



*Training/Workshop on
Tsunami Evacuation Maps, Plans, and Procedures and
the UNESCO-IOC Tsunami Ready Recognition Programme for the Indian Ocean Member States
Hyderabad - India, 15-23 April 2025*

UNESCO-IOC Tsunami Ready Indicators

TRRP 06: Preparedness Indicators 1

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- Tony Elliott, IOC-UNESCO Consultant



PREP-1: Easily understood tsunami evacuation maps are developed



<https://youtu.be/wECsv3XgJ3kVideo>

+ 5:15 minutes

Objective of Evacuation ?



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

What is your understanding of the Evacuation Zone or Evacuation Area?



The area people need to evacuate to

or

The area people need to evacuate from

PREP-1: Easily understood tsunami evacuation maps are developed

The community should have Easily understood tsunami **evacuation maps** that depict tsunami evacuation routes and assembly areas:

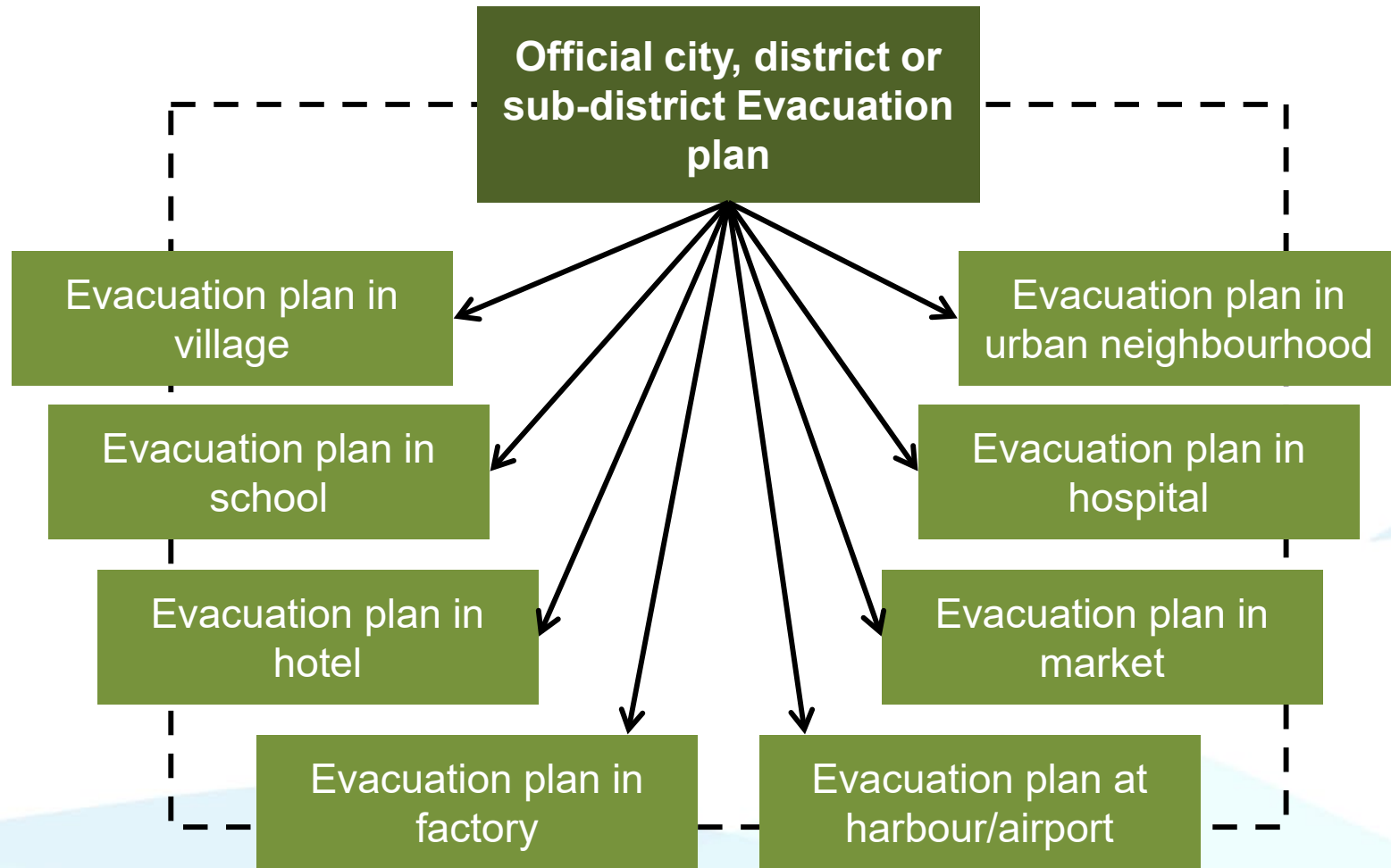
- Based on Tsunami Hazard Zone.
- Prepared with community consultation to incorporate local knowledge.
- Approved by local authorities.
- In accordance with the community's Tsunami Emergency Response Plan



