

Capacity Building in Local Communities German-Indonesian Cooperation for Tsunami Early Warning System

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Editorial

Agreements on official tsunami hazard maps in the Pilot Areas are now providing a solid basis for evacuation planning at district level. During the last months, GTZ IS-GITEWS supported several evacuation planning initiatives principally in Bali and Padang. The planning processes, which were conducted by local working groups with advisory from the project, unveiled a number of fundamental questions and challenges, which were not always easy to answer.

The 2004 tsunami set a new dimension for the 'worst case scenario'. The implications for evacuation planning are challenging, as the impacted area of the 2004 tsunami was up to ten times larger than the affected area of any historical, documented tsunami in Indonesia, with the exception of the Krakatau event. Evacuation planners face the dilemma of probability, as the worst case is a very rare event and evacuating people horizontally out of the potentially affected area is not realistic considering the short warning (arrival) times for near field tsunamis.

Another challenge for evacuation planners lies in the fact that soon a warning scheme with two warning levels will be introduced by InaTEWS. In theory, this might help to solve the dilemma of the 'worst case scenario', because decision makers will not necessarily have to call for full-scale evacuation if the threat is a minor one. But from the field perspective, it looks a little different. We will provide you with some insights from this discussion in this edition of the Newsletter.

Best regards
Harald Spahn, Team Leader GTZ-IS



Participants of the GITEWS annual meeting in Potsdam 19-20 May 2010 / Discussion on warning dissemination during visit of German delegation to Pilot Area Bali

GITEWS annual meeting

More than 100 participants took part in the 5th GITEWS Annual Meeting held on 19/20 May at the GFZ in Potsdam, Germany. The meeting provided an opportunity to share information and to provide an outlook to the last phase of the project.

GITEWS annual meeting

After the inauguration of the Indonesian Tsunami Early Warning System in November 2008 and a joint testing and operating phase of nearly one and a half year, the 5th annual meeting was mainly dedicated to share experiences made during this period as well as on capacity development.

Besides further implementation of upstream technology and the finalization of the new warning scheme, the establishment and funding of an Indonesian-German service company to support the warning centre operator, the Agency for Meteorology, Climatology and Geophysics (BMKG), is currently on the agenda to complete and successfully run the system.

According to the law No. 31-2009, BMKG has the legal mandate to provide tsunami early warning in Indonesia. On the other hand BMKG has to outsource services like maintaining the system. To close this gap, a service company should become responsible for maintenance, training and further development. Part of this concept is the support of the service company by German experts from the GITEWS project during the first years. Currently a business plan for the service company is drafted in collaboration with the Econum Unternehmensberatung GmbH.

It is planned to officially hand-over the technical infrastructure to Indonesia at the end of 2010. Until March 2011 the remaining tasks of the various GITEWS working packages will be completed.

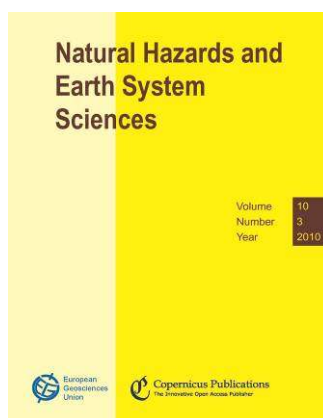
Already in September 2010 a group of international experts will meet in Jakarta for a review of the Tsunami Early Warning System with all its components.

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GITEWS results published in special issue of "Natural Hazards and Earth System Sciences"

International peer-reviewed articles are the best way to communicate successful science and technology results to a broad community. GITEWS does so by publishing the results of its different work packages in a special issue of "Natural Hazards and Earth System Sciences" (NHES), a publication of the European Union of Geosciences (EGU). The journal is ISI indexed (*Web of Knowledge, Thomson Reuters Science Citation Index*) and has an impact factor of 1.357 (2009). As of now 10 articles have already been published, another eight are in review and some more are expected to be submitted soon. In total 26 publications are planned.

Since NHES is an open access journal, all articles are available worldwide from the following website:
http://www.nat-hazards-earth-syst-sci.net/special_issue100.html



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Project Visit by German delegation

A German delegation headed by Mr. Kraus (Deputy Director General) and Mr. Ollig (Head of Unit System Earth) as representatives of the German Ministry of Education and Research (BMBF) visited the GITEWS Pilot Areas in Padang and Bali. Mr. Rottmann (German Embassy), Mrs. Fretzdorff (PTJ) and Mr. Lauterjung (GFZ) accompanied them.

