ASSESS-3:
Economic, infrastructural, political, and social resources are identified

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Indian Ocean Tsunami Ready Workshop
Tanjung Benoa, Bali - Indonesia
22-26 November 2022

In collaboration with

Acknowledgment
Tony Elliott (IOC-UNESCO Consultant)
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Introduction

The community should have information, knowledge, and an understanding of their capacity and how to access internal and external resources (funding, expertise, etc.)

An inventory of local resources available to the community will help to mitigate its tsunami risk. The inventory can be a basic estimate that can be used as a reference in case of a tsunami event.

Being aware of local resources and capacities available can strengthen the resilience of the community to cope with tsunamis.

If official data are not available, it is recommended to gather, share, compare and discuss this information within the TRLC

The inventory should be in a format that is readily accessible in the event of an emergency, ideally in paper as well as digital format in case of power failure during the emergency

The inventory should also be annexed to the Emergency Operations Plan (see Lecture 9)

Economic Resources → swift recovery

- Livelihood:
  - Sources of livelihood: agriculture, fishery, industry, home industry,
  - Supporting infrastructure for livelihood → critical infrastructure: port, airport, road bridges
- Tourism industry
- Financial/Bank
- Market, supermarket
- …

Social Resources

- Physics:
  - Mosques, Church, Temples, Shrine
  - Community social facilities: community auditorium
  - Hospital and health clinic
- Social:
  - Disaster Resilient Communities
  - School communities
  - PTA
  - Religious association
  - NGOs
  - DRR Forum at community level
  - Social and volunteer organizations
  - Local networks

Infrastructure Resources

- Public buildings to be used as temporary shelters or for capacity building workshops and meetings
- Existing Vertical Evacuation Shelter specially built for tsunami shelter
- Existing multi stories building for vertical evacuation: schools, hotels, offices
- Fly over for temporary vertical evacuation

unesco Intergovernmental Oceanographic Commission

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Indian Ocean Tsunami Information Centre

Tsunami Ready

OTG@ OceanTeacher Global Academy

Political Resources

- Available local or national emergency budget
- Earthquake and Tsunami DRR integrated in Development Planning
- Action planning: before, during and after tsunami
- Contingency plan at Province, City and Community Level
- Local Parliament Members support
- Policy and Regulation framework at local, province and national level → need strong leadership and ability to conduct "vertizone" for breaking the silo

Examples of resources to be identified in inventory

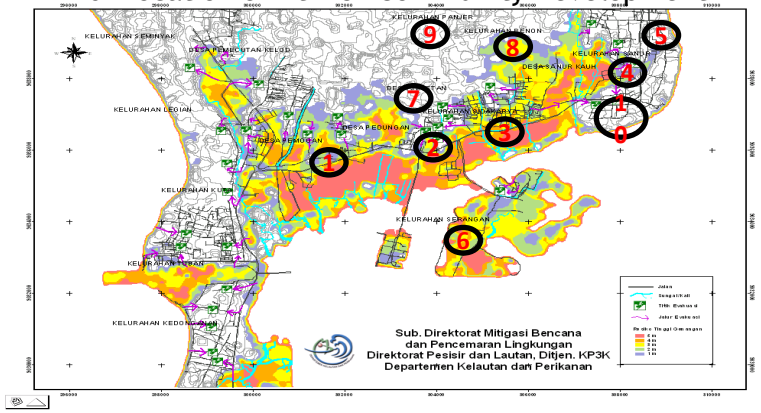
- Available local or national emergency budget
- Public buildings to be used as temporary shelters or for capacity building workshops and meetings
- Social and volunteer organizations
- Local networks
- Parent associations of local schools
- Volunteer groups

Culture based Tsunami Exercise 2006 → Positive Impact Bali Tourism Industry

Impact of Good Tsunami Exercise:

1. **Tsunami Ready Hotel**: Needs More Participation of other stakeholders Penta-helix, i.e. Hotels industries etc.
2. **Tsunami Ready Community Indian Ocean Tsunami Warning and Mitigation System**

