



Implementation of Tsunami Ready in Indonesia

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Chair of SCS-WG

South China Sea Region Tsunami Ready Related Training Course, 22-23 December 2025



22 Tsunami Ready Communities in Indonesia (UNESCO - IOC)



TR INDONESIA:
10 Provinces, 14 Districts/Cities, 22 Villages





Tsunami Ready Community



2025



Submitting an application for recognition to UNESCO-IOC

1. Lempuing Village, Bengkulu
2. Penurunan Village, Bengkulu
3. Teluk Sepang Village, Bengkulu
4. Cikakak Village, Pelabuhan Ratu
5. Citepus Village, Pelabuhan Ratu
6. Batukaras Village, Pangandaran
7. Ampiang Parak Village, Sumatra Barat
8. Tua Pejat Village, Sumatra Barat



Submitting an application for recognition to NTRB

1. Serangan Village, Bali
2. Tiku Village, Sumatra Barat
3. Pemenang Barat Village, Lombok



Initiating and proposal to NTRB

1. Sidomulyo Village, Pacitan
2. Sanur Kauh Village, Denpasar

Tsunami Ready for Global Tsunami Symposium 2024



36 communities: 12 from Indonesia and 24 from India were recognized as Tsunami ready Community

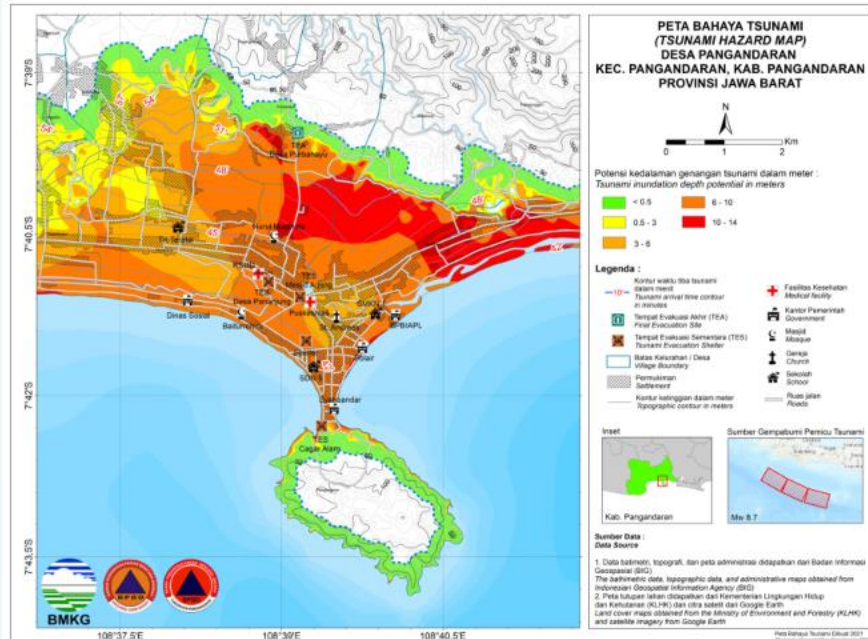
Banda Aceh Statement:

Global Tsunami Warning and Mitigation System: Building Sustainability for the next decade through Transformation and Innovation.

UNESCO and its partners call on States and civil society to drastically step up their investments and efforts to achieve 100% Tsunami Ready Communities worldwide by 2030.

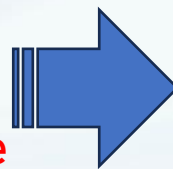
IDENTIFYING HAZARD TO UNDERSTAND THE RISK

HAZARD, EXPOSURED, AND RESOURCE IDENTIFICATION



1. Developing Hazard Map of the Worst Scenario

- A map that illustrates **tsunami potential impact** in certain area, that give potential hazard information such as; (1) **Tsunami Arrival Time**; (2) **Inundation Depth**;
- Used as reference for **evacuation route planning** and temporary as well as



2. Estimating the exposure

- How many permanent residents live in this area?
- How many temporary residents? (Tourist/ Workers)
- Identify the disabilities and the most vulnerable

3. Identifying Resources

- Available local or national emergency budget,
- Public buildings that can be used as temporary shelters or for capacity- building workshops and meetings,
- local emergency operations or response plans for other hazards,
- social and volunteer organizations, local networks, parent associations of local schools, volunteer university students, etc

The assessment indicators should be followed by Tsunami Evacuation Plan and Tsunami Emergency Operation Plan.