During the visit they had the opportunity to meet representatives from the local government as well as from civil society and the private sector to discuss progress and challenges regarding tsunami early warning and preparedness.

In Padang, the delegation received a first hand update on the development of an official tsunami hazard map (see feature on page 7) and learned about the "Padang SOP" while visiting the local 24/7 Emergency Operation Centre (PUSDALOPS) office at the Padang Disaster Management Agency (BPBD). The last stop in Padang was dedicated to KOGAMI, where Patra explained about their organization and its community preparedness activities. A second visit, two days later, to the Bali Pilot Area, provided insights into tsunami warning services, community awareness and cooperation with the tourism sector (see also page 4).

Mr. Kraus said the delegation found it very encouraging to see the practical applications of the results of scientific research and how these can benefit the communities at risk.

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Coordination workshop in Jakarta to define the "siren protocol" / Participants of the coordination workshop

BMKG

A coordination workshop with local governments and universities
“Sirens as one end of the Tsunami Early Warning System”
 Jakarta, 25-26 June 2010

The coordination workshop

The coordination workshop, hosted by the Meteorology, Climatology & Geophysical Agency (BMKG), was attended by 53 delegates from 15 locations in Indonesia where sirens have been installed. Another 11 delegates had been invited from areas, where local institutions, in the absence of BMKG sirens, have put in place their own dissemination technologies. Several of the participants represented districts from the GITEWS Pilot Areas and were accompanied by the local GTZ advisor.

The expected outputs of the workshop – an official agreement on siren protocol, and inputs for the draft of the Tsunami Early Warning Services Guidebook, a national guidance for the local level with a comprehensive description of upstream and downstream services – has been achieved.

During the workshop a Common Agreement between the Ministry of Home Affairs, National Disaster Management Coordination Agency (BNPB), and BMKG was drafted. The agreement covers the following 5 aspects:

1. Legalization of the recommendations for the siren protocol made in 2007 & 2008
2. Role of BMKG as warning service provider, from the first warning message to be issued 5 minutes after the EQ until the 'end of the threat' message
3. Responsibility of local government to activate the siren in accordance with the "Guidance for Tsunami Early Warning"
4. Transition period during which BMKG is in charge of operating and maintaining the sirens system until local governments are ready to take over these tasks.
5. Date of the agreement

The workshop participants also made several suggestions for inclusion in the Tsunami Early Warning Services Guidebook:

- The sounding of the siren is the call for people to evacuate
- As BMKG will introduce 3 levels of tsunami warnings (one advisory level (Waspada) and two warning levels (Siaga, Awas)), it was suggested that sirens be activated only at the highest warning level (Awas or Major Warning). This suggestion is still controversial as not all participants agreed on this.

- There will be two types of warning message. The first type is for institutions only and will be sent out as short and long versions. A second type of message is for the public and will be disseminated only as a short version via the public media.

Tsunami Early Warning Services Guidebook

BMKG is currently developing a guidebook, as a practical guidance on tsunami warning services for local governments, interface institutions, media, and other multipliers that are involved in tsunami warning dissemination services.

Beside a writing team, which includes staff from BMKG and GTZ and is responsible for the gathering the required inputs and the drafting process, a group of reviewers is also involved, to provide inputs and to revise the document. The reviewers are representatives from BNPB, the Indonesian Institute of Sciences (LIPI), and the Pilot Areas.

The guidebook will consist of three parts. The first part is an introduction, explaining the importance of InaTEWS, the legal framework and the target group. The second part describes the end-to-end concept and the overall design of InaTEWS, explains the upstream component, including the roles and mandates of BMKG as the operator of the NTWC as well as of local governments, media, and other institutions in the warning chain. It also provides information on the warning scheme, contents of messages and recommendations how to react, as well as on the set up of the warning chain, including the dissemination system, involvement of the media and siren protocol. The third part focuses on the downstream component, including the importance of local government as a main actor in providing tsunami warning services for the community at risk, the institutional requirement, and the tasks related to the operation of tsunami early warning services at local level (receiving warnings, decision making and providing guidance to the community at risk). The chapter also sheds light on the importance of peoples' response and the reaction scheme, and includes recommendations for increasing local preparedness.