10 Location of At Risk Community Development



National Tsunami Drill Bali 2006

Documentations of H. Rahayu, 2006

Bali Tsunami Ready Hotel: Kesiapsiagaan hotel

Simulasi tsunami melibatkan wisatawan

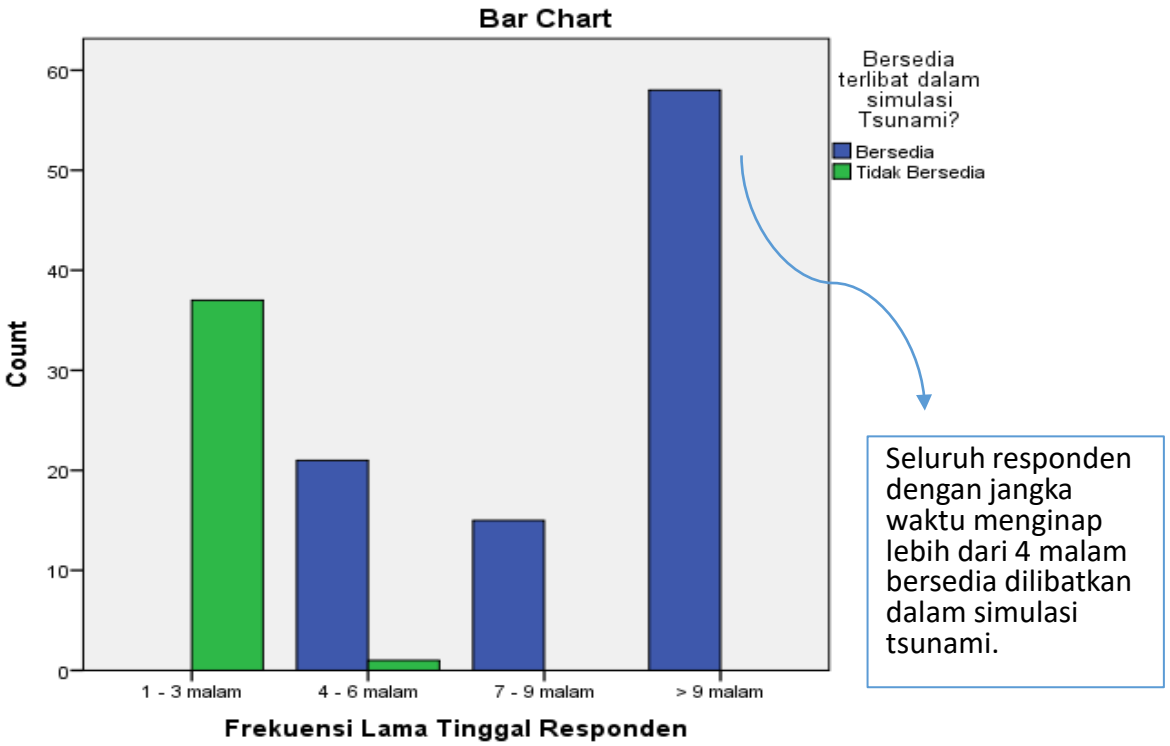

Simulasi tsunami melibatkan wisatawan


Perlengkapan penanggulangan bencana

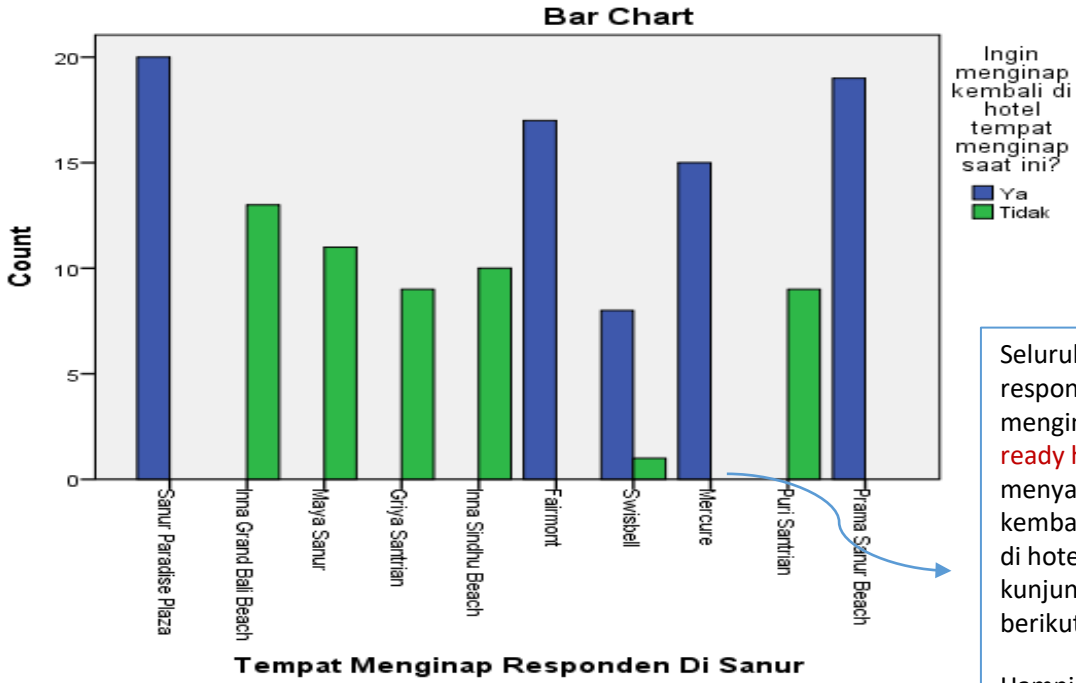

Emergency Response Team yang khusus menangani tsunami


Emergency Response Team yang khusus menangani tsunami

Sumber: Video Simulasi Tsunami Prama Sanur Beach, 2016



Seluruh responden dengan jangka waktu menginap lebih dari 4 malam bersedia dilibatkan dalam simulasi tsunami.



Seluruh 100% responden yang menginap tsunami ready hotel, menyatakan ingin kembali menginap di hotel ini pada kunjungan berikutnya.

Hampir seluruh responden (99%) yang menginap di non *tsunami ready hotel* menyatakan tidak ingin menginap di hotel ini pada kunjungan berikutnya

Lesson Learned from Recent Cianjur Earthquake 5.6M Impact on Infrastructures/Critical Infrastructure

