

Science meets Politics

In Search of the Safe Zone

BACKGROUND

Understanding the tsunami hazard and the assessment of the possible impact on their community are preconditions for local decision makers and other stakeholders to initiate activities and plans to better prepare for future tsunami events. Tsunami hazard maps are the basis for evacuation planning. Hazard maps are also used as the basis for designing mechanisms to implement tsunami early warning at the local level.

Unfortunately, forecasting the probability and possible impact of a tsunami in a given area remains a major challenge. It is important to recognize that scientists do not have a complete understanding of the mechanisms that trigger tsunamis. As data is limited and current estimations of return periods in Indonesia vary greatly, it is difficult to determine in a reliable way the probability of a tsunami of a particular magnitude occurring within a given period of time.

National and international scientific institutions adopted a range of approaches to tsunami hazard assessment in Indonesia, often employing different methodologies and data. As a result, a wide variety of tsunami hazard maps are circulating in the country. For certain locations, there are up to eight different maps (Padang), while other areas are not covered at all.

THE INITIATIVE

Even with an official tsunami hazard map on hand, the question of which areas are 'safe' is not yet answered. Local authorities must make decisions that involve choices, trade-offs and risk. The available time for evacuation is probably the most important factor and some degree of risk must be acceptable for economic reasons.

It is not surprising that local governments have severe difficulties coping with this challenge. To enable local governments to make the necessary decisions, a dialogue mechanism was promoted, allowing scientists and local decision makers to work hand in hand. The project supported this 'Science meets Politics' initiative in the pilot areas, Padang and Bali.

THE GOAL

The initiative was promoted to achieve a better understanding of the local tsunami hazard and possible impact in Padang and Bali. By reaching an agreement on reference scenario(s) and criteria for tsunami hazard zoning, the basic elements for the development of an official local tsunami hazard map should be worked out. Furthermore, it was intended to provide recommendations for official policies as a framework for tsunami early warning, evacuation planning and preparedness activities.

WHAT HAS BEEN ACHIEVED?

The dialogue between politics and science in Padang started at the 2007 Padang Symposium, and was continued during the first meeting of the Padang Consultative



"1st Generation" Tsunami Zoning Map for Padang

Key Questions

1. What is the current knowledge regarding earthquake and tsunami sources for Padang?
2. What scenarios are expected?
3. What is the worst case scenario?
4. Should / could Padang prepare for the worst case?
5. What scenario(s) should be considered for preparedness planning (as reference)?
6. Should Padang establish a "multi-reaction approach" based on different scenarios and warning levels?
7. How should an "official" map look like?
8. What are the recommendations to establish tsunami hazard zones?

Key questions for Padang Consultative Group meeting, January 2008

Group in January 2008, discussing previously identified key questions. The results from both events were then considered as input for the 'Padang Consensus' that was defined during the 2008 Padang Symposium. The consensus consists of an agreement to base the Padang tsunami hazard map on a single scenario that is considered the most probable. The mapping will employ numeric modeling using source data, as well as updated bathymetry and topography data provided and shared by the respective scientific institutions. The process is still ongoing.

In Bali, a similar dialogue in August 2008 led to an agreement to adopt a multi-scenario approach and to the assignment of GITEWS partner institutions to develop the map for southern Bali. A local working group participated in the development process and presented the final product and a technical document to local decision makers. The map was officially approved in mid 2009.

LESSONS LEARNT & POTENTIAL FOR REPLICATION

The forum meetings held in Padang and Bali triggered intensive discussions primarily amongst the scientists leading to a better understanding of the tsunami threat and to conclusions, which helped clarify local preparedness strategies.

All participants confirmed the need for officially recognized local tsunami hazard maps and the dialogue processes proved to be an important mechanism to reach this goal.

On the other hand, it was not always easy to conciliate dynamics within the science community with the needs of local preparedness planners. The process in Padang showed that competition and differing approaches within the science community can lead to friction or can even delay the process and needs to be addressed appropriately.

The dialogue processes need to be facilitated by a recognized institution and requires a solid funding mechanism to allow all relevant stakeholders to participate. Ideally, the concerned local government should play a leading role inviting and hosting the meetings.

