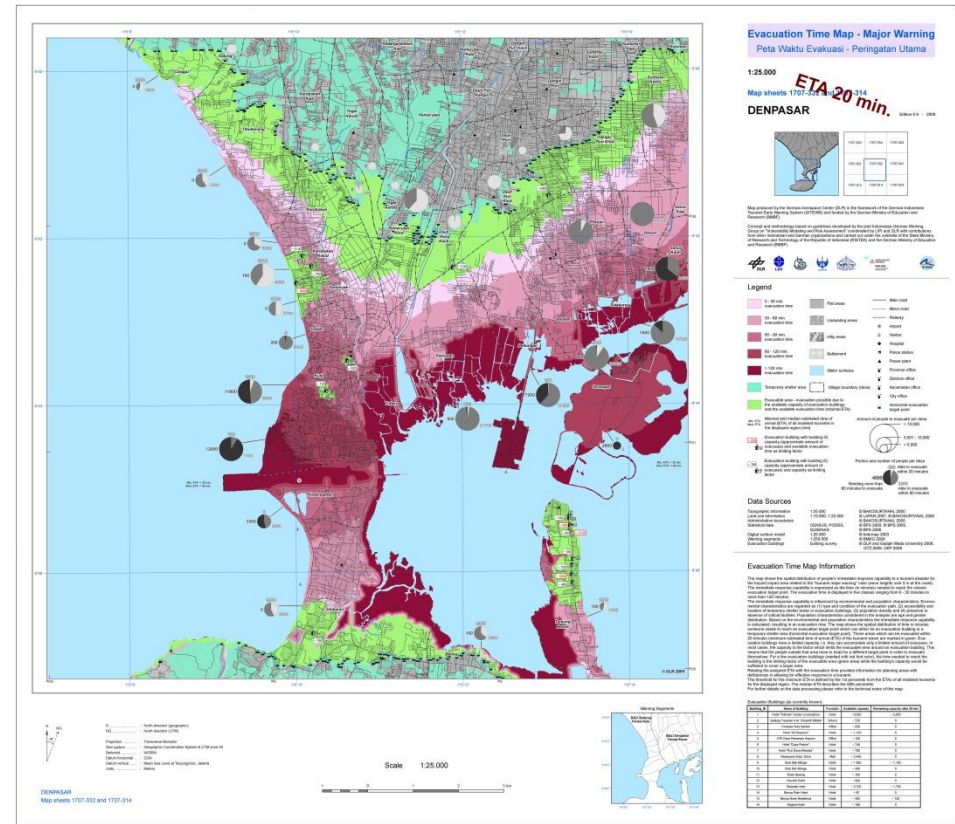
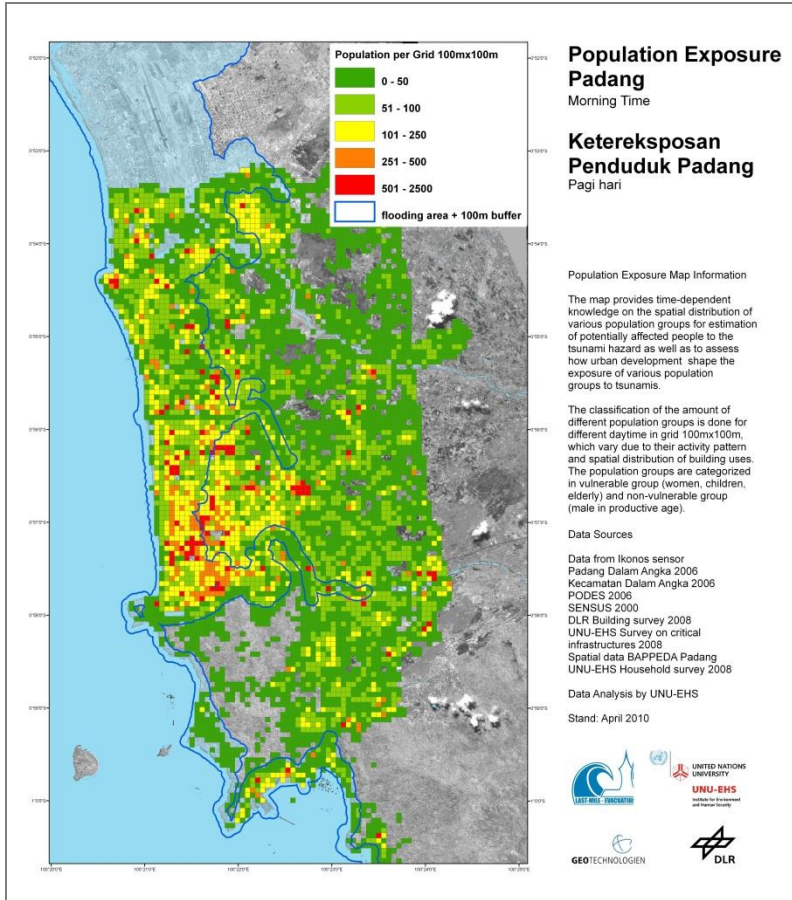
National institutions that can provide input evacuation planning