Hancur! Rumah - Sekolah di Cianjur Ambruk Usai Digoyang Gempa

22),

https://www.cnbcindonesia.com

Gempa, Gedung FKIP Universitas Suryakencana Cianjur Roboh

https://www.beritasatu.com/news/1001363/gempa-gedung-fkip-universitas-suryakencana-cianjur-roboh

Gedung RSUD di Cianjur Rusak Imbas Gempa: Tembok Rusak - Ubin Pecah

tim | CNN Indonesia

Selasa, 22 Nov 2022 04:55 WIB

https://akcdn.detik.net.id/visual/2022/11/22/rsud-sayang-cianjur_169.png?w=650

Tony Elliott (IOC-UNESCO Consultant)
Ardito M Kodijat (IOC-UNESCO IOTIC)

Home > Inpicture > Inpicture

In Picture: Masjid dan Pesantren Roboh di Desa Kadudampit, Cianjur

https://awsimages.detik.net.id/community/media/visual/2022/11/22/rumah-rata-dengan-tanah-dampak-gempa-cianjur_43.jpeg?w=700&q=90

Tsunami Ready

Lapas Cianjur Rusak karena Gempa, 3 Narapidana Terluka

CNN Indonesia

Selasa, 22 Nov 2022 14:43 WIB

https://akcdn.detik.net.id/visual/2018/10/02/e02d7ff8-8fd9-4366-a37b-ddb7fbca1eac_169.jpeg?w=650