DEVELOPING TSUNAMI HAZARD MAP

- The SLG-TR had resulted 212 of Tsunami Hazard Maps that is collected in the Tsunami Hazard book
- The Tsunami Hazard Map is displayed in the coastal area of the Tsunami Ready Village



3 series of Tsunami Hazard Map Book



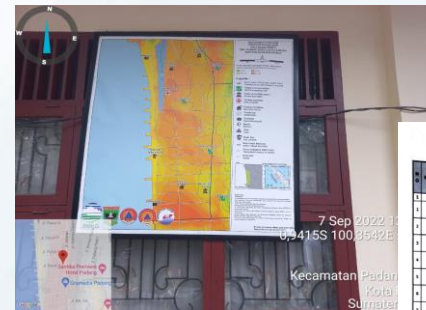
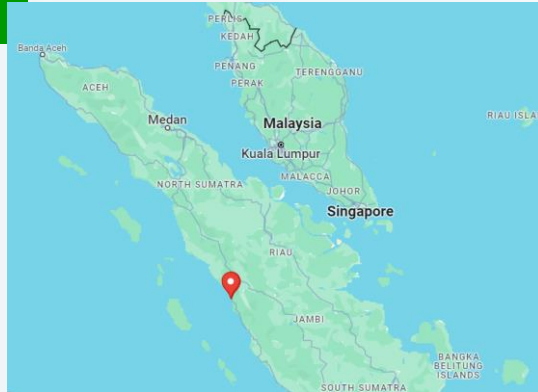
Hand Over Tsunami Hazard Map to the Local Government

INVOLVING COMMUNITY TO VERIFY TSUNAMI AND DEVELOP TSUNAMI EVACUATION MAP, PLAN AND PROCEDURE



- Communities are involved to verify the tsunami hazard map.
- Communities should also be part of the development of the tsunami evacuation map, plan and procedure

IMPLEMENTING HAZARD, EXPOSURE, AND RESOURCES IDENTIFICATION TO ACKNOWLEDGE THE RISK AND PLANNING THE PROCEDURE IN THE PURUS AND LOLONG BELANTI COMMUNITY



Mapping the Hazard



Identify Infrastructure Resources for community Evacuation Place

REPERSTASIAN ANALISA PERENCANAAN HAZARD LULUS BELANTI DAN KEMERAN MANDIRI KECAMATAN PADANG BARAT, SUMATERA BARAT, INDONESIA													
KELURAHAN ULAK KARANG SELATAN													
Tahun 2022													
KETERANGAN: 1. Luas Wilayah 2. Jumlah Penduduk 3. Jumlah Rumah 4. Jumlah Fasilitas 5. Jumlah Fasilitas 6. Jumlah Fasilitas 7. Jumlah Fasilitas 8. Jumlah Fasilitas 9. Jumlah Fasilitas 10. Jumlah Fasilitas 11. Jumlah Fasilitas 12. Jumlah Fasilitas 13. Jumlah Fasilitas 14. Jumlah Fasilitas													
Kecamatan Padang Barat, Sumatera Barat, Indonesia													
Jl. Purus IV No.105, Purus, Kec. Padang Bar., Kota Padang, Sumatera Barat 25115, Indonesia													
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06/07/22 10:13 AM													
GPS Map Camera													
Google Maps													



Identify the estimation of people at risk, and developing the Tsunami Evacuation Procedure

- Community planning and education at Purus has been encouraged and involve all the stake holders. Information and training also has been done and distributed to the community.
- Awareness activities continuously for all elements of the Lolong Belanti and Purus Village community.
- The community of Purus and Lolong Belanti utilized the knowledge of the potential tsunami hazard, estimation people at risk, and the resources surrounding to develop **Tsunami Evacuation Procedure**

ENGAGING OTHERS PARTIES TO STRENGTHEN PREPAREDNESS CAPACITY

- The Yogyakarta International Airport (YIA) in South Java provides a shelter evacuation for the Tsunami Ready Community of Glagah, since the airport is the only infrastructure which has a high building in their neighborhood.
- The community of Tanjung Benoa Village-Bali has a support from the hotel to utilize the hotel's roof top for evacuation place.



Evacuation shelter for tsunami in the YIA that also used by the community surrounding as the evacuation place