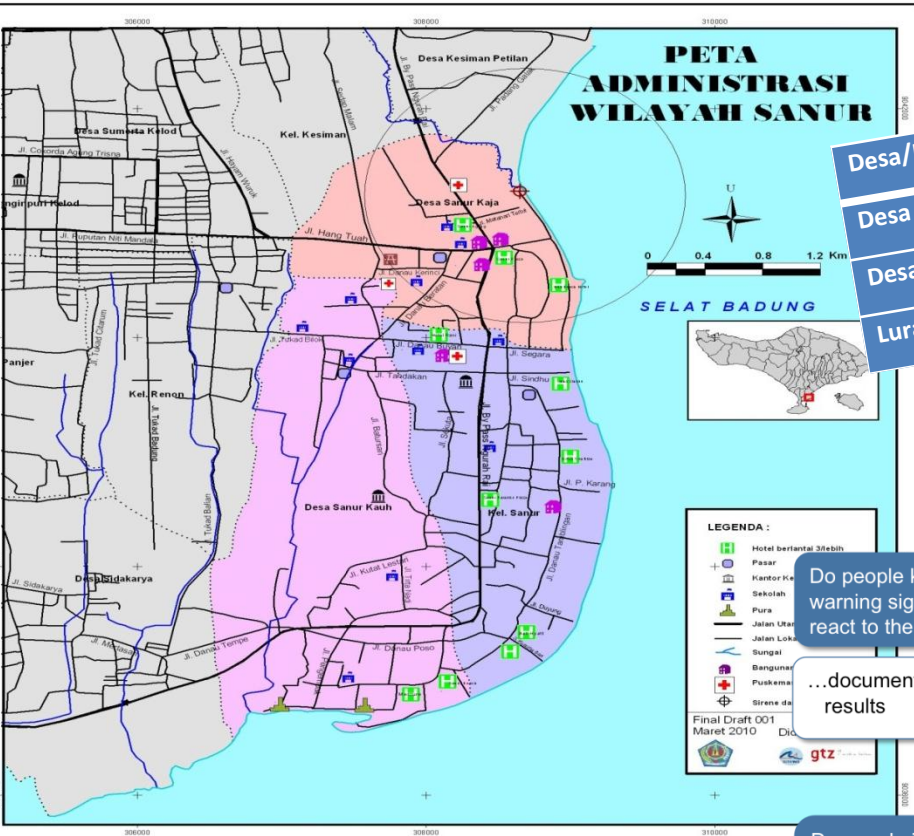
Output of Step 1: Work Plan



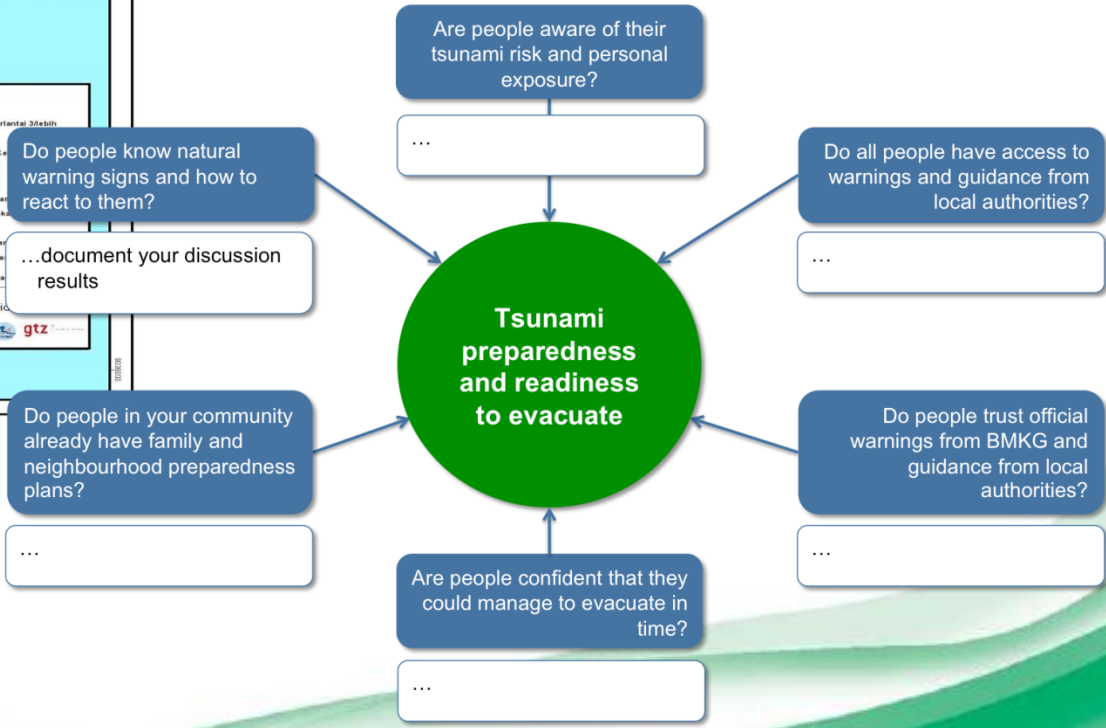
Step 2: Understand your Community's Risk



Output of Step 2: Base Map, Mind Map, Data



