

OUR EXPERIENCE



Evacuation Planning in Kuta, Bali

A Local Strategy for the Case of Emergency

BACKGROUND

Kuta is known as one of the most popular tourist destinations in Indonesia. It is famous for its sandy beaches that stretch endlessly along the southern coast of the island. The waves attract both domestic and international surfers. The sunsets are stunning and after the sun sets a vibrant nightlife awakes in Kuta's amusement districts.

Less known by visitors and the general public, is the fact that this same coastline is vulnerable to tsunamis. Bali is located close to the collision zone between two tectonic plates: the Indian-Australian Plate and the Eurasian Plate, a major source area for local tsunamis that could affect the island. According to estimates, tsunami waves could strike the beach between 20 to 80 minutes after an earthquake in the collision zone.

Located in a low-lying and densely populated area, Kuta crawls with tourists and those employed in the tourism industry, especially during peak seasons. On average, an estimated number of 60,000-70,000 people visit Kuta every month. In this busy tourist area, only few roads lead directly away from the beach. Most of them are small and narrow, frequently jammed during usual rush hours. The awareness of a tsunami hazard is still relatively low among both tourists and local residents. All of this makes Kuta's tourism paradise a high tsunami risk area.

THE INITIATIVE

The tsunami hazard for southern Bali was mapped in 2008. Now, an intensive engagement in tsunami evacuation planning could start. Kuta was chosen as a pilot location due to the high risk and the responsiveness of the local administration and traditional leaders. GTZ offered technical support and facilitation while Kuta's administration set up a working group in charge of implementation. The working group consisted of local government and representatives from the community and the private sector. The discussions also involved representatives from local community organizations and the chapter of the Indonesian Red Cross (PMI) in Bali. With the objective to develop a solid, well-communicated and validated evacuation plan for Kuta, the planning process followed a 5-step-methodology that has been developed by GTZ based on the project's experience in Java.

WHAT HAS BEEN ACHIEVED?

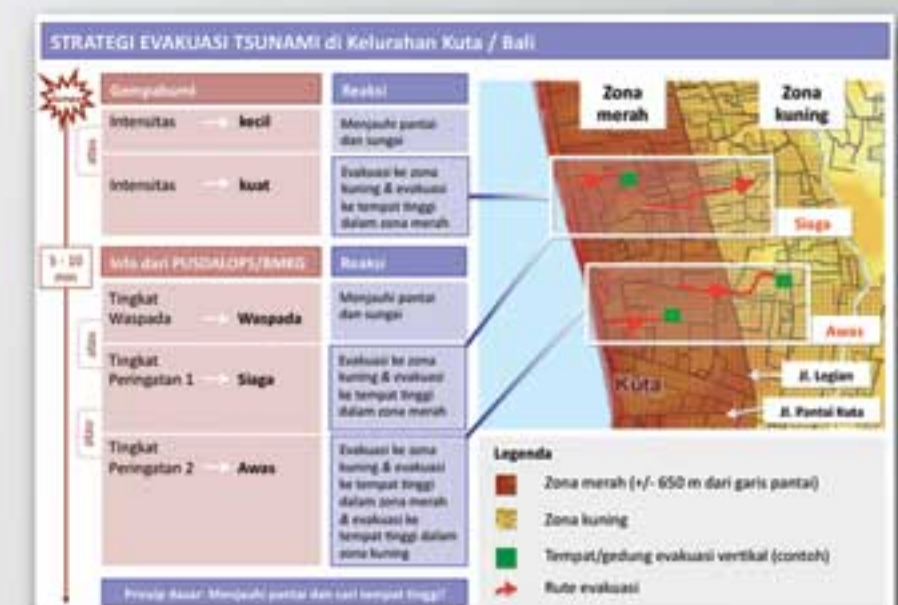
The planning process yielded two main results: a tsunami evacuation map and an evacuation strategy. The evacuation map shows a red and a yellow zone. The red zone is considered the most dangerous zone with a high probability of being affected by tsunami waves. The yellow zone is considered to be safe in most cases, except worse case scenarios. The two evacuation zones were determined based on the hazard map and well-known landmarks (e.g., Legian Street). The evacuation strategy follows a two level approach (see figure).