Roof Top Hotel in Tanjung Benoa used by community as the evacuation place



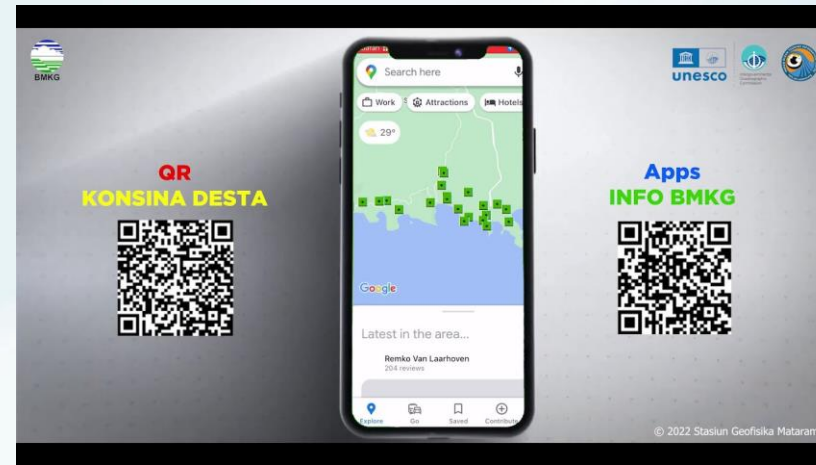
DEVELOPING PREPAREDNESS AND RESPONSE CAPACITY FOR RISK REDUCTION

MOBILE APPLICATION FOR ACCESSING RAPID INFORMATION EVACUATION MAP AND

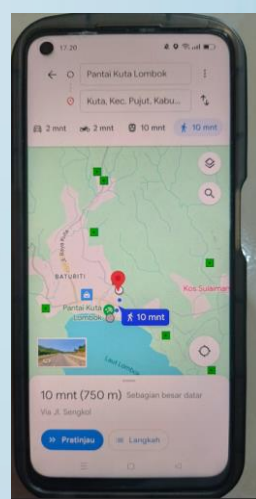
- The Community developed the evacuation map based on the tsunami hazard map
- To raise public awareness, Kuta Mandalika coastal community works closely with BMKG to develop the mobile application to help community accessing the earthquake and tsunami rapid information.
- The application is able to provide evacuation route and place for the community and tourist



Tsunami Evacuation Map of Kuta Mandalika



Kosina Desta, Mobile Apps for tsunami evacuation



INNOVATION ON THE OUTREACH ACTIVITIES



Tsunami game board for youth to learn the tsunami ready in Panggarangan



Story Telling Workshop in Panggarangan

- To reach the youth's awareness, a suitable method of outreach activities should be considered:
 - Using game board to understand the concept of tsunami ready in fun learning approached
 - Story telling to sustain and enhance the awareness
 - Using fancy platform (t-shirt, calender) as media of education material to promote the awareness and preparedness
- “Door to Door” outreach activities in Purus and Lolong Belanti educate all families in the neighborhoods
- Socializing the tsunami ready during religious activities



Awareness Campaign on t-shirt



Annual Tsunami Drill Every National Preparedness Day (April 26)



- Building a culture of tsunami resilience through the continuous drill.
- National Disaster Awareness Day in Indonesia is remembrance every April 26. On that date, community are encouraged to conduct the drill including tsunami drill.
- Tsunami risk reduction itself is a dynamic, continuous, and integrated process to improve the quality of steps related to tsunami observation and analysis as well as prevention, mitigation, early warning, emergency response, rehabilitation, and disaster reconstruction
- Develop fun method on tsunami drill: Tsunami Fun Drill, and Run For Live,
- The Tsunami Ready Community have to participate the IOWave/PacWave Exercise

MOBILE APPLICATION FOR EARLY WARNING, EARLY RESPONSE

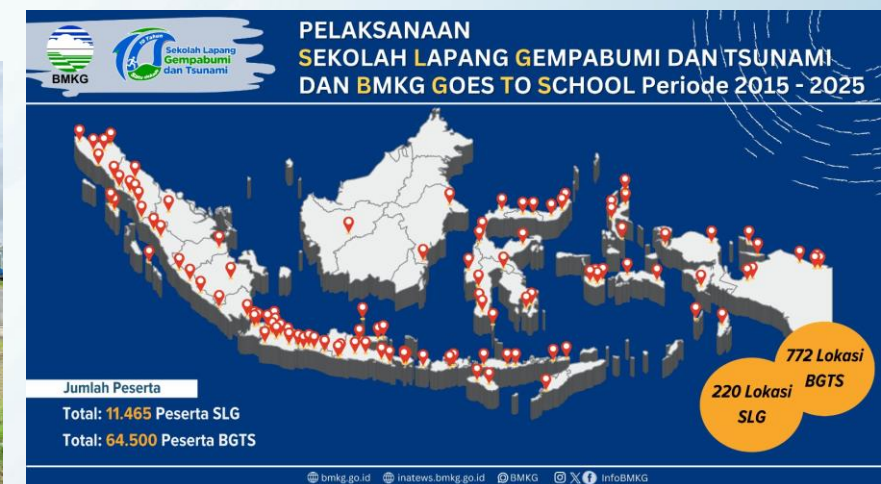
- Sirens for Rapid Information on Tsunami Alert is ANDROID based mobile phone application, aims to help the local disaster management office to disseminate the tsunami information and evacuation announcement as the early warning service to the coastal community at tsunami risk.
- SIRITA application will ringing when like a Coastal Tsunami Siren as soon as BMKG issuing the tsunami early warning potential.