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Economic and Social Commission for Asia and the Pacific

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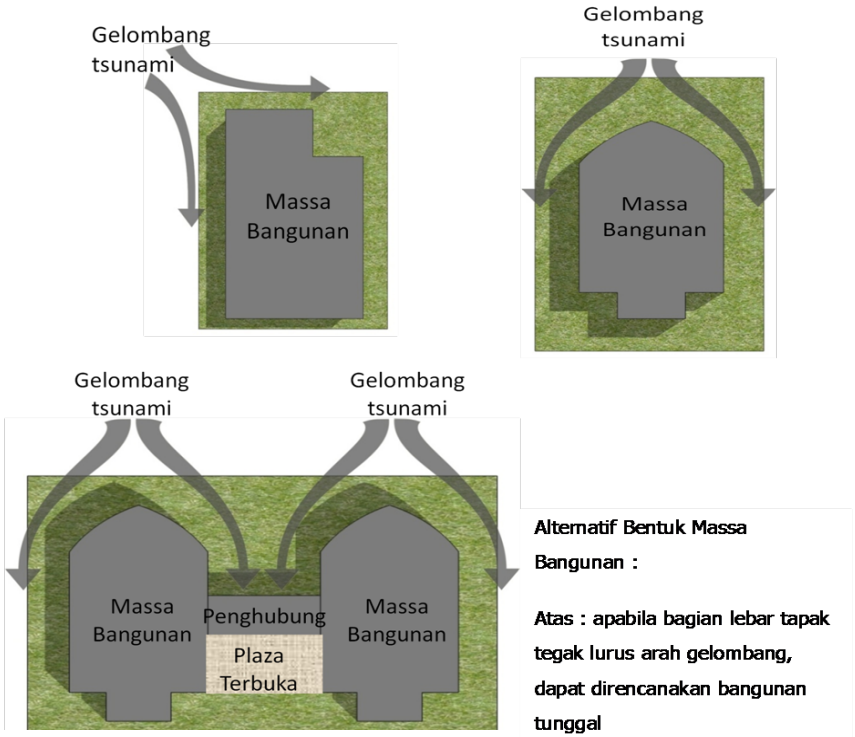
Think and Consider …. Earthquake and Tsunami Safety Parameter

Compositional Aspects of Public Shelter Building

- *Aerodinamis*.
- Lantai 1 bangunan sebaiknya terbuka → memungkinkan gelombang tsunami mengalir dan menghindarkan bangunan dari hempasan gelombang
- Alternatif lain adalah halaman dan teras bangunan ditinggikan → di atas level rendaman tsunami.

