

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

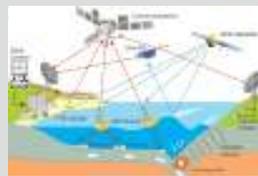
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GITEWS

Editorial

Tsunami Early Warning requires cooperation of people and institutions from international, national and local level. This kind of cooperation needs a steady communication and exchange of information. With this quarterly newsletter the Pilot Project “Capacity Building in Local Communities” will contribute to that aim. As our partnership include local and national Indonesian institutions, German GITEWS partners and international organizations, this newsletter will be published in Indonesian and English language.

As a Capacity Building Project for local communities our attention naturally focuses on people and institutions in coastal communities in tsunami prone areas. Three Pilot Areas have been selected in the past few months, cooperation agreements discussed with the local governments and first activities implemented. In this edition of the newsletter we will introduce all three Pilot Areas to you.

Dialogue between local stakeholder and national institutions is essential in order to define the links and interfaces between the different parts of the warning chain. A discussion forum last September was followed by a series of workshops on local SOP development, where local and national institutions exchanged information and discussed how warnings could be disseminated to the local communities. At the same time this initiative is a good example for cooperation between international support agencies (GTZ-IS, IFRC, UNDP, USAID), who jointly organized and sponsored these events.

Best regards
Harald Spahn, Team Leader GTZ-IS.



About Our Project „Capacity Building in Local Communities“

Early Warning is essential to save lives and reduce damages when a Tsunami strikes. Indonesia, in cooperation with Germany and other countries as well as International Organisations, is setting up a Tsunami Early Warning System (INA-TEWS) for the whole country. This system will be an essential part of an integral Tsunami Early Warning System for the entire Indian Ocean Region.

In order to support the implementation of a tsunami early warning system in the Indian Ocean and especially in Indonesia, the BMBF provides 45 million Euro for the development of core elements of a tsunami early warning system (GITEWS). The German contribution to the detection system of earthquakes and tsunamis for Indonesia relies on a marine measurement procedure and a seismological research network. Together with national and international partners, a concept is being developed under the guidance of Geo Research Center Potsdam (GFZ) that will significantly reduce the warning time of a tsunami using real-time data transfer, predetermined flooding scenarios in coastal regions as well as by creating warning reports directly.

One component of the German–Indonesian Cooperation for Tsunami Early Warning focuses on assuring that people in risk areas are alerted in time and execute the anticipated response in a short time to minimize losses. The project “Capacity Building in Local Communities”, implemented by GTZ-IS, cooperates with Local Governments and other stakeholders to develop warning and preparedness mechanism in 3 Pilot Areas.

The results from this project shall enable other coastal communities to link themselves to the INA-TEWS and to prepare better for future Tsunamis. The project started in June 2006 and is scheduled up to the end of 2008.

The project offers advisory services for local stakeholder in the following fields:

... identifying local tsunami risks

- Technical advisory for hazard analysis to identify areas affected by tsunamis and safe zones.
- Support for vulnerability analysis

... establishing the warning chain on the local level

- Providing information to understand the system and how to link.
- Clarifying roles and responsibilities.
- Developing Standard Operational Procedures
- Design of warning dissemination system and access to new technologies

... preparing for appropriate reaction to the warning

- Awareness rising and educational training
- Developing contingency planning
- Establishing evacuation plans

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Our Partners

The GITEWS project is coordinated with RISTEK and includes partnership with several national Indonesian institutions.

On the national level our project has established working relations with LIPI, BMG, KOMINFO and MOHA.

On the local level our direct partners are the Local Governments in the three Pilot Areas. Working relations are also established with local NGO, PMI as well as the Private Sector.



News from Pilot Areas

Padang

Padang is the capital of West Sumatra Province. Almost 1 million people live in the city. Geographically, it lays on the west coast of Sumatra Island and has a direct border with the open sea (Indian Ocean). Padang is considered as one of the most vulnerable cities towards tsunami hazard in the Indian Ocean region.

Padang City was the first Pilot Area to join the GITEWS project. GTZ-IS established partnership with the local government (Pemerintah Kota Padang) and with the local NGO KOGAMI (Komunitas Siaga Tsunami).

A cooperation agreement between PEMKO Padang and GTZ IS was signed on 19th of November of 2006 in Padang by Mr. Fauzi Bahar, the Mayor of Padang and Harald Spahn, GTZ-IS Team Leader.

The Mayor hopes that Padang will be the first city who will have an end to end Tsunami Early Warning System in Indonesia. Mr. Indra Catri, the assistant to the mayor, is appointed to be in charge representing the local government.

Activities implemented during the first months of the cooperation in Padang:

- A participatory workshop for stakeholder analysis and a study on "Warning Chain Analysis" for West Sumatra Province and Kota Padang were conducted to clarify which institutions are involved and what are their roles regarding Tsunami Early Warning.