MAINSTREAMING RESILIENCE

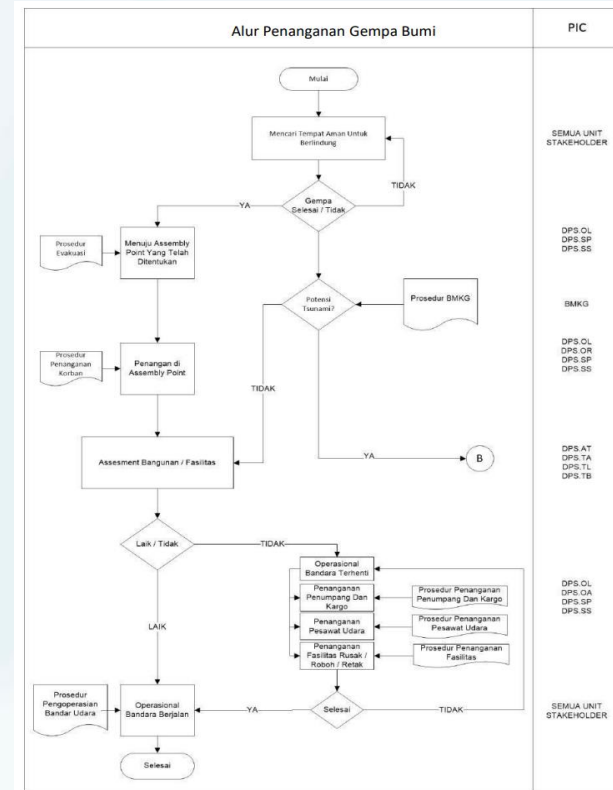
THE COMMUNITY EDUCATION ACTIVITIES OF SEKOLAH LAPANG GEMPA (SLG) ON CONTRIBUTING TO THE DEVELOPMENT OF TSUNAMI READY COMMUNITY

- The SLG (Earthquake Field School) is a capacity building activity to enhance local government and community awareness and response
- LDMO, Community, Army, stakeholders related to the disaster management and reponse, School, community, private sector are involved.
- The scope of the SLG:
 1. Field Survey and advocating the implementation of the 12 indicators
 2. TOT Workshop of the SLG
 3. School Exercise
- 145 tsunami prone areas had been trained by conducting the SLG.
- 9 Communities are advocated to get IOC-UNESCO tsunami ready recognition

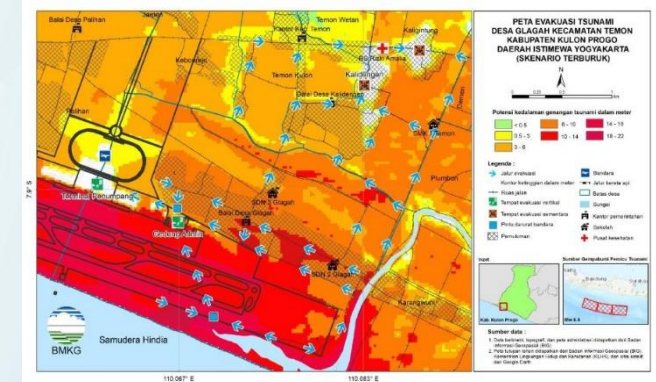


Tsunami Ready Community Activity: Earthquake and Tsunami Evacuation Drill which involving the Surrounding Community

- Tsunami education and training in the airport must cover important aspects around tsunami, such as an introduction to the potential tsunami in the area, the history of tsunami that had occurred in the past, and the form of anticipation that must be given.
- In Bali and Yogyakarta International Airport the public education of earthquake and tsunami has been conducted, including distribute the tsunami ready book.