Why is it Important

- **Evacuation planning is a sensitive and specialised activity because you are dealing with people's safety and security.** For this reason, it needs to be endorsed by the relevant authority that has the mandate to authorise evacuation.
- **The community needs to have ownership of the evacuation map,** so its development should be a collaborative effort including the relevant stakeholders.
- **The evacuation map should show evacuation routes and assembly areas using the tsunami hazard map** as a basis for its preparation. The community should be involved in its preparation to incorporate local knowledge.
- **The development of an evacuation map is one output from a structured evacuation planning process** that goes beyond the production of the map.

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



The Evacuation Planning Process

1. Prepare for the Planning

Mandates, Planning Team and Resource Person, Data and Information, Resource, Planning Process and Timeframe

2. Understand Your Community's Tsunami Risk

Hazard (inundation areas, ETA), Vulnerabilities, Exposure of People and Facilities, Capabilities (awareness, Knowledge, Early Warning)

5. Test, evaluate and improve your evacuation plan

Tsunami simulation exercise, means of observation and evaluation, revision of evacuation plan

4. Assess, endorse and disseminate your evacuation plan

Public assessment of the plan, endorsement by local authorities, dissemination to institution and public, outreach strategy

3. Design your evacuation strategy and map

Evacuation time, evacuation zone(s), safe areas, assembly areas, mode of evacuation, evacuation shelter buildings, evacuation routes, signages, when to (self-) evacuate, support (traffic control, vulnerable facilities).



Developed at
Department of Civil Engineering
NED University of Engineering & Technology
Pakistan

Supported by
Oxfam GB
Pakistan Office

Why this map?

The map is intended to save lives when the next hurricane comes ashore in Pattison. It can be used to guide people to safety and to educate people toward a hurricane-resistant community. It is intended to use by disaster-management agencies, local governments, and NGOs. It is not intended for use in land-use planning.

What does the map show?

The map identifies work zones and possibilities for that can be used by the tourist in accordance to the case of a tourist's visit. In the proposed scenario, the tourist is presented by a suitable shift of the camera that during a hypothetical/realistic walk-jog of the landscape.

Why examine such a large dataset?

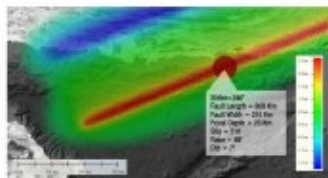
[illegible]

Fig. 1. Basic information of the seven test scenarios with the corresponding orthopaedic position. Normal studies represent wild and male test scenarios, respectively.

What happened in 1947?

Hundreds of trees were lost to the 1940s fire in Ontario (Canada) and the 1920s fire in the U.S. A recent survey, assessing the current distributions of 18 epiphytic ferns from Ontario and 12 in Pennsylvania (Raharison et al., 2005).

What are the steps for generating results?

The map indicates evaluation rules which are based on theory/basis as presented by computer simulations that used methods.