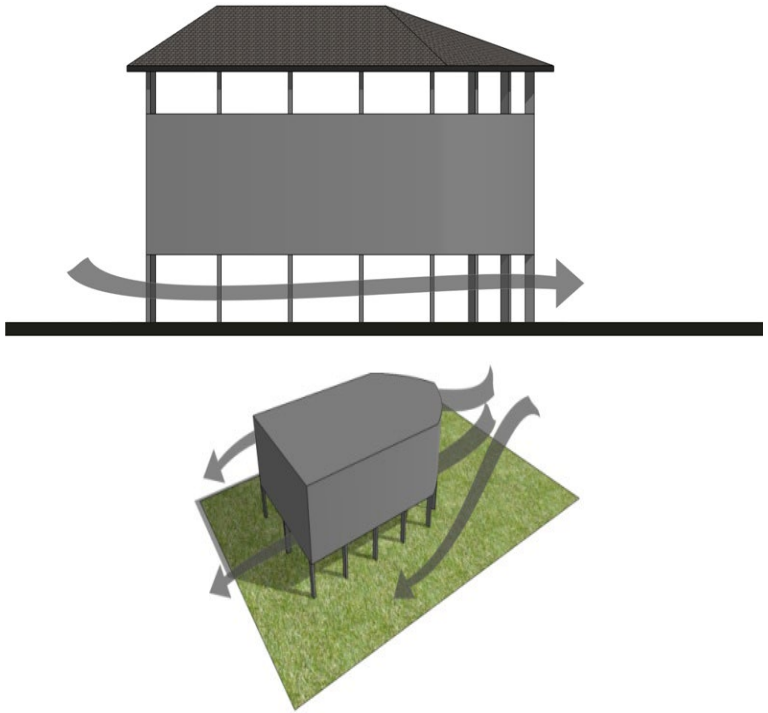


Alternatif bentuk massa bangunan

Alternatif Bentuk Massa Bangunan :

Atas : apabila bagian lebar tapak tegak lurus arah gelombang, dapat direncanakan bangunan tunggal

Bawah : apabila bagian panjang tapak tegak lurus arah



Bagian bawah bangunan terbuka

Shelter Height

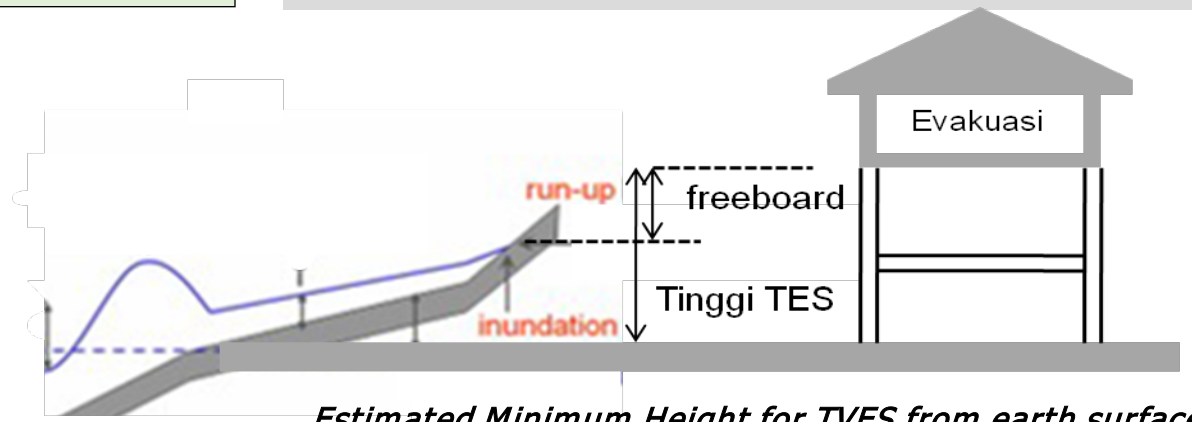
T = Ti + *Freeboard*

T = Ti + (3 + 30% Ti)

T = TVES height from earth surface (m)

Ti = *inundation height* (m)

Freeboard = 3 m + 30%Ti



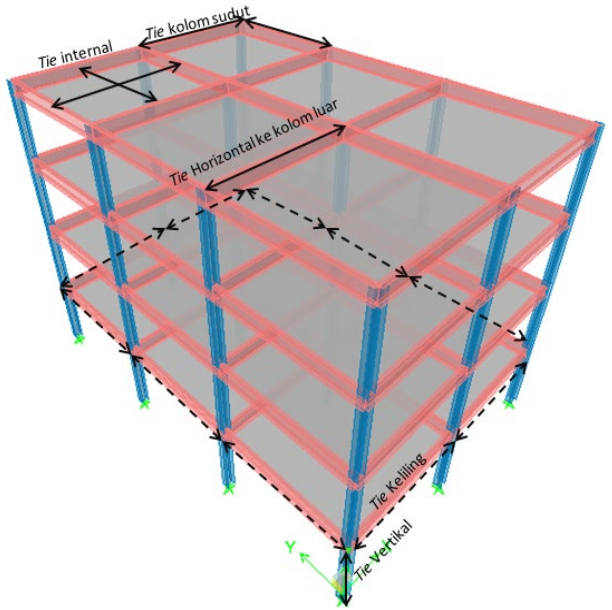
Estimated Minimum Height for TVES from earth surface