Work on the guidebook began in April 2010 and an BNPB approved version of the document is expected to be completed around the middle of this year.

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Presentation on the tsunami warning chain to representatives from Jembrana district / Evacuation planning in schools / Visit of German delegation to the village of Sanur

Bali

The provincial emergency operation center (PUSDALOPS) in Denpasar has been appointed by the Province Government to provide official tsunami warnings to all other Balinese districts and the communities at risk. As the tsunami prone districts should be able to react properly upon receiving a warning from the Province- PUSDALOPS, a workshop has been held to discuss and agree on district procedure for tsunami early warning.

On the road sharing information about TEW procedures

Staff from the Bali PUSDALOPS, accompanied by the GTZ-Bali team, have completed a road show to five tsunami prone districts along the southern coast of Bali, to provide the districts updates on the tsunami warning chain and related procedures.

During meetings with representatives from the districts, the following issues and inputs were raised:

1. Each districts should immediately establish a 24/7 post that will be in charge of receiving warnings from PUSDALOPS or BMKG.
2. Training for the staff of these 24/7 district posts is needed
3. Community awareness programs and activities are the responsibility of each district
4. Local governments and related institutions (SATLAK) were encouraged to be proactive in improving disaster management at district level.
5. Bali Province PUSDALOPS is expected to support the district posts or RUPUSDALOPS on a regular basis.

In principal, all the tsunami prone districts in Bali have expressed their commitment to implementing the agreed procedures and to establishing a communication link with the provincial PUSDALOPS. Several districts agreed to hold follow up meetings and submit reports to their heads of district.

Table Top Exercise in PUSDALOPS

GTZ and the French and Indonesian Red Cross have supported the provincial PUSDALOPS to design a series of table top exercises to test and improve procedures related to tsunami early warning that are applied by PUSDALOPS operators. The table top exercises are on three levels:

The first exercise is designed to test the upcoming new InaTEWS warning scheme, which consists of one advisory and two warning levels. Participation was limited to PUSDALOPS, BMKG-Bali, the Indonesian Red Cross (PMI), and Search and Rescue.

The second exercise will involve other selected institutions, such as representatives from the GITEWS pilot sites (Kuta, Sanur and Tanjung Bena), and is scheduled for early July

The third exercise will involve institutions from all tsunami prone districts in Bali.

School awareness

In cooperation with PMI Bali Region, an initiative to improve tsunami awareness and preparedness in schools has been started. A joint working team was established to support selected schools in Kuta, Tanjung Bena and Sanur to develop their own evacuation plans.

After a first briefing, the schools are being encouraged to establish small working groups to develop school evacuation plans under the guidance of the PMI / GTZ Team.

Project Visit by German delegation

The pilot area Bali received a visit from a German delegation (see page 2) in April 2010.

A welcome speech from the Governor was delivered during a visit to the provincial PUSDALOPS, where the delegates had the opportunity to openly discuss progress in tsunami early warning in Bali and witness a table top simulation of tsunami procedures. The delegation then visited the Sanur Kauh village office and talked with local representatives about community preparedness activities. The last stop was the Hard Rock Hotel in Kuta to learn about the cooperation with the private sector and the tsunami warning dissemination service operated by the Bali Hotel Association for its members.

Radios for PUSDALOPS

A set of VHF radios have been installed in PUSDALOPS to ensure communication with the local disaster management agency (BPBD) in Denpasar, the 24/7 Civil Defence (Kesbanglinmas) post in Badung district, PMI Bali Region, the beachguard organization Balawista, the police, and the amateur radio associations ORARI and RAPI.

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Next steps

Finalization of evacuation planning process in Sanur and related documentation. Continuation of activities to improve school awareness activities. Training of PUSDALOPS staff and table top exercises. Follow up of Workshop with Media and the link between provincial PUSDALOPS and district level.



Mr. Rusdiyanto opened the 15th Workshop / Speakers from Ministry of Home Affairs, BNPB, LIPI, BMKG and BPBD Central Java.