- Baseline studies regarding the local legal framework and the available information on tsunami hazard in Padang were conducted

Representatives from a Padang Working Group participated in the SOP-Workshops and hosted the second workshop in November 2006.

GTZ short term consultant Juan Carlos Villagran de Leon (UNU) supported the Padang Working Group in November 2006 in the development process of local SOP and evacuation planning.

KOGAMI was supported with a local subsidy for equipment and funds for activities for evacuation planning

During an assessment workshop on Tsunami Early Warning in Padang (7th and 8th March) a inter-institutional working group for Tsunami Preparedness and Early Warning was established. The workshop was attended by 50 representatives from local parliament and government institutions, police, military, PMI, NGO and private sector.

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Establishment of PUSDALOPS in Padang

PUSDALOPS is a Operation and Control Center for Emergencies recently established in Padang.

The PUSDALOPS located at Fire Brigade HQ in Jl. HR. Rasuna Said. The office already equipped with Computers, Phone and Internet Lines.

GTZ-IS contributed to the Radio Communication system and a 30 meters antenna tower. It was agreed to use VHF Radio Repeater System to communicate and sharing information among the SATLAK Members. RAPI helped the setting up of radio system (HF, VHF).

Next steps in Padang

After the Tsunami Early Warning Assessment an inter-institutional working group was established to foster Tsunami Preparedness in Padang. GTZ will provide advisory to review the local regulation for disaster management (PERDA) on request of local decision makers. In April 2007 FM-RDS technology will be introduced and tested in Padang.



Bali

Bali Island is one of the world's icons of tourism, while at the same time it is located in one of Indonesia's vulnerable hazard areas. Implementing Tsunami Early Warning therefore is not only a governmental issue but also a priority for the private sector. Bali was the first place to test a new German FM-RDS technology for Early Warning.

Bali was chosen as one of the pilot areas considering its vulnerability to tsunamis (seven among nine districts affected by tsunamis) and its consequence to the local economics which is mainly based on tourism industry.

In October GTZ IS team visited government agencies to discuss cooperation. GTZ-IS has presented its plan for a pilot project to the city development agency (BAPPEDA) in Denpasar and Bali Tourism Board, then submitted its proposal to the local government. On January GTZ-IS got the green light from the Governor of Bali to negotiate the articles on the agreement, as well from the Deputy Bupati of Badung.

Although formalizing cooperation still takes its time, representatives from Balinese institutions already participates in GITEWS capacity building activities. Bali was also hosting the first workshop for local SOP development in Sanur, 12-14 October 2006.

The Bali Team then was supported by GTZ-IS to participate in the following two workshops on local SOP in Padang and Jakarta. The GTZ IS consultant supports the Bali team to improve the existing SOP draft.

Bali was also the first location to test the FM-RDS technology



FM-RDS Test in Bali

In Bali a new technology for the "last mile", which passes warnings on via FM RDS technology (Radio Data System) was tested successfully. The technology works by the same principle as traffic warnings via car radio in Germany. If a warning is send out, this is conveyed automatically, independently whether the early warning receiver switched on or off is or is adjusted to another radio station.

The main test was performed during the Bali Drill on the 26th of December. During that period the project also contributed to an exhibition organized by LIPI on 27-28 December 2006 in Discovery Mall, Kuta.

The FM-RDS-Test is funded by the Indonesian and German Ministries of Research (RISTEK, BMBF) and 2WCOM, a German company, which developed this technology.

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A set of FM RDS receiver is placed with the Airport Authority (PT Angkasa Pura – Ngurah Rai Airport)

FM-RDS

The FM-RDS technology was presented initially during an informational event organized by GTZ-IS on the 6th of November

Thirty seven FM RDS receivers distributed and tested during the period of 24th December 2006 to 2nd January 2007.

Test results showed that the technology proved to work well and was received with great interest and expectations especially from the private sector, which is looking forward to get access to early warnings via FM-RDS technology as a permanent service. Nevertheless there is still the need to clarify some questions related to the institutional integration of FM-RDS in the Indonesian Early Warning System. Additionally some technical issues have to be addressed before a regular warning service by FM-RDS can be installed.

We will keep you informed.

Next steps in Bali

Assessment workshops on district and province level will be held to define cooperation mechanism and a joint working plan. Meanwhile GTZ-IS advisory will continue for the local SOP development process. Cooperation with private sector is under preparation as well – a first workshop on is planned for May 2007.



On the southern coast of Java, Bantul District already set up a siren system

Java

The earthquake in Jogjakarta and tsunami in Central Java in 2006 has made local governments and its communities aware that there is a need for better preparation in facing natural hazards. GTZ-IS will provide training and advisory to three districts in Jogjakarta and Central-Java to establish Tsunami Early Warning and improve Preparedness.