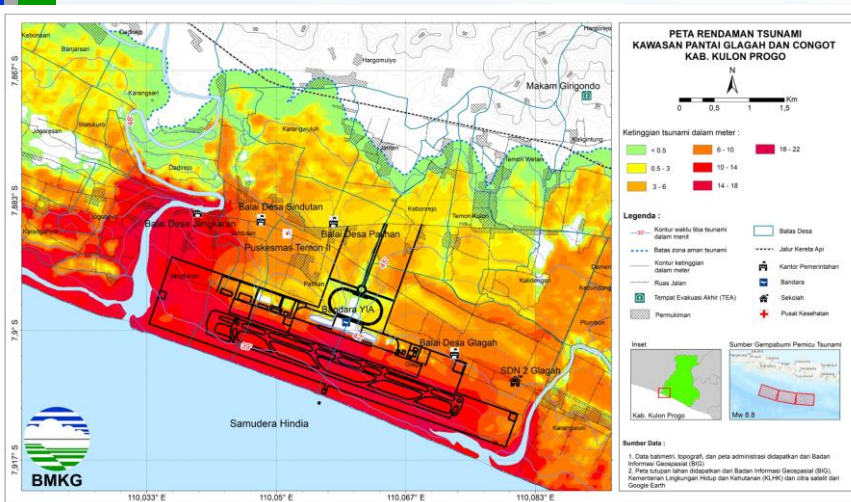


Airport Tsunami Management Plan

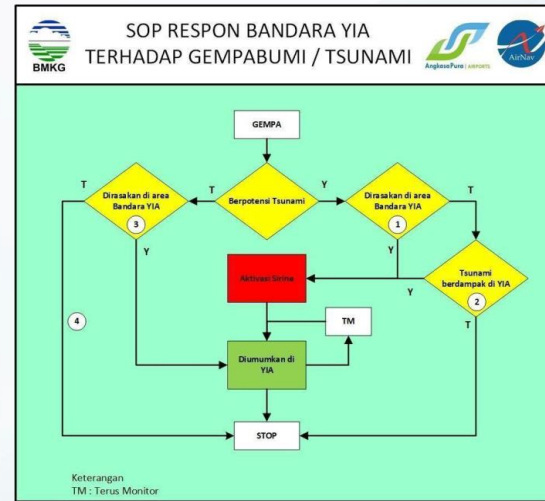


Airport Tsunami Evacuation Map

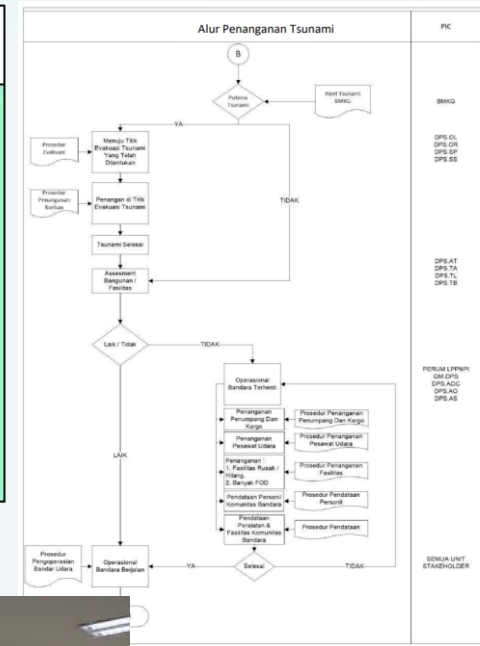
EXTENDING TSUNAMI READY PRINCIPLE FOR CRITICAL INFRASTRUCTURE AND PRIVATE SECTOR



Developing Tsunami hazard Map



Revise SOP



1. Tsunami Ready had been implemented in Yogyakarta International Airport
2. Ngurah Rai International airport
3. Benoa Port
4. Krakatau Industrial Zone



Tsunami Drill



Deploy the WRS



Workshop for Tsunami Education

TSUNAMI READY GUIDELINE FOR CRITICAL INFRASTRUCTURE

- Critical infrastructure also forms an integral part of coastal communities.
- With operations running continuously 24 hours a day, seven days a week, these facilities have a distinct advantage in maintaining tsunami preparedness.
- There are currently no standardized guidelines specifically developed for recognizing Tsunami Ready for critical infrastructure community.
- Many of critical infrastructure are constructed along coastal areas directly facing the sea
- TRC aims to:
 - Ensuring Human Safety
 - Anticipating Cascading Hazards
 - Accelerating Recovery and Business Continuity
 - Maximizing the Role of Critical Infrastructure in Strengthening Community Preparedness

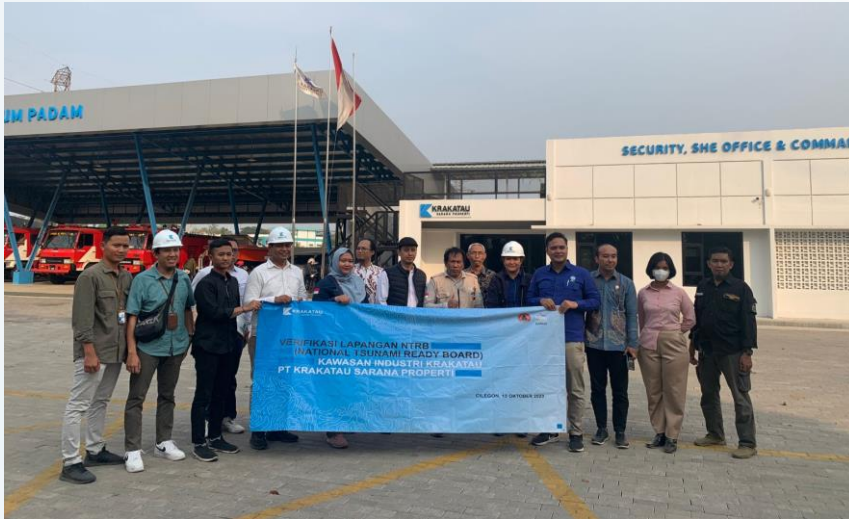


1. Introduction	
2. Framework and Background	
2.1 Framework and Agreement to be Considered	
2.1.1 Disaster Risk Management Approach	
2.1.2 Tsunami Early Warning Systems	
2.1.3 The Sendai Framework for Disaster Reduction	
2.1.4 Sustainable Development Goals	
2.1.5 The UN Decade of Ocean Science for Sustainable Development (2021-2030)	
2.2 Background of The TRC Programme Guidelines	
2.3 The Importance of Tsunami Ready Recognition for Critical Infrastructure	
3. Key Elements of The Tsunami Ready Recognition Programme	
3.1 Aim of the TRC Programme	
3.2 Conditions for the TRC Programme	

Same Foundation, The approach **adopts the 12 UNESCO-IOC Tsunami Ready indicators**, adjusts them based on **the type and function of each critical infrastructure** (e.g., airport, port, industrial zone).

- There are **currently no standardized guidelines** specifically developed for recognizing Tsunami Ready for **critical infrastructure and private sector community**.
- **Indonesia is formally proposing the concept** of TRRP Implementation for Critical Infrastructure and the Drafted Guidelines during the online meeting of WG 3 for the ICG/IOTWMS.
- The guidelines is currently under review.

