

Tsunami Risk Assessment

The Joint Indonesian – German Working Group on Risk Modelling & Vulnerability Assessment

THE INITIATIVE

Tsunami risk assessment and monitoring is an indispensable requirement for effective early warning and community level disaster management.

One major initiative aiming at tsunami disaster risk reduction is the GITEWS project. One task of the GITEWS project is tsunami risk and vulnerability assessment conducted by the German Aerospace Center (DLR) and the United Nations University (UNU-EHS) in cooperation with Indonesian partner institutions.

It was clear from the beginning that the challenging task of tsunami risk assessment in the context of early warning and disaster management requires joint efforts between scientists from various disciplines and decision makers from the field of disaster management. Therefore, a joint Indonesian-German working group on risk modeling and vulnerability assessment was established and started their work in 2006.

The working group was integrated from the original partners of the Indonesian Tsunami Early Warning System (InaTEWS) and GITEWS consortia, but was also opened to other relevant institutions. It is led and coordinated by the Indonesian Institute of Sciences (LIPI) and DLR under the umbrella of the German Federal Ministry of Education and Research (BMBF) and the Indonesian State Ministry of Research and Technology (RISTEK). Core members of the working group are the institutions BAKOSURTANAL, LAPAN, BPPT, DKP and UNU-EHS besides representatives from Pilot Areas such as BAPPEDA, NGOs and several universities. Regular meetings and workshops took place to foster a collaborative working process.

THE GOAL

The group collaborates and assists one another in order to conduct a tsunami risk assessment based on a common methodological approach, and produces risk knowledge for tsunami early warning and disaster risk reduction. Thus, the derived risk information and products serve the needs both at a sub-national and a community level within three pilot areas. The development of guidelines and technical documentation to derive best-practices and to provide advice for disaster risk reduction, as well as the integration of the results into the Tsunami Early Warning Center at BMKG in Jakarta, are the major goals of the working group.

WHAT HAS BEEN ACHIEVED?

A common framework and methodology to derive risk assessment products for tsunami disaster management has been worked out. The risk assessment products were mainly provided in the form of thematic maps and geospatial information. National and local level guidelines in the field of tsunami risk assessment have been elaborated and contributed to organizations like UNESCO-IOC and BNPB. The developed tsunami risk assessment strategy addresses two main applications and levels of detail: the sub-national and local level.