Structural Criteria

STRUKTUR

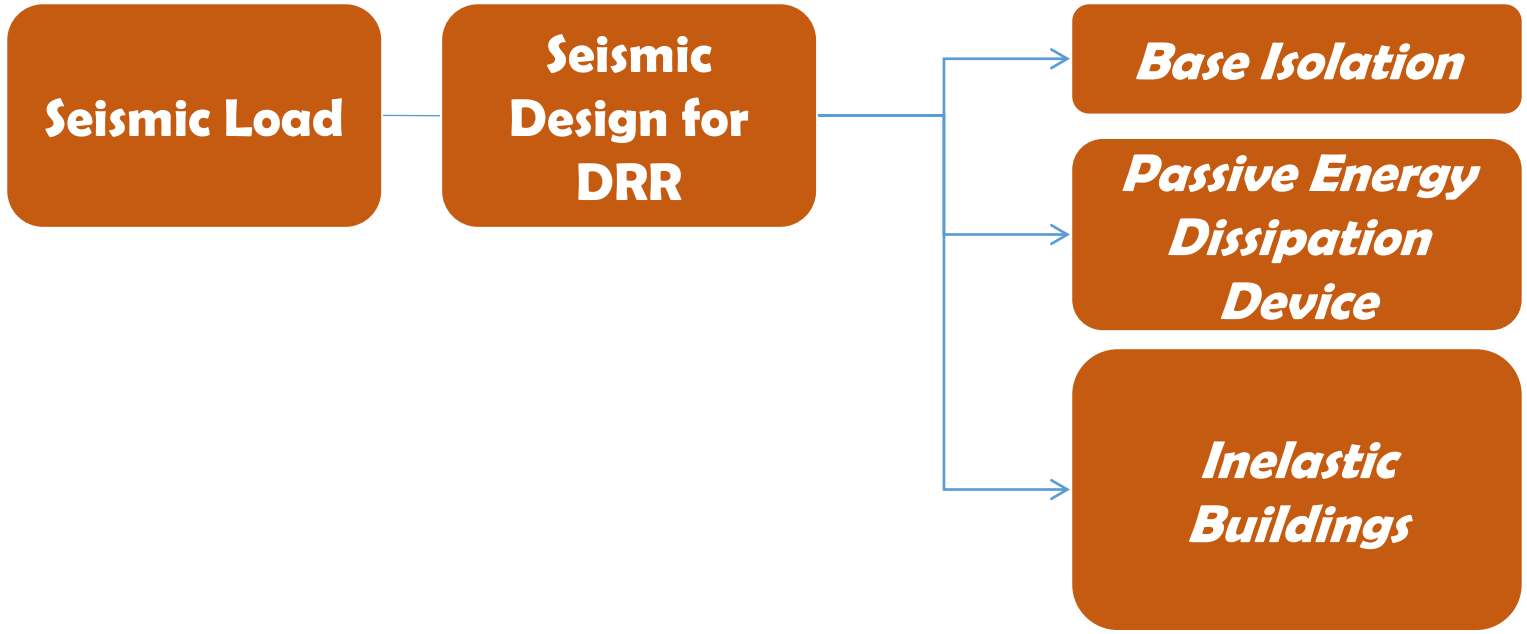
1. Bangunan TES secara minimum harus memenuhi persyaratan SNI-0301726-2002 - Tata Cara Perhitungan Struktur Beton untuk Bangunan Gedung dan peraturan setelahnya:
   - Bangunan TES harus memiliki tingkat keamanan terhadap gempa dan tsunami
   - kuat menahan hempasan gelombang tsunami, gaya apung, gaya hidrostatis, gaya hidrodinamis, pengaruh pengikisan, dan pengaruh tumbukan