Java

The partners in the Java Pilot Area are preparing to carry out the activities planned for the last period of the project, April-December 2010. The 15th Workshop provided insightful ideas for the way forward for the working groups. Inter-district cooperation and hazard mapping are the highlights.

15th Workshop

During the period April-December 2010, the project is focusing on the cooperation between the five participating districts in Java. The cooperation is expected to enable sharing of experiences in implementing tsunami early warning between communities across districts.

The focus of 15th Workshop, held in Bantul on 5-6 April, was on inter-district cooperation and warning services. The workshop was opened by Mr. Rusdiyanto of Yogyakarta province Civil Defence, and attended by some 30 participants from the five districts and representative of BPBD Central Java, Mr. Maduseno Widyoworo. During the workshop the partners discussed how to progress with the inter-district cooperation and discussed other project activities in 2010. Resource persons from the national institutions provided insights into framing a tsunami forum for south Java.

Inter-district Cooperation

Mr. Firdaus Husin Thalib from the Ministry of Home Affairs explained that cooperation between districts should be encouraged to provide more effective public services, and highlighted the importance of an integrated multi-sector approach to disaster management. Inter-district cooperation is the concern of the regional and the national government, and should be based on Law 32/2004 and Government Regulation 50/2007.

During the workshop, the participants discussed and agreed on a first draft of the vision and mission for the new forum. This process was co-facilitated by Irina Rafliana of LIPI and Benny Usdianto of GTZ IS GITEWS.

Mr. Budi Sunarso of BNPB explained about the legal basis for the implementation of early warning and the institutional development for disaster management. To strengthen preparedness, BNPB focuses on improving communication access, provision of real time data and information during emergencies, and IT development at national level and in 33 provinces. An update on the progress in the installation of the monitoring devices and the Decision Support System at the National Warning Centre was given by Mr. Budi Waluyo of BMKG.

Other Topics

During the workshop, the participants discussed the planned activities planned up to November 2010, including hazard mapping, community events in all five districts and installation of communication technology. Simulations to test the implemented components were proposed by the districts for late 2010.

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Hazard Mapping

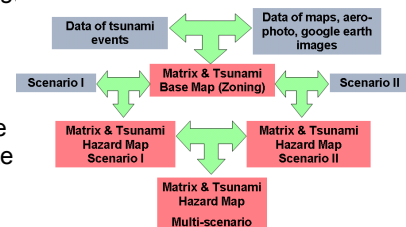
Despite the fact that several activities had to be postponed due to local elections, the partners started the hazard mapping processes in Purworejo and Ciamis.

Both districts applied the same mapping methodology, which was developed in the Java pilot area in 2007. This low-tech, participatory method follows four steps for developing a base map and a tsunami hazard map at district level.

To date, the first two steps have been completed. The mapping process is facilitated by the Bantul, Kebumen and Cilacap working groups, and a GIS consultant.



Flowchart of the Methodology



Next steps in Java

The installation of dissemination technology and implementation of community events will be continued. Purworejo and Ciamis are to complete the hazard mapping process. Partners in Cilacap, in cooperation with Central Java BPBD, is preparing for a visit by the Governor of Central Java to Cilacap in July 2010.



PUSDALOPS training / 1st meeting on developing a tsunami evacuation map for Padang

Padang

The long journey towards an official tsunami hazard map for Padang has come to an end. Local, national and international scientists presented their recommendations. The city government decided to use the recommended map, which will be used as reference for spatial planning and tsunami preparedness activities. We can now move on with developing the tsunami evacuation map, community outreach and training, and assisting the Padang community to determine their evacuation and response plans.

2nd Padang Consensus Meeting for a Tsunami Hazard Map

In the light of tsunami risk reduction efforts in the city of Padang, national and international research on tsunami hazard and vulnerability have been undertaken. Since 2007, there have been discussions on tsunami hazard and vulnerability in Padang, initiated in the “International Symposium on Disaster in Indonesia, Problems and Solutions”, and continued during the “Scientists Meet Politicians – Padang Consultative Group” seminar and the “International Symposium on a Tsunami Hazard Map”, which resulted in the Padang Consensus for a Tsunami Hazard Map in 2008.