- [illegible]

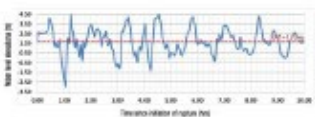
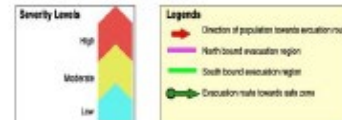
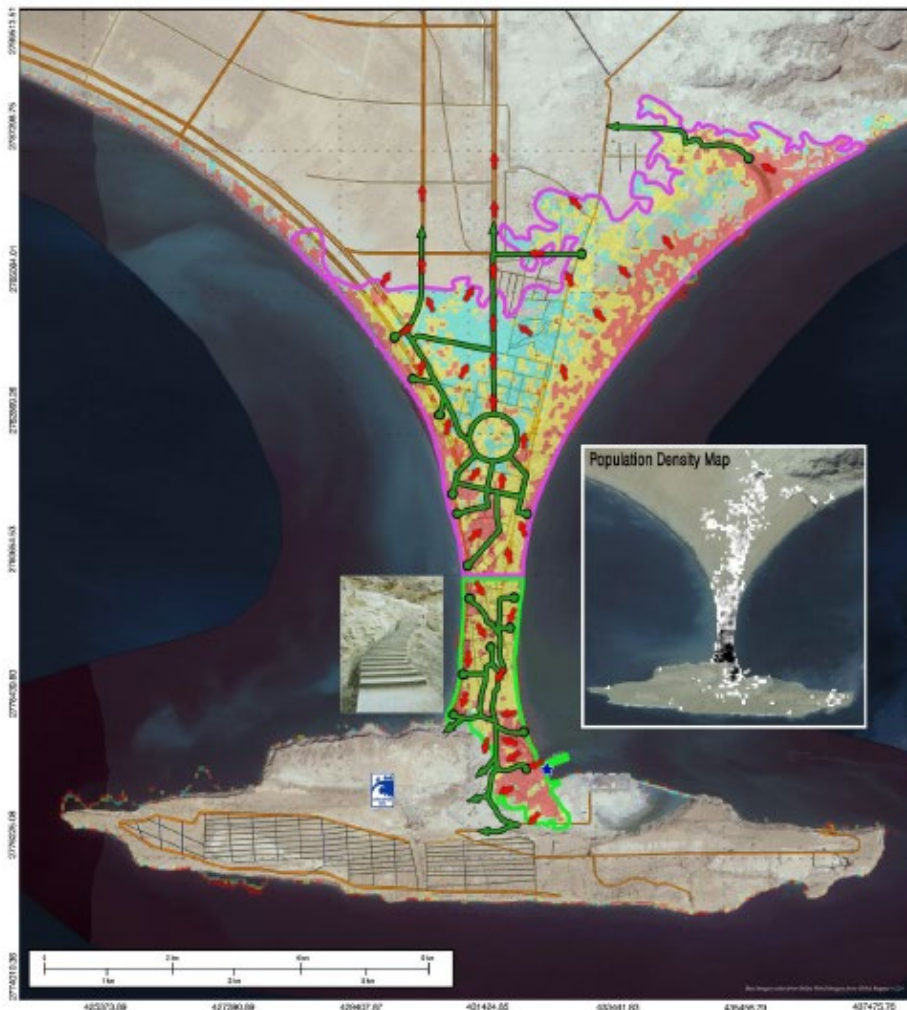


Fig. 2. Reproductive role determined by Φ the dominant reproductive female continuously the pairs of early hatches. Half-siblings highest commonality also should be noticed which has been taken as the sex ratio of broods.



WHAT IS THE MAIN MESSAGE?

Second source is considered to purely better although there are possibilities of local limitation as suggested by two correlated results, with the first result being occurring on September 20, 2015 observed in the research earthquake with magnitude 7.7 (Erdogan et al., 2015). There were no recorded seismic activities. However, the mainshock of the earthquake has not the constant amount of duration and magnitude like Moberg (1984) earthquake of magnitude 5.1 (first volume of Price (1968)). For the research earthquake, data, bathymetric charts were digitized which gives variable resolutions throughout the dataset. Moreover, DSDP-92 was collected digital topography, but the original study is in low coverage area and the bathymetric elevation accuracy is not high.

Additional or repeat survey report is available on the study tool to help us measure impact from 1998. Consider it an internal, unprinted copy with our most fully documented results. Whenever the report has changed and includes that of two years.

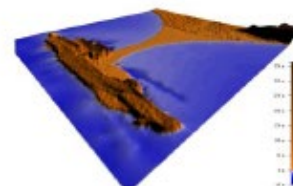


Fig. 2. All parameters of the Constitutive Model (CM) for Grade 40

Who supported the strategy

Funding was provided by Citicard Street Britain, under a student-researcher project of The United Nations Economic and Social Commission for Asia and the Pacific.