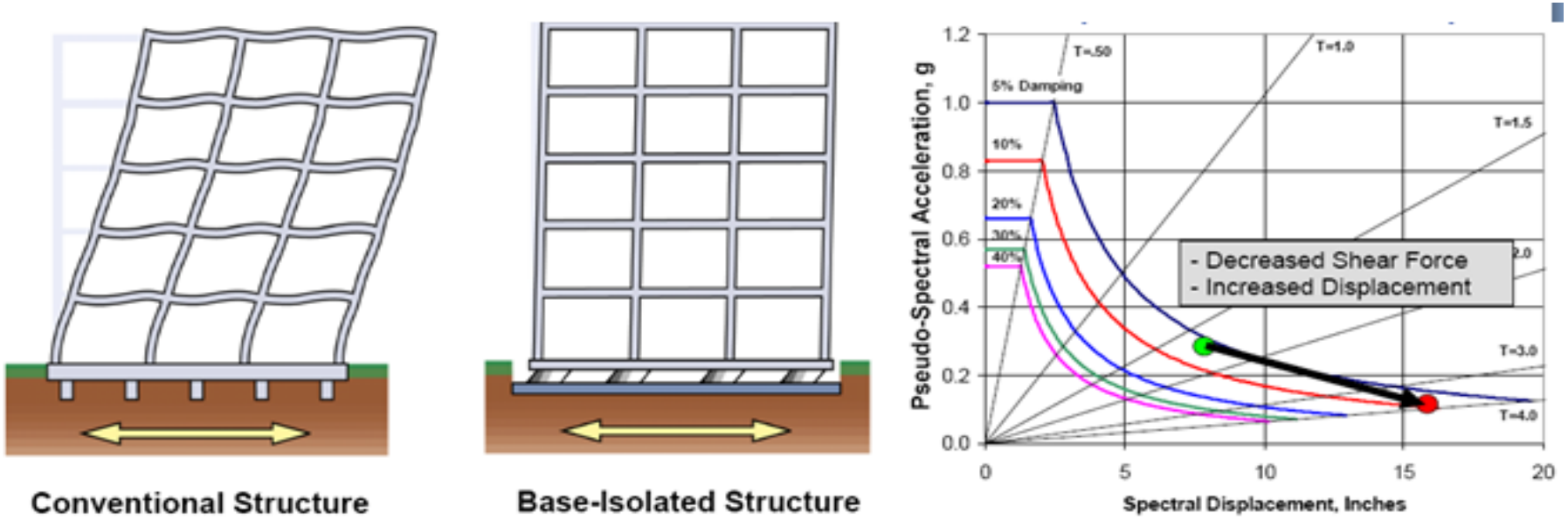
2. Kolom berbentuk lingkaran dapat menghasilkan gaya *drag* yang lebih kecil dibandingkan kolom yang berbentuk persegi atau persegi panjang.