To integrate these research findings into the actual city planning and preparedness activities, the city government held the 2nd meeting on the Padang Consensus, on 12-13 April 2010 in Padang. This meeting resulted in an agreed tsunami hazard map for Padang.



The map will soon be officially approved. It serves as input for the ongoing revision of the spatial plan following the 30 September (2009) earthquake, and for developing the tsunami evacuation map for Padang.

Training for local PUSDALOPS Operators – implementation of the Regulation of the Mayor on TEWS

As described in the Regulation of the Mayor 14/2010, PUSDALOPS acts as the local tsunami warning centre for Padang. In order to be effective and fully operational, PUSDALOPS personnel must have adequate knowledge and skills to provide the tsunami early warning services to the public.

A three-day training course for 20 PUSDALOPS operators was conducted to provide knowledge about disaster management and on how to operate tsunami early warning for Padang based on the existing and future InaTEWS warning schemes. This included exercises and clarification of technologies and procedures.



The participants made recommendations for follow up action to make sure that the decision making and dissemination mandate of the centre and its personnel, as stated in the Regulation of the Mayor, will be fully recognised. These recommendations were passed to BPBD.

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Designing the Tsunami Evacuation Map

The tsunami evacuation map for Padang will be developed on the basis of the approved tsunami hazard map.

The first meeting for the design of the Padang tsunami evacuation map was held on 26-27 May 2010. Participating in the meeting were local government institutions and NGOs, who agreed that the Padang evacuation map will have one zone that is to be evacuated during a tsunami emergency. This zoning is based on the hazard zone but includes an additional buffer zone.

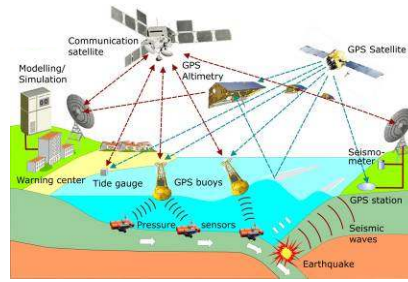
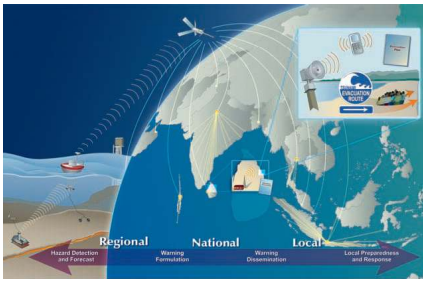
Padang will have two types of evacuation map: one for the public which is easy to understand, and one for internal (government or other stakeholder) use showing detailed information about evacuation and future planning.

The evacuation map we are developing covers the whole of Padang. More detailed maps for individual wards/neighbourhoods/sub-neighbourhoods will be developed with the community. Detailed evacuation maps will be developed as part of community outreach activities in six selected pilot wards.

The results of the mapping from the first meeting will be digitized and reviewed at the second meeting on 23-24 June 2010.

Next steps in Padang

Training of community facilitators who will conduct awareness events in selected areas in Padang. Support for the revision of local planning for disaster preparedness & action plans (RPB & RAD). Support for a tabletop exercises and preparation of a tsunami drill.



The concept of an "End to End System" / The concept behind InaTEWS / Representatives from pilot areas visiting the National Warning Center in Jakarta

Understanding InaTEWS

When talking to people about tsunami early warning, you will inevitably hear a variety of ideas and concepts about how they imagine the system works and what it is about. Building a common understanding is still a challenge.

It is a system not technology!

From the community perspective, the early warning system is often (wrongly) perceived as a set of sirens or loudspeakers that are directly connected to tsunami devices in the open sea. According to this idea, these sirens or loudspeakers will automatically sound and alert those at risk along the coast in the event that those devices detect tsunami waves.

Many people in Germany, for instance, believe that the functioning of the early warning system depends to a large extent on the performance of the dart buoys, as the launching of these devices and subsequent problems during the testing phase received a lot of media attention.

Many people are also aware of the "last mile problem", but it is generally perceived as a question of putting the right communication technology in place.

What all these views have in common, is the focus on technology. This may be rooted in a strong belief in science and technology as the ultimate solution. And indeed, at first sight InaTEWS comes across as high technology, which undoubtedly it is (in the upstream part). Nevertheless, as most of us already know, this is not the whole story.