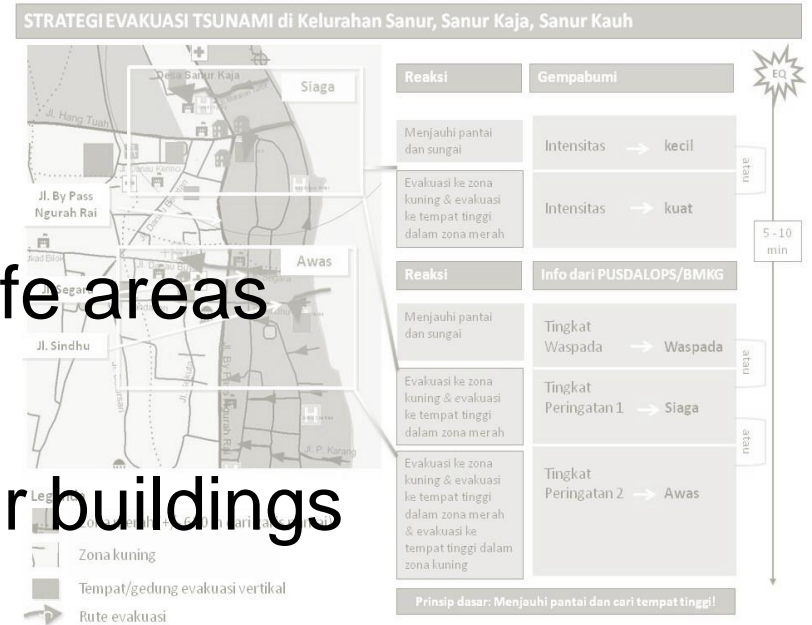
Desa/Kelurahan	Lingkungan/Dusun	Banjar Adat
Desa Sanur Kaja	8 Kepala Lingkungan	10 Banjar Adat
Desa Sanur Kauh	10 Kepala Dusun	11 Banjar Adat
Lurah Sanur	9 Kepala Lingkungan	8 Banjar Adat