Additional information on article

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References cited

Rake, E. N., et al. (2015). Remembering the 1945 Makran tsunami - Interviews with survivors beside the Arabian Sea, UNESCO-IOC.

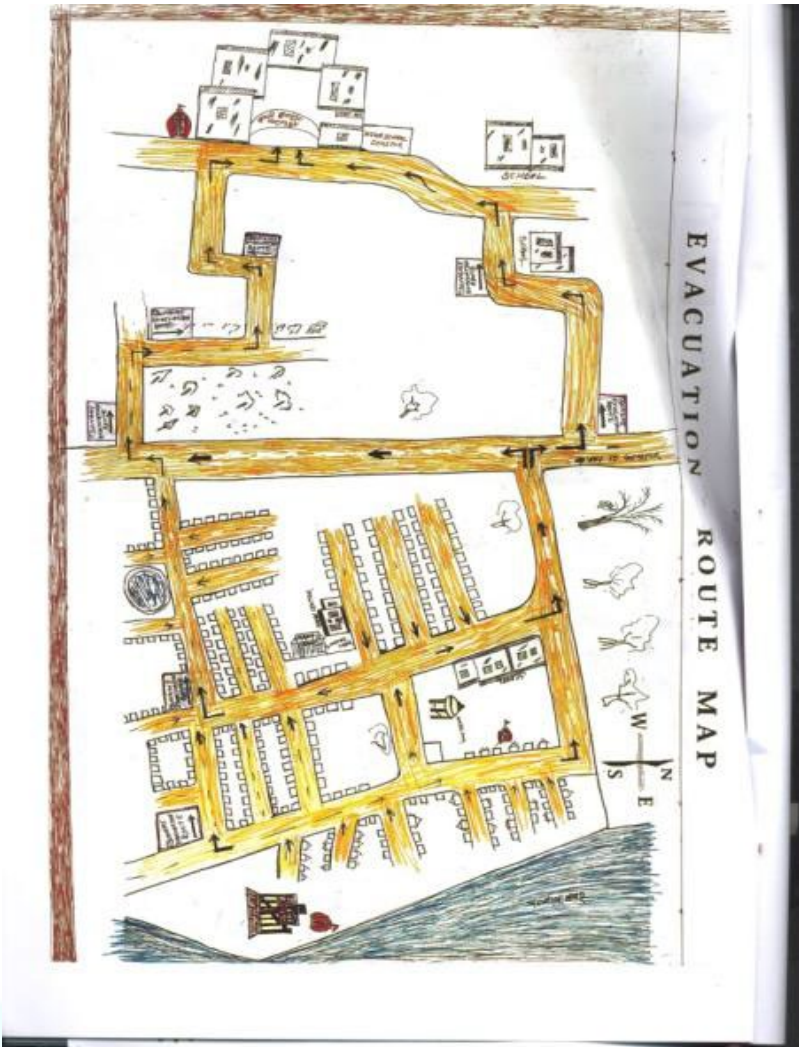
Reeder, C. (1946). The Meikun earthquake of the 28th November 1946, India (Mineralogical Department of Soil Science, 1946), 148-149.

Zheng, G. L., L. C. McNeill, K. Wang, J. He, and T. J. Handberg (2010). Thermal structure and neoproterozoic magmatic potential of the Malawi subduction zone. *Geophysical Research Letters*, 40(8), 1428–1430.

Project Information
Universal Transverse Mercator (UTM)
Datum: WGS84
Units: meters
UTM Zone: 11 (30°E - 36°E, Northern Hemisphere)
Date: August 2015

Pakistan

Examples



India

Examples

Tsunami Evacuation Procedure

1. If you feel an earthquake - protect yourself
 - Don't panic!
 - Drop, cover and hold!
2. After an earthquake, be aware that a tsunami may follow
 - Move away from the beach immediately as a precaution measure!
 - Look for more information through TV and Radio!
3. After a strong and prolonged earthquake, evacuate immediately!
 - Don't wait for an official warning, leave the **RED ZONE** immediately if possible or look for shelter in higher buildings
 - If you are around Pratama Street, look for shelter in one of the hotels with higher floors
 - As a visitor in a hotel, please follow the instructions of hotel staff
4. The sound of the siren is the official call for evacuation
 - If the siren sounds, follow the evacuation procedure as indicated above (No. 3)!