"Early warning is a system not a technology" - this statement, made by IFRC in the World Disaster Report 2009, leads us to a different view of tsunami early warning. It recognizes that a system like InaTEWS is equally about the people involved, about fulfilling roles and taking responsibility and making decisions. And most importantly, it is about the community at risk, which is the reason for setting up a warning system.

Quite typically, the people and institutions at the local level – whether local authorities or the communities in the risk areas – are perceived or perceive themselves merely as recipients of a warning produced by the early warning system. But as experience shows, tsunami early warning will not be effective without local preparedness planning, continuous public education, local legal frameworks, coordination and agreements between stakeholders, and human resources development. To get ready for an emergency, it is essential to promote a common understanding that local communities and authorities are important actors in the system and to motivate them to take up their role.

Building a common understanding of InaTEWS

First of all, it has to be recognized that InaTEWS is still "under construction". There are ongoing discussions about roles and responsibilities, warning schemes and messages and procedures.

These discussions provides a good platform not only to contribute to a better and common understanding of the system between the national actors, but also as an opportunity to improve the link between local and national level. Joint events, like the latest workshop on the "siren protocol" at BMKG, where the local level got actively involved, contribute to a better understanding of the role of the local stakeholders in tsunami early warning.

At the same time, public education is needed to increase the understanding of the warning system and how it can benefit the communities at risk. There are several key issues that need to be addressed.

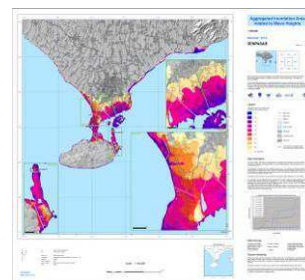
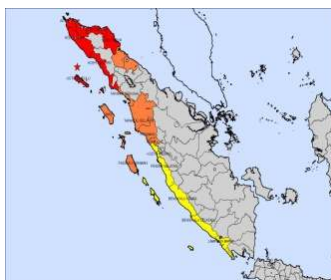
- People need to better understand tsunami sources and behaviour.
- The set up of the tsunami early warning system and the principles of the early warning process should be explained. It is necessary that people understand what the appropriate responses to a warning are.
- Maintaining trust in the system even after "false alarms" (referring to cases, where a warning was issued, but no tsunami occurred), which means that the issue of "uncertainty" needs to be openly addressed. People need to understand that warning processes for near field tsunamis never provide 100% certainty, but that the system is designed to minimize "false alarms".

Use the opportunities! All public education prior to a disaster will not have the force of "one good disaster" to change what people think, their behaviour and public policy. Therefore every earthquake, tsunami warning and tsunami disaster should be used in a strategic and systematic way to improve institutional capacities and educate the public.

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STATUS (warning level)	Estimated tsunami wave height	Color code	Advice from NTWC to province, district and city governments
MAJOR WARNING (AWAS)	≥ 3 meter	red	Province/District/City governments that are at "Major Warning" level are expected to pay attention to this warning and immediately guide their communities for full evacuation.
WARNING (SIAGA)	0,5 - 3 meter	orange	Province/District/City governments that are at "Warning" level are expected to pay attention to this warning and immediately guide their communities for evacuation.
ADVISORY (WASPADA)	< 0,5 meter	yellow	Province/District/City governments that are at "Advisory" level are expected to pay attention to this warning and immediately guide their communities to move away from the beach and river banks.



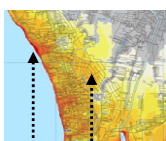
Ina TEWS warning level and advice from NTWC / Warning levels in various districts / Map visualizing inundated areas based on different wave heights at coast

InaTEWS: Two warning levels and the implications for evacuation planning

The new warning scheme of InaTEWS will include two warning and one advisory level, which are based on estimated tsunami wave height at the coast. With two warning levels, it will be possible to distinguish between a minor threat and events that might have more severe impacts. This could be useful particularly in densely populated areas, where a call for a full-scale evacuation would not be necessary if the threat were a minor one. Nevertheless, there are still some fundamental questions as to whether such an approach is

Rethinking the warning levels!