Step 3: Design your Evacuation Strategy and Map

Defining the strategy

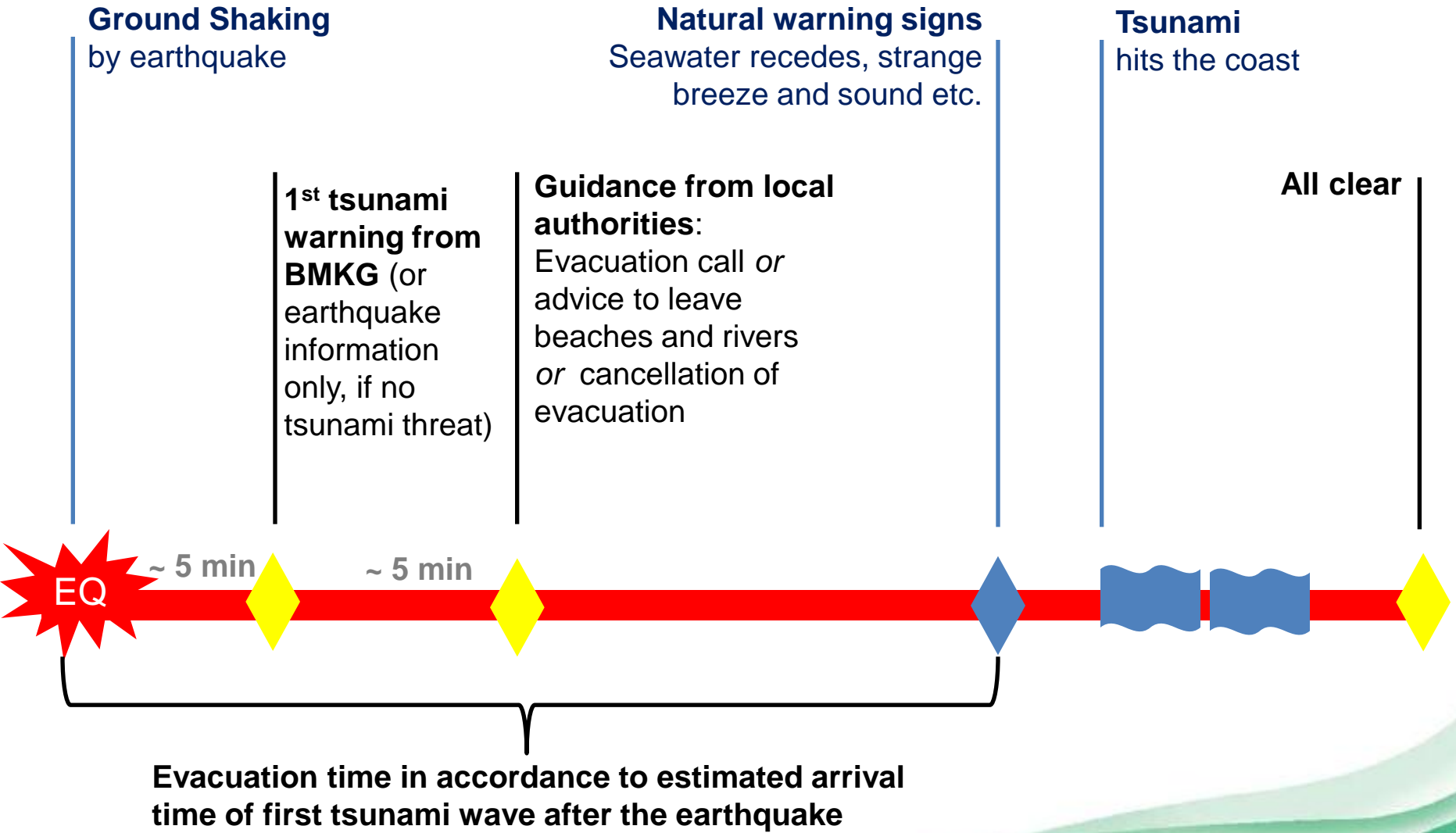
- Evacuation time
- Evacuation zone(s) and safe areas
- Modes of evacuation
- Evacuation routes & shelter buildings
- When to (self-) evacuate