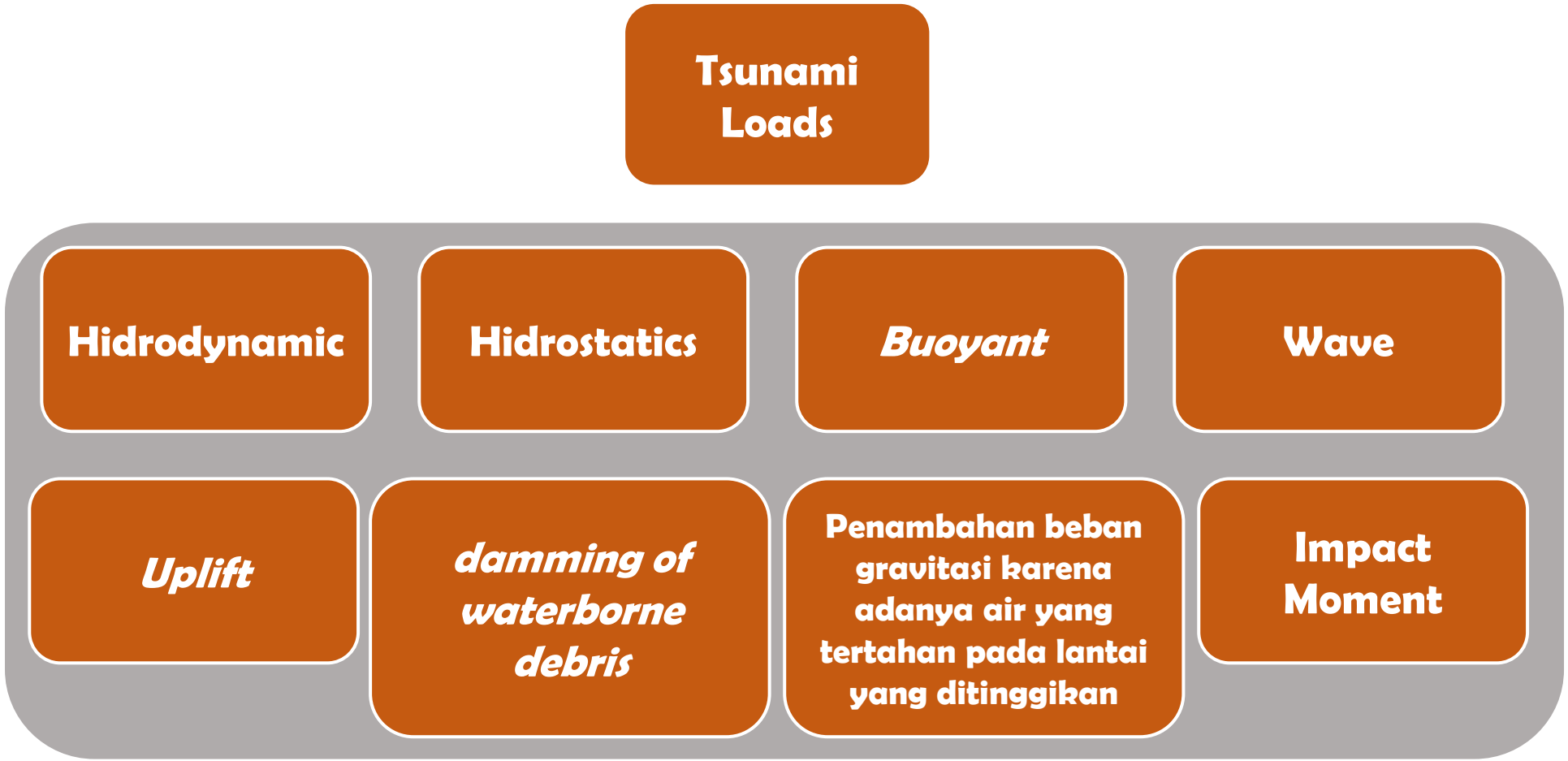
Structural Load Criteria

1. Gravity Load
2. Earthquake Load
3. Wind Load
4. Tsunami Load





Gambar 2.1 Perilaku Struktur Bangunan dengan *Base Isolation* Sistem


Tsunami Loads
Hidrodynamic
Hidrostatics
Buoyant
Wave
Uplift
damming of waterborne debris
Penambahan beban gravitasi karena adanya air yang tertahan pada lantai yang ditinggikan
Impact Moment

Summary of ASSESS-3

- ✓An inventory of local resources available to the community will help to mitigate its tsunami risk. The inventory can be a basic estimate that can be used as a reference in case of a tsunami event.
- ✓The inventory should be in a format that is readily accessible in the event of an emergency, ideally in paper as well as digital format in case of power failure during the emergency
- ✓Examples of resources to be identified include:
  - National and local emergency budget available
  - Public buildings available for emergency shelters, workshop and meeting venues etc.
  - Social and volunteer groups and networks
  - Other resources that you identify as specific to your community