The first question is related to the thresholds of the warning levels. The current threshold of 3m (wave height at coast) to separate warning level 1 from level 2 was defined sometime before the Aceh tsunami. We can see from inundation maps that affected areas at warning level 1 are relatively small and are often confined to quite narrow strip along the coast, whereas the area affected by warning level 2 can extend up to 4 km inland.



Area affected at Warning Level 1

Area affected at Warning Level 2

Since the Aceh tsunami evacuation planners are confronted with a new dimension for the 'worst case scenario'. The impacted area of the 2004 tsunami was up to ten times larger than the affected area of any historical, documented tsunami in Indonesia, with the exception of the Krakatau event. Evacuation planners face the dilemma of probability, as the worst case is a very rare event and evacuating people horizontally out of the potentially affected area is not realistic considering the short warning (arrival) times for near field tsunamis.

For evacuation purposes, it would be therefore much more useful to introduce warning levels that distinguish between an "average" destructive tsunami (occurring every 2-3 years in Indonesia), which would require evacuation of a coastal strip of around 500 – 1000 m, and a "worst case" scenario (occurring very rarely), which could affect areas up to 4 km inland. This option, however, would require adjustments in the parameters that define the warning levels.

Not ready yet for a two level evacuation approach?

The second question is whether a strategy which distinguishes between partial and full scale evacuation is a realistic option when it comes to implementation. Considering the current state of public understanding of the warning system and the difficulties in disseminating warnings and guidance locally, the option of a two-level approach still seems questionable.

A two-level approach only makes sense if there are means to clearly communicate these levels to the people at risk in an emergency situation. Even if suitable dissemination technology were available, it would not necessarily mean that people would be able to react appropriately. Sirens, for example, are installed in several places and are able to deliver different types of "messages" by using different sound patterns (steady / intermittent or different duration), but it is doubtful whether people will remember the different meanings in the long run.

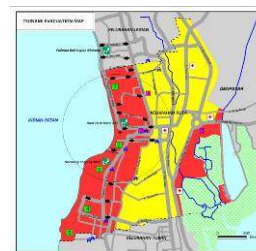
The ongoing discussion about the "siren protocol" for tsunami early warning in Indonesia is a good example of the various perceptions of how to react to the different warning levels. Even though it was already agreed that a sounding siren is a call for evacuation, it was then proposed that the siren be activated only at the "Major Warning" level to "avoid false alarms" – with the consequence that a call for evacuation in the event of a minor threat would need to be communicated via other means.

Another aspect to consider is the question whether a two-level approach might create a false sense of accuracy and certainty with regard to warnings.

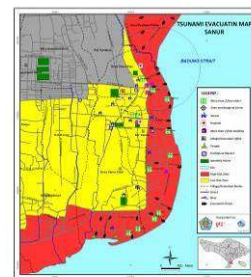
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How to move on from here?

Further consultation of the local partners on the feasibility of the two-level approach in the pilot areas is required. In Padang as well as Cilacap, local stakeholders opted for a single-level evacuation strategy. Stakeholders in Bali decided to apply a two zone concept for evacuation planning, distinguishing between zones affected in "average" and "worst case" scenarios, although these zones do not coincide with the InaTEWS warning levels.



Kuta Evacuation Map



Sanur Evacuation Map

Discussion of these issues with the NTWC and the German GITEWS partners needs to be continued.



Participants of the ICG-IOTWS Session during a field trip in Banda Aceh / Tsunami shelter building in Banda Aceh

International Conferences

The project participated in the 7th Session of the ICG/IOTWS in Banda Aceh, Indonesia and the IDRC in Davos, Switzerland, using the opportunities to share experiences from the pilot areas with an international audience.

Seventh Session of ICG/IOTWS-VII 14 - 16 April 2010, Banda Aceh

Representatives from the GTZ team participated in the seventh session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS-VII), held in Banda Aceh, Indonesia, 14– 16 April 2010.

Chaired by Prof Dr Jan Sopaheluwakan, the session was hosted by the Agency for Meteorology, Climatology and Geophysics (BMKG) and supported by TDMRC (Tsunami and Disaster Mitigation Research Centre of Syah Kuala University). The session was attended by 85 delegates from 13 member states in the Indian Ocean region, 5 observer states and 12 UN agencies, NGOs and other organisations.