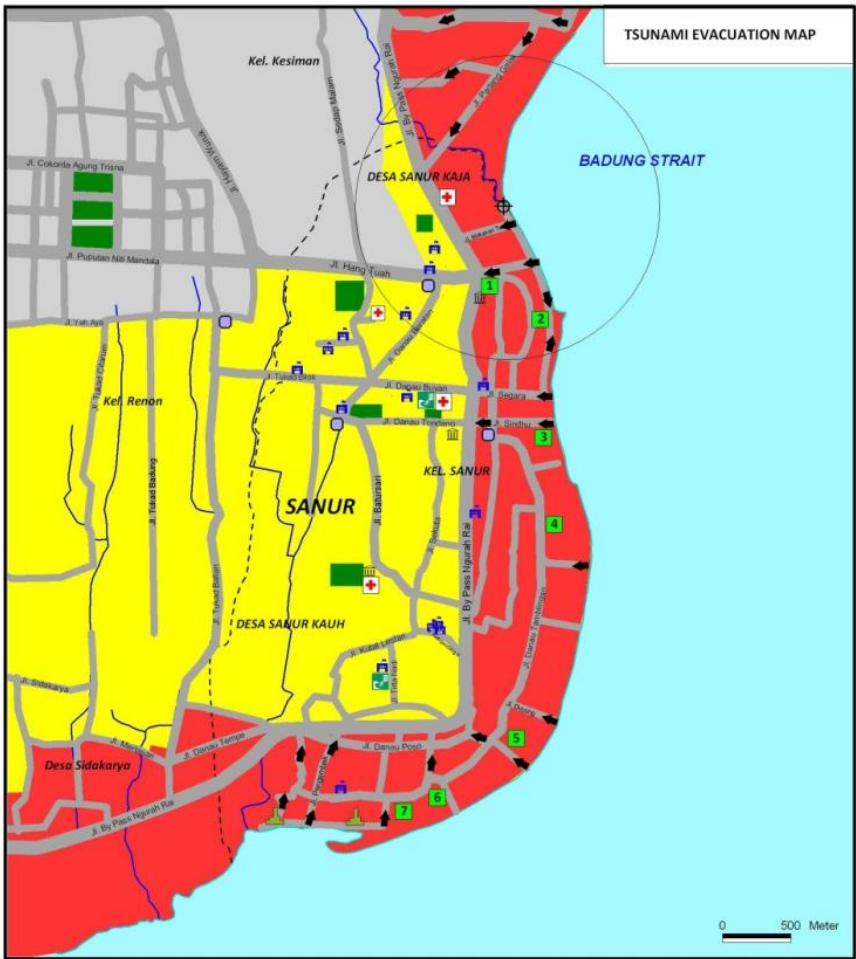
Supporting measures

- Traffic control
- Supporting vulnerable facilities during evacuations
- Evacuation signage

Evacuation time



Evacuation zone(s) and safe areas



High Risk Zone	Public Vertical Evacuation Shelter	Temple	Inna Beach Hotel
Low Risk Zone	Sea	Hospital	Inna Sindhu
Safe Area	River	School	Griya Santrian
Assembly Points	Street	Traditional Market	Bali Hyatt
Evacuation Route	Village/Kelurahan Border	Hotel with > 2 floors	Sanur Beach
Siren and Range of Sirens	Village/Kelurahan Office	Sanur Plaza	Mercure

Modes of evacuation



Evacuation routes



When to (self-) evacuate



Output of Step 3: Evacuation plan and map



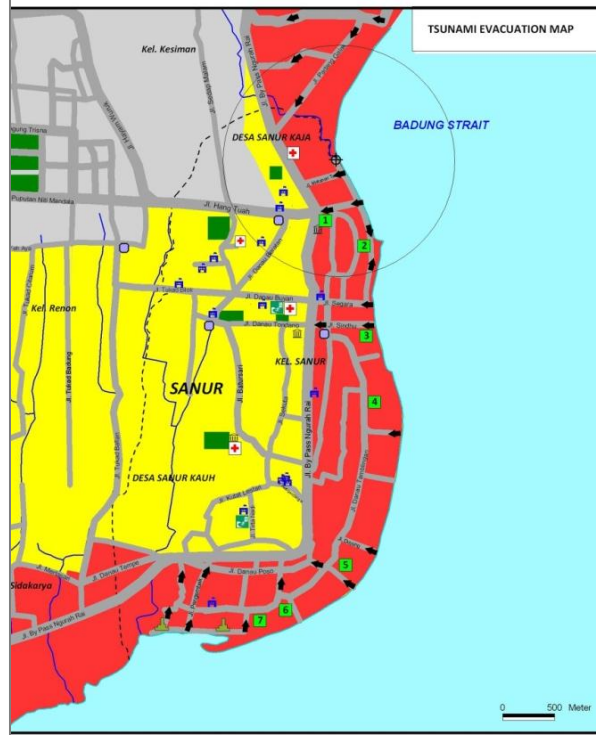
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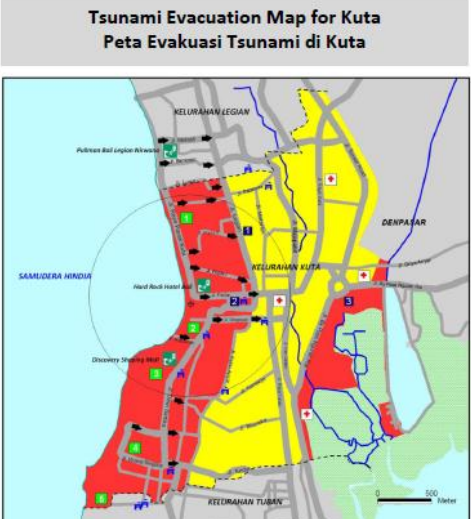
High Risk Zone	Public Vertical Evacuation Shelter	Temple	1 Inna Beach Hotel
Low Risk Zone	Sea	Hospital	2 Inna Sindhu
Safe Area	River	School	3 Griya Santrian
Assembly Points	Street	Traditional Market	4 Bali Hyatt
Evacuation Route	Village/Kelurahan Border	Hotel with > 2 floors	5 Sanur Beach
Siren and Range of Sirens	Village/Kelurahan Office	Sanur Plaza	6 Mercure
			7