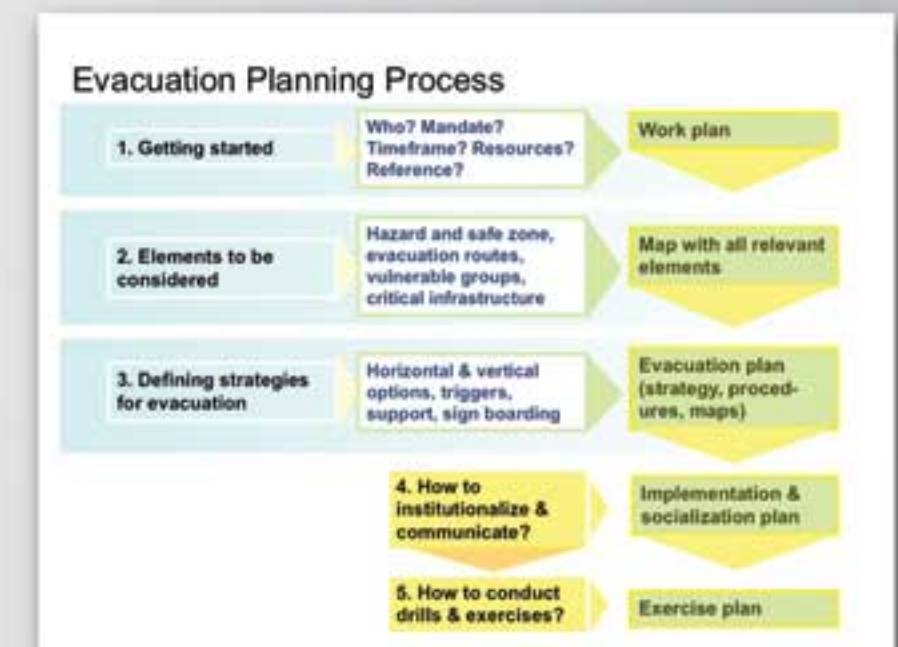
Kuta in southern Bali



Kuta Beach



Evacuation Strategy for Kuta



Evacuation Planning Process

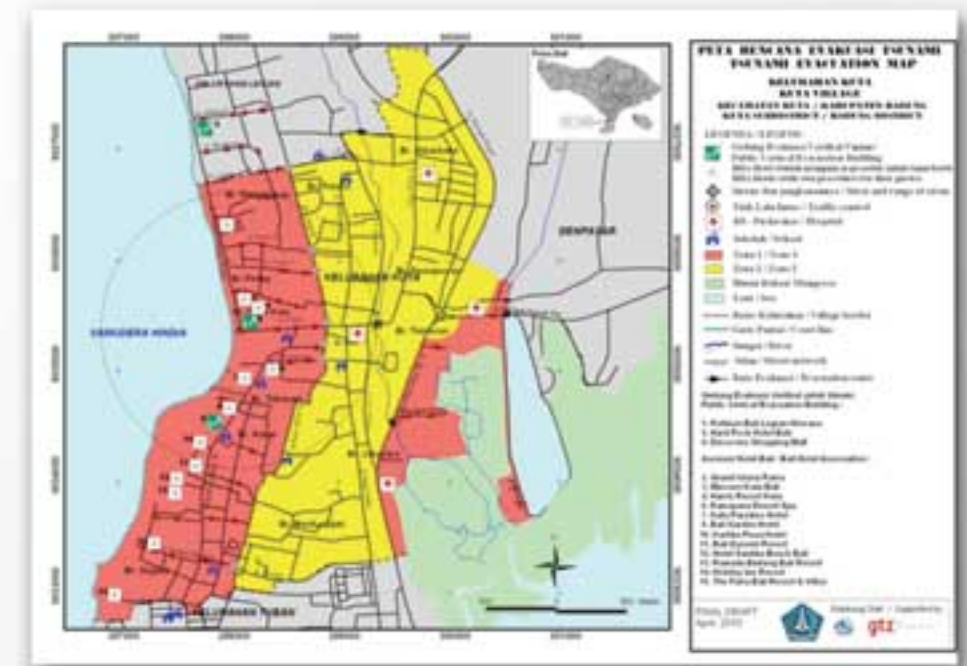


Guidebook for Tsunami Evacuation Planning at District and City Level - GTZ IS, July 2010



Due to the short warning times, the population density and the narrow street network the evacuation strategy includes horizontal and vertical evacuation. The working group agreed on suitable evacuation routes and buildings for vertical evacuation within the red zone. The rule is that people in the risk area move away from the beach upon ground shaking. Once province authorities have received information from the National Tsunami Warning Center they will (if necessary) call for evacuation and disseminate information via sirens and local media.

The evacuation map and strategy need to be widely known. Initial outreach activities have started addressing the tourism industry, as well as community groups in Kuta. Local facilitators that have been trained by GTZ conduct complete awareness sessions, including basic knowledge on tsunami hazards and early warning in Bali.



Evacuation Plan Kuta

 **Tsunami Evacuation Plan for Kelurahan Kuta, Bali.** A documentation of the process and results - Working Group Kuta, February 2010

WHAT REMAINS TO BE DONE?

The results show: Kuta made an important step forward in tsunami preparedness. Now the evacuation plan needs to be officially recognized and widely communicated amongst government institutions. In addition to this, there are several important things that need to be done:

- Identify and assess more multi-story buildings and make agreements for vertical evacuation (especially in the red zone). Hotels can provide shelter not only to their guests, but also to other visitors and neighboring communities
- Identify and assess assembly points and buildings for vertical evacuation in the yellow zone
- Address facilities that are particularly vulnerable, e.g. schools and health facilities, and support them in developing their evacuation procedures
- Further involve institutions that can support warning dissemination and evacuation, e.g. the Bali Hotels Association (BHA), the South Kuta Beach Business Association (SKBBA), Balawista (Beach Life Guards)
- Install signboards (with evacuation map and strategy) at strategic locations and provide concise information on warning and evacuation procedures via leaflets
- Inform the public and raise awareness amongst local residents and those (often temporarily) employed in the tourism sector, as well as domestic and international tourists. The team of facilitators plans to target local (traditional) community organizations in Kuta. The hotel sector will be involved when it comes to addressing domestic and international tourists
- The warning system and evacuation procedures need to be tested and evaluated. The stakeholders in Bali plan to conduct a tsunami drill soon



Evacuation Signs

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