During the session, the members decided to organise an Indian Ocean Wave 10 Exercise involving Regional Tsunami Watch Providers (RTWP) and National Tsunami Warning Centres (NTWC) in the final quarter of 2010, and asked the RTWP Task Team to coordinate the exercise. The ICG also decided to hold its Eighth Session in April 2011 and accepted the offer from Australia to host it.

Cooperation between ICG-Working Groups

Working Groups 3 and 6 will conduct a regional seminar and training on risk assessment. Case studies will be provided by Sri Lanka and Indonesia. Cooperation between Working Groups 3 and 5 is leading to a regional workshop on SOPs for disaster management offices and national tsunami warning centres.

Further information
www.ioc-unesco.org

Working Group 6 documentation:

“Preparing the Last Mile of the Indian Ocean Tsunami Warning System”.

During the session, WG 6 presented a proposal to develop a document with a compilation of experiences and approaches shared by Working Group 6 members on community preparedness and the last mile of the tsunami early warning system.

GTZ IS-GITEWS is contributing to the design of the outline of the document, providing input based on the experiences from the pilot areas.

The compilation will document important learning experiences from past disasters, collect good practices around the Indian Ocean countries, reflect on the role of the media in warning dissemination, and provide useful tools for strengthening community preparedness. Lessons learnt from the first Indian Ocean Wave Exercise are expected to be one of the highlights of this documentation. Other key topics which are to be included in the document, are lessons from preparedness initiatives and early warning in the Asia Pacific region.

A team was formed to undertake this work, led by Mr Amir Mohyuddin (Pakistan). The team is expected to draft the concept note and take care of further communication with the member states to develop the document.

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IDRC Davos

The International Disaster and Risk Conference (IDRC) took place on 30 May - 3 June, 2010, in Davos, Switzerland. The IDRC conferences and workshops attempt to find answers and solutions to today's challenges in managing risk, reducing disasters and adapting to climate change.

As part of the GITEWS project, GTZ IS contributed to the conference with an oral presentation on the capacity building approach to strengthening tsunami early warning and preparedness in local communities in Indonesia as well as the challenges and experiences encountered.

The extended abstract and presentation “Capacity Building and Institutional Development in Local Communities. A GTZ supported project – part of the German-Indonesian Cooperation for a Tsunami Early Warning System (GITEWS)” was developed as a co-production involving Michael Siebert from GTZ headquarters and the team in Indonesia (Henny Dwi Vidiarina, Michael Hoppe and Harald Spahn).



“From Thoughts to Action”

Abstracts & presentations of the IDRC 2010 are available online at
www.grforum.org

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Our contribution to the NHESS Special Issue on GITEWS

The GTZ WP 6300 team also contributed to the Special Issue on GITEWS in "Natural Hazards and Earth System Sciences" (see page 2). The paper, entitled "Experience from Three Years of Local Capacity Development for Tsunami Early Warning in Indonesia: Challenges, Answers and the Way Ahead", was drafted by Harald Spahn, Michael Hoppe, Henny Dwi Vidiarina and Benny Usdianto.

In the publication the authors provide insights into the capacity building approach and the strategy adopted by the project, as well as reflections - from the perspective of local communities and related capacity building - on challenges, lessons and the way ahead to developing end-to-end tsunami early warning.

The drafting process itself allowed the project team to revisit and wrap up several key issues encountered during the project lifetime and to compare them with other international experiences.

We would like to thank the reviewers B. G. McAdoo, C. E. Gregg, and J. C. Villagran de Leon, and editor Alexander Rudloff, for helping to improve the quality of our manuscript.

Our publication (nhess-2010-51) is now available for download at: <http://www.nat-hazards-earth-syst-sci.net/10/1411/2010/>.

Farewell

Jenik Andreas (**Jenik**)
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Jenik Andreas joined the team in 2009 as a project assistant in the Java Pilot Area. Mid 2009 she was assigned as project adviser for community awareness to support the development and implementation process of the ToF training approach. On her last assignment, Jenik joined the project team in Jakarta to support the development of the overall project documentation "Tsunami-Kit" and to set up a photo collection of the project. Her assignment ended on 30 June 2010. We are grateful for her contributions and for sharing her valuable experience with the project. We wish her all the very best in the future.



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