Step 4: Assess, endorse and disseminate your evacuation plan



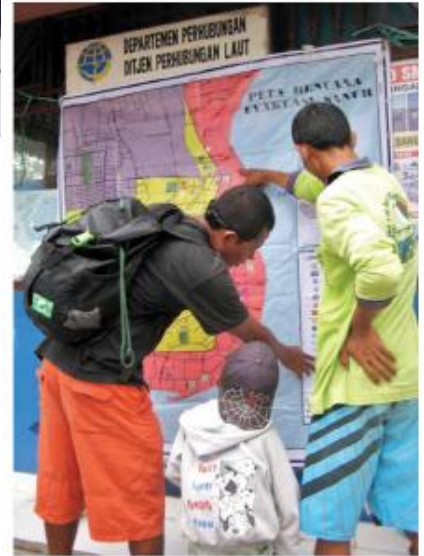
Tsunami Evacuation Procedure

- Get prepared - long before anything happens**
 - Study the evacuation map and get familiar with the evacuation procedures
 - Discuss procedures within your family and neighborhood
 - Participate in drills and information events
 - As a visitor to Bali: please check with your hotel for procedures
- If you feel an earthquake - protect yourself**
 - Don't panic!
 - Drop, cover and hold!
- After an earthquake, be aware that a tsunami may follow**
 - Move away from the beach immediately as a measure of precaution!
 - After strong and longer lasting ground shaking, don't wait for an official warning. Leave the **RED ZONE** immediately!
 - Listen to announcements from local authorities and the radio for further information. Pay attention to the siren!
- The sound of the siren is the official call for evacuation**



Prosedur Evakuasi Tsunami

- Bersiap-siap sejak jauh hari sebelum sesuatu terjadi**
 - Pelajari peta evakuasi dan kenal dengan baik prosedur evakuasi
 - Bahas prosedur bersama-sama dengan keluarga dan tetangga
 - Berperan serta dalam geladi dan penyuluhan
 - Untuk para pelancong di Bali, agar mencari tahu prosedur hotel anda
- Jika merasakan gempa bumi - lindungi diri anda**
 - Jangan panik
 - Merunduk, berlindung dan berpegangan
- Setelah gempa bumi, sadari bahwa tsunami kemungkinan akan menyusul terjadi**
 - Segera tinggalkan daerah pantai sebagai langkah kewaspadaan
 - Setelah merasakan getaran yang kuat dan lama, jangan menunggu lagi peringatan resmi. Segera tinggalkan **ZONA MERAH**
 - Dengarkan pengumuman dari aparat daerah dan stasiun radio untuk informasi selanjutnya. Perhatikan suara sirine!
- Suara Sirine adalah panggilan resmi untuk segera evakuasi**
 - Jika suara sirine terdengar, bergeser evakuasi dari **ZONA MERAH** atau mencari tempat berlindung sementara di gedung yang lebih tinggi!
 - Jika anda berada di **ZONA KUNING**, bergeser menuju tempat berlindung, naiklah ke lantai atas
 - Para pelancong yang berada di hotel, ikuti instruksi dari staf hotel



Are you ready?