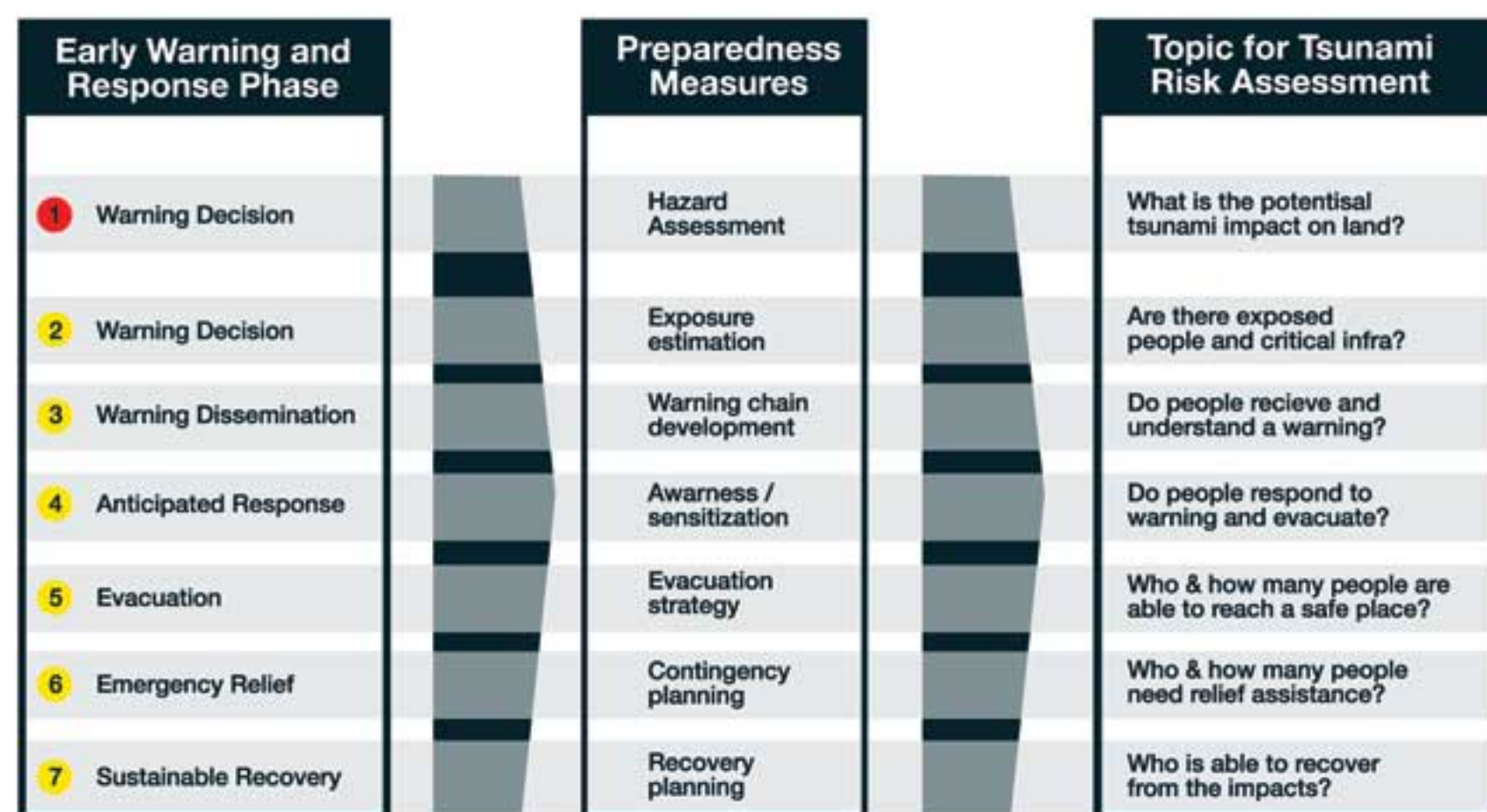


The sub-national level addresses tsunami risk information to be used mainly in the fields of early warning and people's response capabilities to a tsunami early warning. At this level, tsunami risk information is available for the entire coast of Sumatra, Java and Bali facing the Sunda Trench on a map scale of 1:100,000. The tsunami risk maps produced come with explanatory text and respective technical notes. Additionally, dedicated tsunami risk information at the sub-national level has been provided and integrated into the Decision Support System (DSS) of the Tsunami Early Warning Center at BMKG in Jakarta for use in an early warning and emergency relief case.

At the local level, tsunami risk and vulnerability information addresses specific planning needs relevant for disaster management. Detailed tsunami risk and vulnerability products have been developed for the three pilot areas, and they address specific planning needs within the disaster management at the community level (community awareness and preparedness, early warning chain, evacuation, emergency relief and recovery planning).

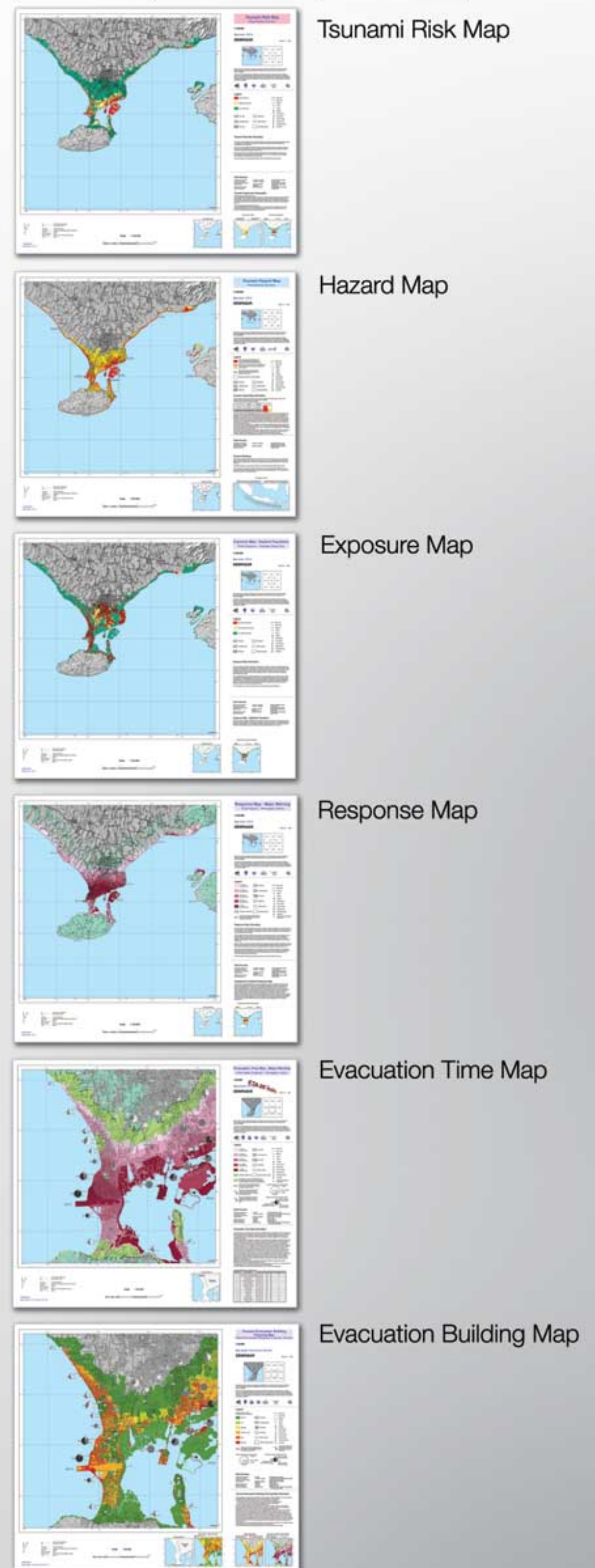
LESSONS LEARNT & POTENTIAL FOR REPLICATION

Bringing together people with scientific expertise and practical experience in the field of tsunami risk assessment in Indonesia was essential to work out the risk knowledge. The transfer of created risk knowledge driven by the scientific community towards implementation and practical use in decision making and resource allocation for disaster risk reduction was successful. Furthermore, it will require a long-term strategy and perspective. Attached to this is the apparent need for a continuous process in developing human resources. Based on the jointly developed methodology transferability to other tsunami endangered regions is possible. The approach and framework was laid out to allow its adaptation for multi-hazard risk assessment, such as in the fields of climate change and extreme hydrological events.



Joint Risk and Vulnerability Assessment

Examples of Risk Maps Available at a Scale of 1:100 000 (Entire Coast) and 1:25 000 (in Pilot Areas)



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