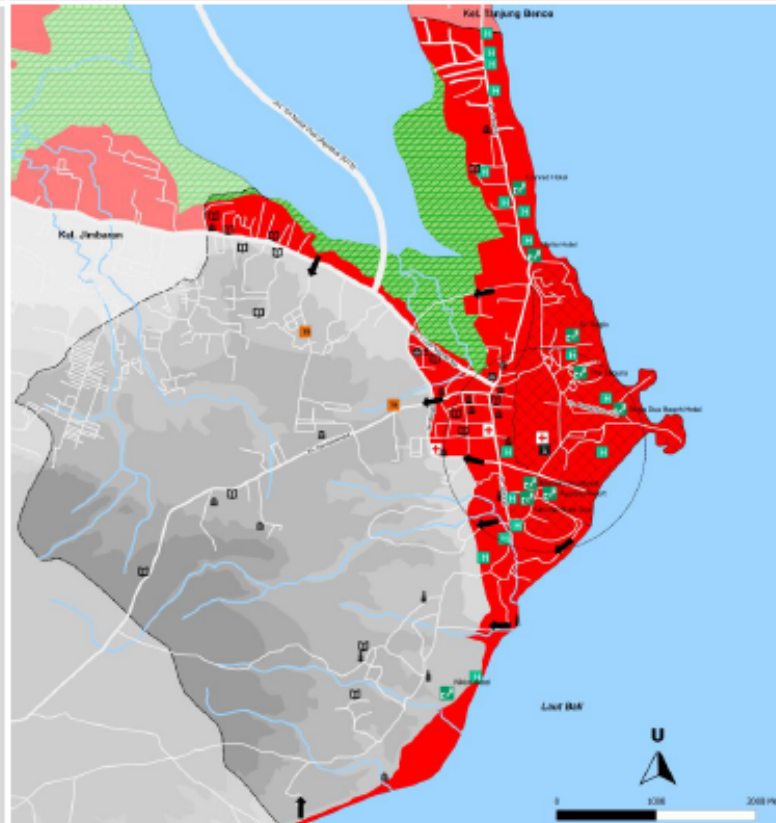
Be aware that the siren may not be heard in all areas.

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

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

*Please note that BTDC has its own procedure

Tsunami Evacuation Map for Benoa
Peta Evakuasi Tsunami di Kelurahan Benoa



Prosedur Evakuasi Tsunami

1. Jika merasakan gempabumi -
lindungi diri anda
 - Jangan panik
 - Merunduk, berlindung dan berpegangan
2. Setelah gempabumi, sadari bahwa tsunami mungkin terjadi
 - Segera tinggalkan daerah pantai sebagai langkah pencegahan awal
 - Carilah informasi lebih lanjut melalui TV dan Radio
3. Setelah gempabumi yang kuat dan lama, Segera Evakuasi!
 - Jangan menunggu peringatan resmi, segera tinggalkan **ZONA MERAH** jika memungkinkan atau mencari tempat berlindung yang lebih tinggi
 - Jika anda berada di sekitar Jln. Pratama, segera berlindung di bangunan bertingkat 3/lebih
 - Jika anda pengunjung, ikuti arahan dari karyawan hotel
4. Bunyi sirene adalah panggilan resmi evakuasi
 - Jika sirene berbunyi, ikuti prosedur evakuasi seperti diatas (No. 3)!

Sadari bahwa mungkin bunyi sirene tidak terdengar di semua area.

Setelah gelombang pertama datang, gelombang yang lain mungkin akan menyusul.

Tunggu pemberitahuan resmi “Tsunami telah berakhir” sebelum meninggalkan tempat perlindungan

*Catatan: Ada prosedur khusus di area BTDC

Manual and Guide No 82



<https://unesdoc.unesco.org/ark:/48223/pf0000373019?posInSet=17&queryId=947ca611-1880-4ded-bb5a-4bd61c93c161>

Thank you



***IOC/UNESCO Indian Ocean Tsunami Information Centre
IOTIC-BMKG Programme Office***

***Disaster Risk Reduction and Tsunami Information Unit
UNESCO Jakarta Office***

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