Tsunami Evacuation Procedures for SANUR / BALI

...ounds, evacuate the **RED** ly or look for shelter in
YELLOW ZONE, go for
 loors
 otel; follow the instructions
 ...mi wave, more waves are
 y to come!
 ...ial "All Clear" message
 eaving shelter

Zona Merah Berhenti Tenggul Alpa Risk Zone	Hutan Bakau Mangrove	All/Perumahan Apartor	Grand Istana Hotel
Zona Kuning Bahaya Rendah Low Risk Zone	Leat Gate	Sekolah School	Kuta Paradise Hotel
Waktu Evakuasi Evacuation Route	Sungai River	Museum dan Bait Bali (Bombing Memorial)	Kertika Plaza Hotel
Gedung Evakuasi Vertikal Lantai Public Vertical Evacuation Shelter	Jalan Street Network	Mitsubishi Super	Holiday Inn Kuta
Siren dan Jangkauan Siren Siren and Range of Siren	Batas Kawasan Aturan Pantai	Red Mall Galeria	The Petra Bali Resort and Villas

For further information please contact the office of Kalurahan Kuta
 Jln Raya Kuta
 Telp. 0361-751814

Didukung/ditSupported by

Untuk Informasi selanjutnya hubungi Kantor Kalurahan Kuta
 Jln Raya Kuta
 Telp. 0361-751814

Setelah gelombang pertama datang, gelombang yang lain mungkin akan menyusul
 Tunggu pesan resmi "Tsunami telah berakhir" sebelum meninggalkan tempat perlindungan

Output of Step 4: Approved evacuation plan & outreach plan



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	Kuta	Rengas Kerja		
Target Group?	Jumlah? Undangan	Dimana?	Peranggung Jawab?	
26 '10 6.30	Anggota PKK Br. Segara	±250 Orang	Balai Banjar Segara	P. Parna & Bu. Ratna
8 '10 8.00 Wita	PKK Br. Tegai	60 orang	Balai Banjar Tegai	Bu. Kadek & P. Md. Darwi
26 Jan '10 08.00 Wita	SD 5 Kuta	60 Siswa Kelac??	Sekolah Setempat	P. Md. Ardana & P. Wirka
25 Jan '10 08.00 Wita	SMA Kuta Pura	60 Siswa (Pengurus Oris Kebra Kelas)	Sekolah Setempat	P. Md. Darwi & Bu. Kadek
25 Jan '10 08.00 Wita	SD 2 Kuta	60 Siswa	Sekolah Setempat	P. Md. Ardana & P. Wirka
Jan '10 08.00 Wita	Pedagang Pantai	100 orang	Pi Depan Satgas Pantai	Ismoyo & P. Md. Ardana
?	Klp. Nelayan Samudera Jaya	30 orang	Bangsai Nelayan	P. Ismoyo & P. Parna
?	Kaling, STT Kelian, Pengurus Desa	40 orang	Wantilan Lurah	P. Parna & P. Md. Ardana
5 Feb '10 K. 17.00	PKK Kelurahan	40 orang	Kantor Lurah Kuta	Bu. Kadek & Bu. Ratna
?	SD 4 Kuta	60 Siswa	Sekolah Setempat	P. Parna & P. Wirka
Jan '10 9.30 Wita	STT Br. Segara	100 orang	Balai Banjar Segara	Bu. Ratna & Pak. Darwi
Jan '10 D. 00 Wita	SIBAD & Linmas Kuta	120 orang	Wantilan Lurah Kuta	P. Darwi & Bu. Kadek

Step 5: Test, evaluate & improve the evacuation plan



Step 5: Plan to test, evaluate and improve your evacuation plan



Example Evacuation Map: Padang

SEKTOR I

SEKTOR II

SEKTOR III

SEKTOR IV

SEKTOR V

SEKTOR VI

BENCANA GEMPA BUMI DENGAN 3S

3S UNTUK GEMPA BUMI

- 1. SIKAP**
- 2. SARUNG**
- 3. SIKAP**

SIAPKAN SEKARANG JUGA

1. Rencana Darurat di Kantor, Sekolah dan Rumah Tangga
2. Diskusikan dan Pertalikan Bersama Keluarga

PETA EVAKUASI TSUNAMI KOTA PADANG

BILA ADA POTENSI TSUNAMI ATAU PEMERINTAH MENYATAKAN EVAKUASI TSUNAMI SEGERA LAKUKAN

1. Lihat Peta! Ketahui di Mana Posisi Anda Berada
2. Segera Menepi Garis Merah, Ikuti Tanda Panah Hijau
3. Hindari Sungai
4. Jangan Kembali ke Daerah Bahaya Sebelum Peringatan/BMG Menyatakan Potensi Tsunami telah Berakhir

