

GIS-Training for Tsunami Evacuation Maps Strengthening Mapping Skills and Refining Layout

BACKGROUND

The main outputs of any tsunami evacuation planning process are an evacuation map and the related procedures. The evacuation maps explain about evacuation zones and strategies, and are used for public information. Most commonly, they are provided in printed form as maps, posters, flyers and billboards or are made available as digital media (online). Evacuation maps must be easy to understand and presented in a way that key information is easy to memorize. Therefore the design and layout of the maps is important.

Although tsunami evacuation maps can be drawn manually, usually, digital maps are preferred as they are more versatile in terms of presentation and modification in case changes are needed.

As part of the PROTECTS capacity development program, a training module has been implemented to support local stakeholders in producing good quality digital evacuation maps.

ABOUT THE TRAINING

The 5-day training is targeted to local stakeholders with some experience in GIS to improve their mapping skills with special attention on the requirements of tsunami evacuation maps.

The training is most effective when it is implemented back to back to on-going tsunami evacuation planning processes as participants can work on their own cases already during the training and apply the learning directly after the training in the on-going processes.

The topics covered by the training include a general understanding of geographic information systems (GIS), working with spatial data and principles of cartography. Those topics are put into context by linking them to on-going tsunami evacuation planning processes and explaining the use of digital maps in the different steps of such planning processes. When addressing the 5 step approach of evacuation planning the underlying local tsunami hazard maps are reviewed and the concept of evacuation maps is explained in more detail, including scale and generalization issues, necessary elements to be shown on the map, the use of symbols and appropriate map layout.

A major part of the training consists of a direct familiarization (hands on) with the GIS open source software, *Quantum GIS*, using evacuation planning outputs as exercise data. The intensive one-week training shall be followed up by producing actual tsunami evacuation maps by the participants.

It is recommended to establish a mechanism for technical backstopping to support participants when they implement the new skills back home in their working processes and to provide feedback and technical advice on the respective mapping products they present.

Quantum GIS is free open source GIS software and is promoted together with *Open Street Map* and the plugin *InaSAFE* by BNPB / AIFDR.



The basic Quantum GIS



The follow up training



Technical backstopping



Billboard with evacuation map produced using Quantum GIS

TRAINING MANUAL & REFERENCES

The documentation of the GIS training module contains a training manual for Quantum GIS, exercise data and additional information regarding tsunami evacuation planning.

The related guideline "Recommendation for the layout of tsunami evacuation maps" provides a detailed description of elements to be considered in the maps as well as respective symbols and colour codes.

PRACTICAL EXPERIENCES SO FAR

In the frame of the PROTECTS project, one training course was implemented targeting participants from NTB, Bali, Yogyakarta and East Java. It resulted in a considerable number of mapping products at district and sub-district levels.

In addition to the hands-on approach during the training, the participants benefited most from establishing a network for continuous sharing and learning among themselves and the backstopping provided by technical advisors during the map development. The backstopping was provided both via online communication as well as in a follow up training session with the trainer.

FURTHER IMPLEMENTATION OF TRAININGS

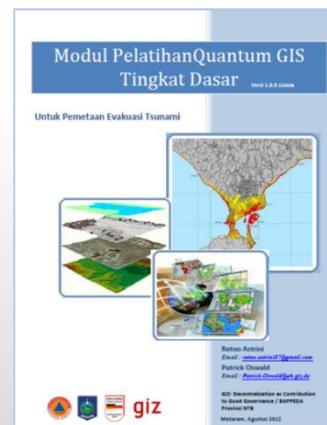
Due to the fact that most Indonesian communities still lack a solid tsunami evacuation plan, there is definitely still a need to support evacuation planning processes, including the training of local professionals to strengthen mapping skills.

To facilitate the further implementation of similar trainings, the Training Documentation and the Reference Document on the Layout of Evacuation Maps are made available for interested parties. These materials will enable experienced GIS trainers (on *Quantum GIS* software) with basic background knowledge on tsunami evacuation planning to implement the developed module without further assistance.

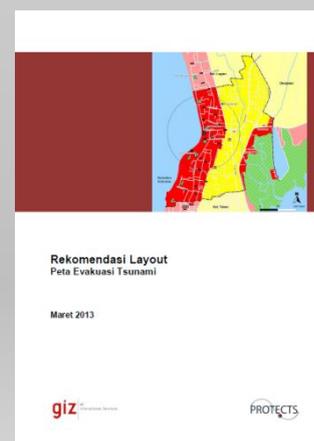
Nevertheless, it is to be asserted that for transfer and adaptation, it is recommended to seek the assistance of experienced trainers. A list of trainers who played active roles in implementing the manual for the PROTECTS project is provided below. The Training Module and related documentation was also handed over to BNPB.

ACKNOWLEDGEMENT

The training module was developed and conducted by Patrick Oswald and Retno Astrini (GIZ DeCGG & Bappeda NTB). The Reference Document on the Layout of Evacuation Maps is a joint effort led by Dewi Anggraeni from the PROTECTS team. The training was implemented in a joint program together with our partners from the BPBDs and working groups at provincial and district levels in Java, Bali and NTB.



QGIS Training Module for PET - Follow-up



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Published by:

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ)
GmbH

Photos by:

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