Tsunami Ready Community Activity: Strengthening Surrounding Community in the Industrial Estate

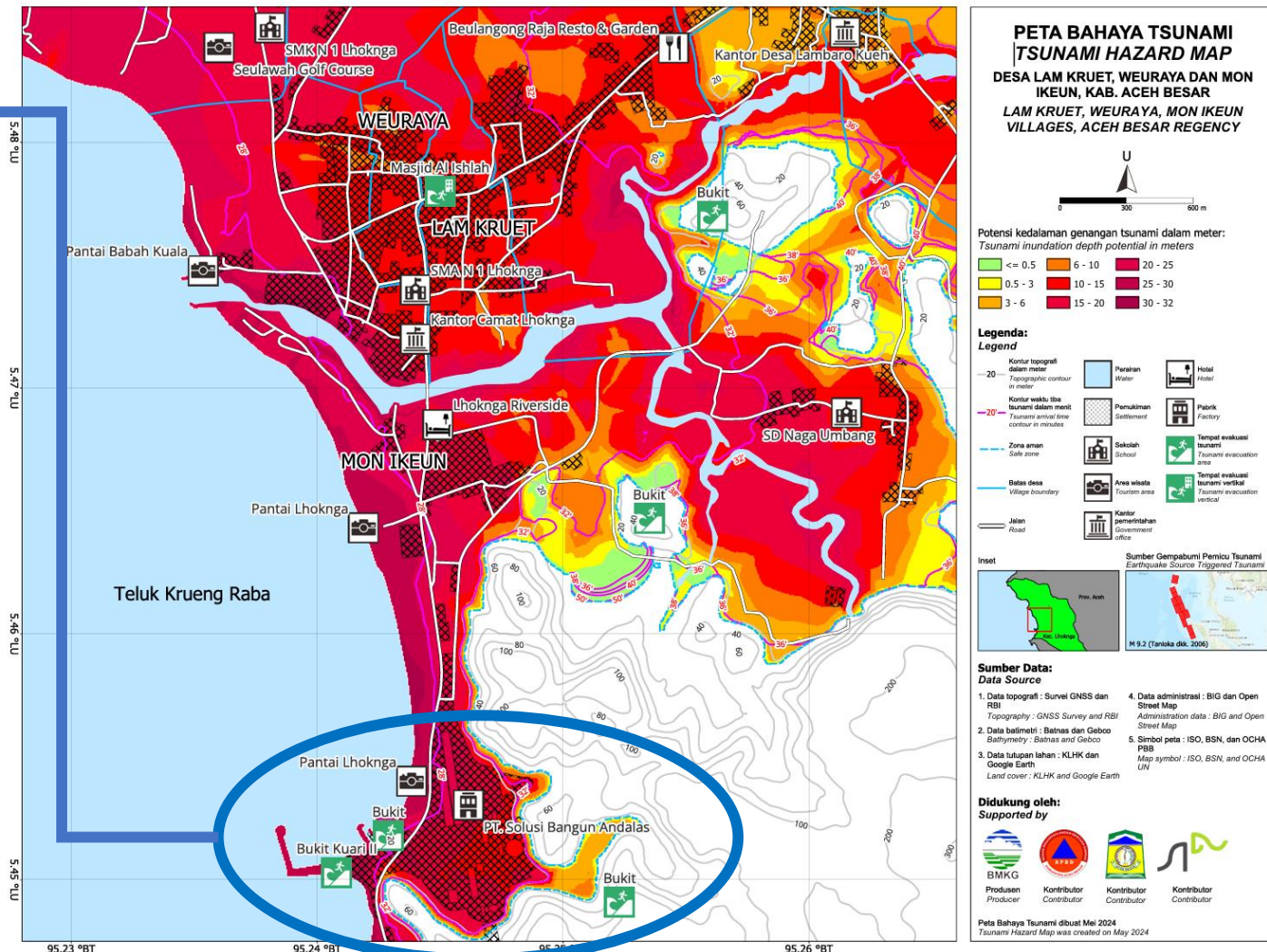


- One of the city in Indonesia that may impacted by the tsunami is the Cilegon city located in the West of Banten province. The city is the strategic area which has Cilegon Industrial estate. The PT Krakatau Sarana Properti (KSP) as the industrial community and fisherman surrounding there area now already completing the rapid information or communication mode, develop the Standard Operating Procedures and other communication chain, build the tsunami ready community, and evacuation infrastructures.
- Fisherman Community in the Cilegon Industrial Estate has facilitated the Siren, Assembly Point, and Evacuation Sign by KSP Industrial Company

PT. Solusi Bangun Andalas (SBA)



- PT Solusi Bangun Andalas (SBA) is a cement manufacturing company operating an integrated cement plant located in Lhoknga, Aceh, Indonesia. The company produces and distributes cement under the well-known Semen Andalas brand.
- The Lhoknga plant itself employs **several hundred workers** across operations, maintenance, safety, logistics, and community affairs.
- Key Activities Related to Tsunami Risk Reduction
 - a. Infrastructure Support: Utilizing company resources and facilities to assist preparedness activities hosted by local government or community groups by providing signage for Tsunami Ready Community around the facilities.
 - b. CSR Programs: Providing assistance for evacuation drills, tsunami awareness campaigns, and disaster-risk education.
 - c. Capacity Building: Collaborating with local authorities, schools, and disaster-management stakeholders to strengthen community resilience.
 - d. Safety Culture: Implementation of emergency response plans, staff training, and early warning awareness within the industrial complex.