SIAPKAN DIRI HADAPI BENCANA TSUNAMI DENGAN 3S

3S UNTUK TSUNAMI

- 1. SIKAP**
- 2. SARUNG**
- 3. SIKAP**

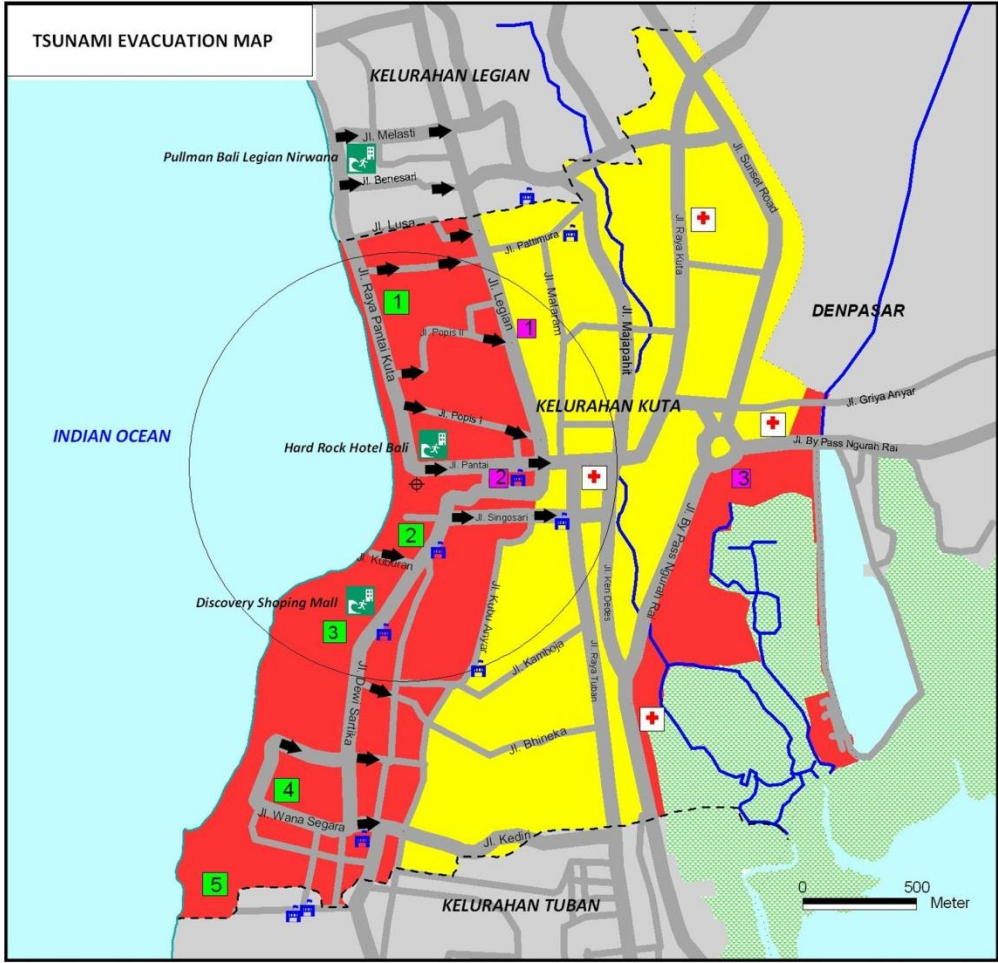
Example Evacuation Map: T.Benoa



Example Evacuation Map: Bantul



Example Evacuation Map: Kuta



High Risk Zone	Mangrove	Hospital	Grand Istana Rama
Low Risk Zone	Sea	School	Kuta Paradiso Hotel
Evacuation Route	River	Bali Bombing Memorial	Kartika Plaza Hotel
Public Vertical Evacuation Shelter	Street Network	Matahari Square	Holiday Inn Resort
Siren and Range of Sirens	Kelurahan Border	Bali Mall Galeria	The Patra Bali Resort and Villas

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