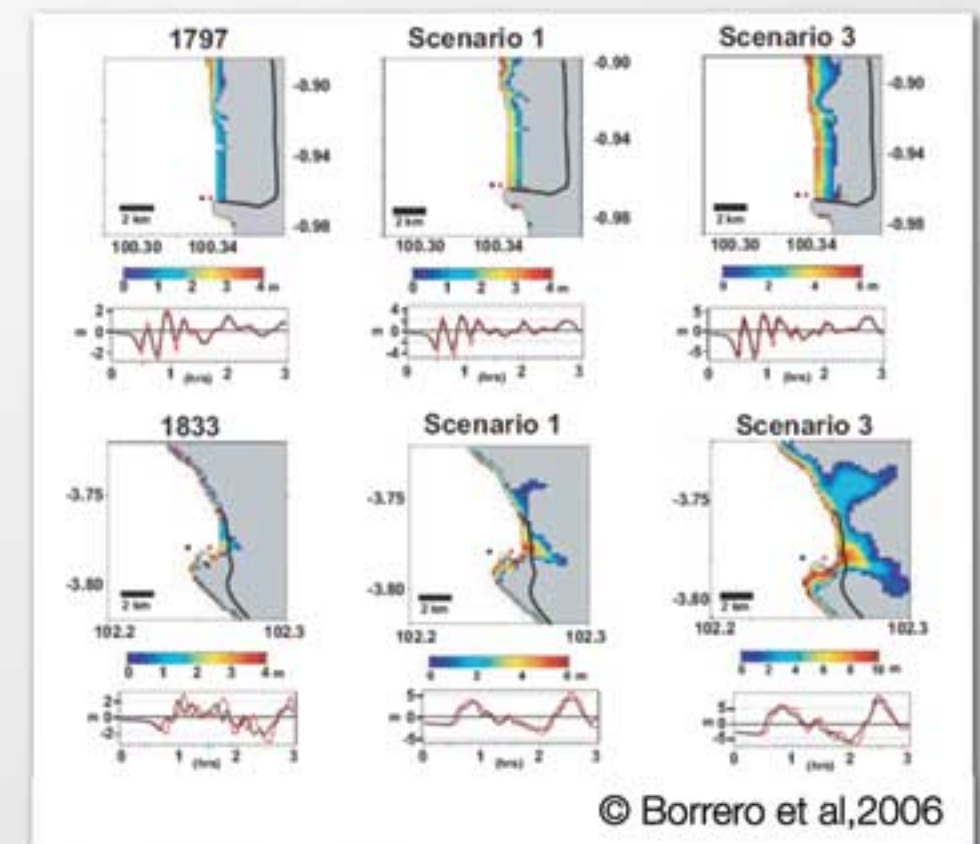
The experience showed that dialogue is a suitable mechanism in addressing the complex questions related to tsunami hazard preparedness, especially in high risk and densely populated areas, and can be replicated in other settings as well. In fact, the process in Bali was already a replication of the Padang initiative and worked out well. The district of Cilacap in Central Java has recently begun to implement a similar approach.

ACKNOWLEDGMENTS

Dialogue processes like "Science meets Politics" are only possible with the initiative and support of a wide range of stakeholders. In the above-described processes in Padang and Bali, the local governments, a diverse range of local stakeholders, and the involved science community worked closely together to achieve the ambitious goals.



2nd International Symposium 2008 in Padang organized by UNAND and DKP



Results from inundation modeling for Padang and Bengkulu



Results of the comparison of hazard maps during Bali Consultation Workshop, August 2008



Presentation of results during Bali Consultation Workshop, August 2008

Author:
Harald Spahn
harald.spahn@gtz.de

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GTZ Office Jakarta
Menara BCA 46th Floor
Jl. M.H. Thamrin No.1
Jakarta 10310
T: +62-21-2358 7111
F: +62-21-2358 7110
E: gtz-indonesien@gtz.de
I: www.gtz.de/indonesia

Further information:

www.gitews.org/tsunami-kit
Kesbangpol dan Linmas Provinsi Bali
+62-361-245395
BAPPEDA Kota Padang, Ir. H. Indra Catri, MSP
indra_catri@yahoo.com
BPBD Kota Padang, Drs. Dedi Henidal
bpbd.padang@gmail.com
GITEWS: www.gitews.org