Participation in IOWave25

Future Plan of Critical Infrastructure and Private Sector TRRP Implementation in Indonesia



PT. Solusi Bangun Andalas,
Aceh Besar



Minangkabau Int. Airport,
Padang



PT. Krakatau Sarana Property, Banten

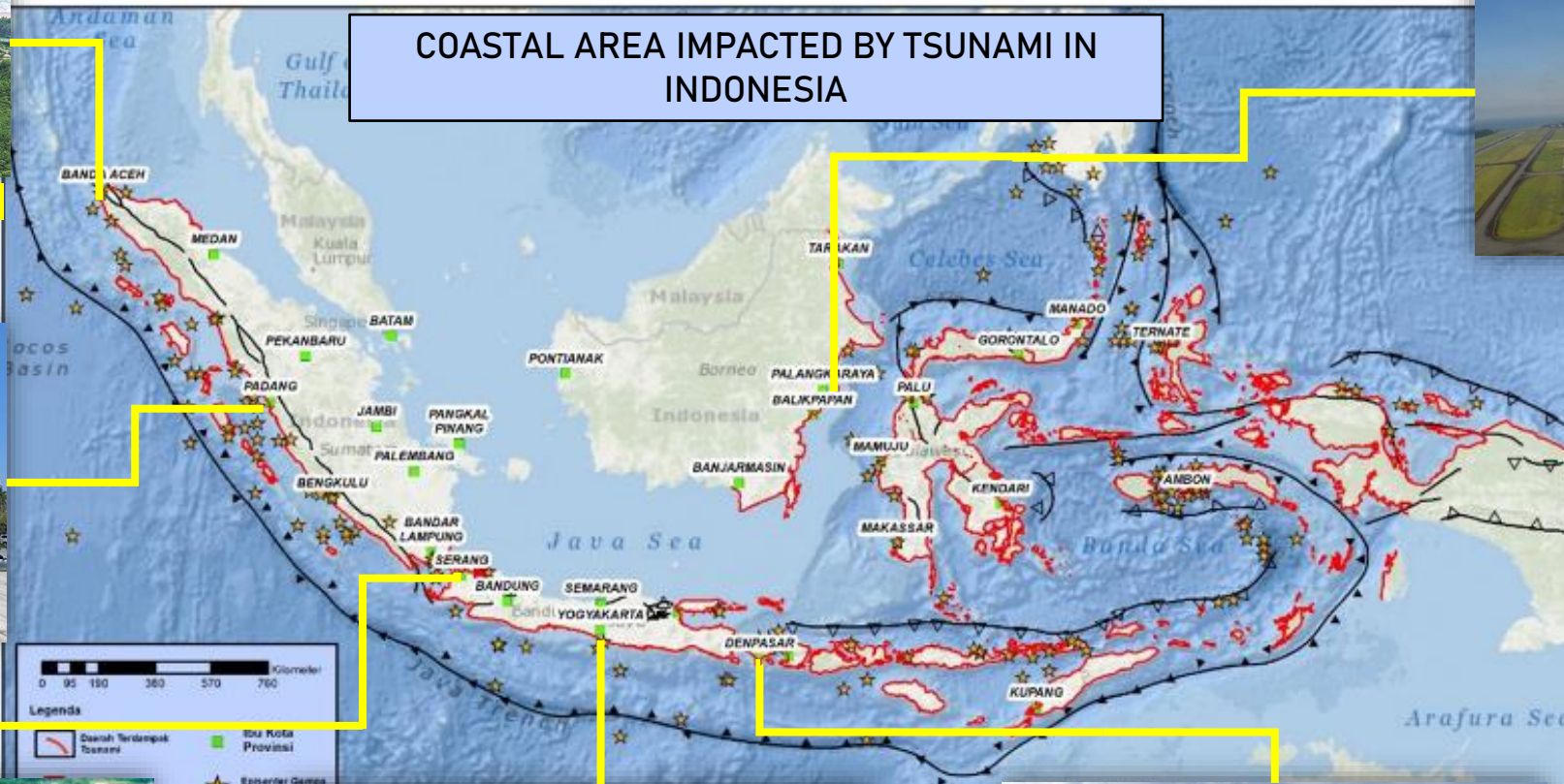


New Yogyakarta Int. Airport

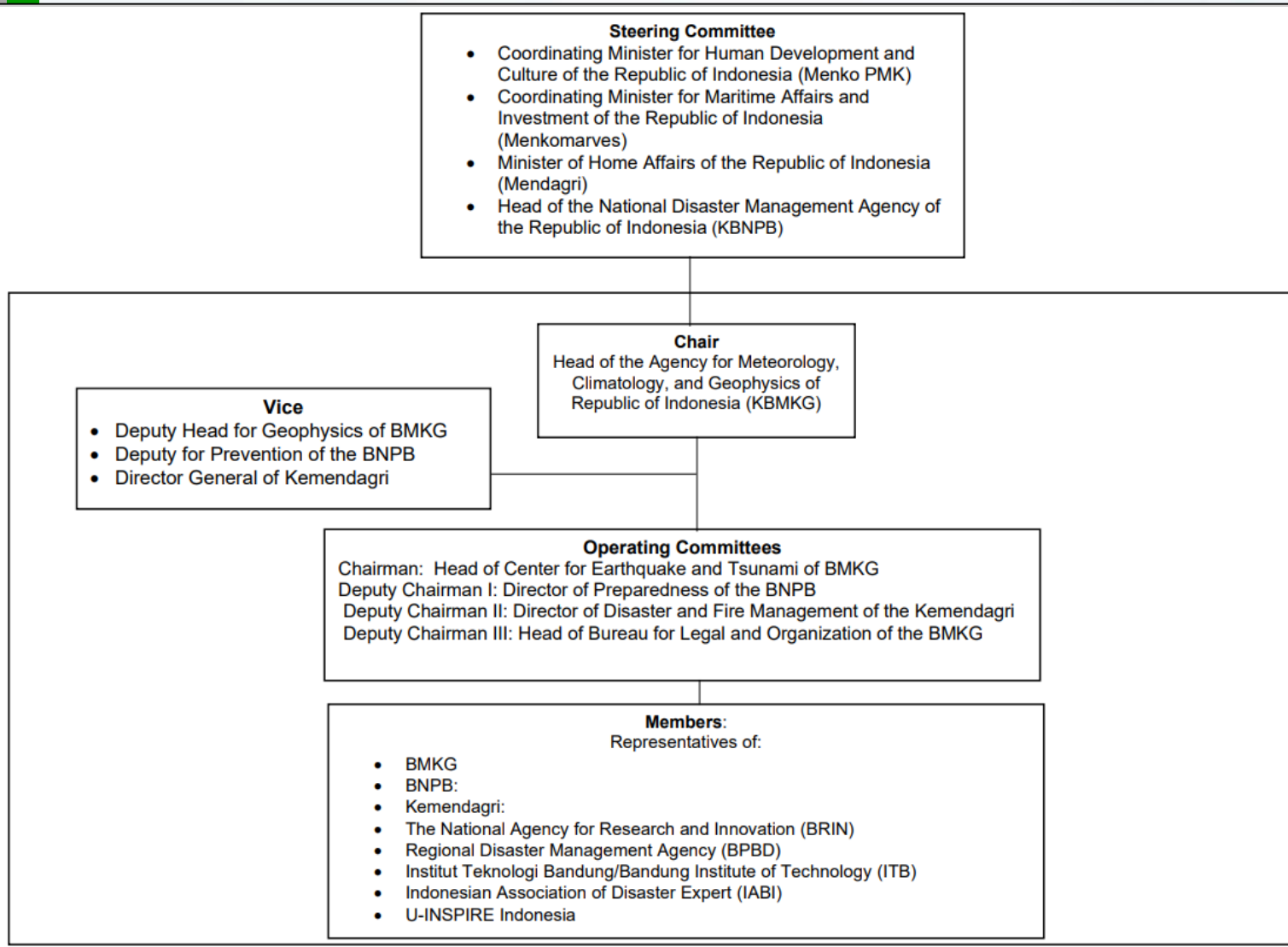


Ngurah Rai Int. Airport, Bali

SAMS Int. Airport, Balikpapan



NATIONAL TSUNAMI READY BOARD



- The NTRB was developed in November 2021
- The Board is consisted of:
 - BMKG
 - BNPB
 - Kemendagri
 - BPBD
 - University (ITB)
 - IABI
 - U-Inspire
- The NTRB shall be in service for 5 (five) years
- Meet regularly to plan activities and review progress
- Prepare a list of all entities that can support the Tsunami Ready programme
- Appoint representatives to oversee the implementation and maintenance of the Tsunami Ready indicators
- Develop a fully costed and resourced work plan
- Monitor implementation and review status of Tsunami Ready indicators
- Complete and submit Tsunami Ready recognition Application to the NTRB

LESSON LEARNT AND REMARKS

- Engaging many collaborators (NTWC, NDMO, industry, critical infrastructure, hotel, University) to solve the limitations of existing end-to-end tsunami early warning information delivered to the targeted coastal community at tsunami risk.
- Developing various innovation of the preparedness activities outreach to approach all component of the communities
- Building a culture of tsunami resilience through the continuous drill and providing routine tsunami education will increase the community resilience.
- Utilizing the existing program as platform to develop tsunami resilience
- Expanding Tsunami Ready Implementation to critical infrastructure and private sector to speed up the Tsunami Resilience
- Building a National Tsunami Ready Board to oversight, monitor and advocate the tsunami ready implementation

THANK YOU
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