During December 2006, the GITEWS Team of GTZ-IS visited a number of locations on the southern coast of Jogjakarta and Central Java provinces. The team also met with district and provincial local governments, private sectors (PERTAMINA), research institution (LIPI), Red Cross, and some communities.

After the meetings and discussions with the local governments and other stakeholder and it was agreed that GTZ-IS will realize its capacity building activities in three local districts: Bantul in Jogjakarta, and Kebumen and Cilacap in Central Java.

Initial activities have already been started by the local governments, such as dissemination of Tsunami related information to public, installation of sirens, and evacuation drills. They admitted that such initiatives were still very simple and need improvement.

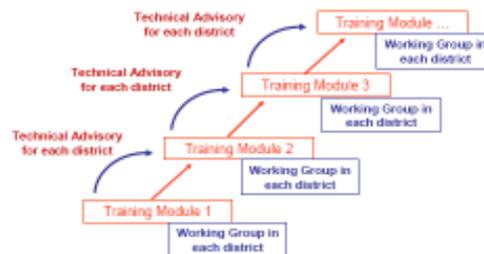
In the time being, the cooperation agreement is under discussing with each of the district governments to define cooperation mechanism and contributions. The first training workshop will be implemented Mid March 2007.

Participants in the training will comprise of representatives from government institutions and non-government organizations (PMI, private sectors, NGO, CBOs), concerned with Tsunami Early Warning & Preparedness.

The selection of participants is set to meet agreed criteria that allow the individual participants continuously to learn, to disseminate the knowledge-skills-technology learnt, and to implement it to the communities in their own areas. Each of the three districts is to include about 8 participants.

This capacity building project is currently planned to run up to the end of 2008. At the end of the project, it is expected that the three local district governments will have implemented TEWS and developed mechanism for preparedness to Tsunami.

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Participation in Cilacap Workshop



GTZ-IS / GITEWS Team (Harald and Vidi) presenting a session about TEWS at the AK3 Workshop, organized by PERTAMINA in Cilacap (07/02/07)

Participation from BMG and GITEWS project in Workshop on Fire and Disaster Management organized by PERTAMINA, February 2007, Cilacap introducing Tsunami Early Warning

After the workshop an additional presentation on Tsunami Early Warning for PERTAMINA Management was provided on request of the GM.

Next steps in Java

The Kick-off Workshop for the Training Program will be realized 14th to 15th March in Kebumen. The objective of the first training is to conduct an assessment on Tsunami Early Warning in the three districts, set priorities and establish working mechanism for the implementation process of Tsunami Early Warning.



BMG – the source of Tsunami Early Warning

As stated by the President of Republic Indonesia the first “five minutes” are responsibility of BMG, afterwards other institutions should take their role in the next action.

BMG is responsible for the operational component, to monitor earthquake information and generate tsunami early warning within five minutes.

Other institutions responsible for information and dissemination of early warning are then able to respond in a timely and effective way to reduce disaster impact.

The following are the main responsibility of the BMG

1. Observation

Earthquake & sea monitoring by several devices such as seismograph; accelerograph tide gauge, Buoy, GPS land station, etc.

2. Processing

Information processing on earthquake, as a support data for confirmation of Tsunami Warning using a decision support system.

3. Dissemination

Information and warning dissemination to some interface institutions and community using communication media such as SMS, FAX, Telephone, Siren, etc.

Challenges faced by BMG

- How to develop a common knowledge on the content of earthquake or tsunami information / warning
- Who and which institution are responsible for the follow-up of the information / warning in local level
- What kind of communication network is needed by the community to receive the information / warning from BMG
- Development of a regulation to define link from province to village level for the early warning system
- Need to establish 24/7 offices in local areas to receive information / warning from 24/7 BMG warning center
- What kind of SOP is appropriate with the warning content

BMG Recommendation for the local government

- To prioritize the communication equipment in their local budget that exclusively are able to receive BMG information
- To follow-up the BMG information/warning through an appropriate SOP
- To conduct the trainings / simulation to update SOP
- To develop the tsunami evacuation maps

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BMG is a key actor for INA-TEWS, particularly for the forecasting and generation of Tsunami Early Warnings as well as forwarding the warnings to Interface Institutions. Currently Standard Operation Procedures for BMG are under development.

BMG is also a focal point for:

1. **Seismic Monitoring** (Deployment-Monitoring, Processing, Analysis-Dissemination);
2. **Operational Center** (National Center for Earthquake and Tsunami Disasters, DART-Buoys Center, Tide Gauges Center, GPS Center; and Dissemination System)



BMG Achievement in 2005 – 2006:

- 73 Seismic Sensor
- Distance between sensors ± 300 km
- 10 Regional Center and 1 National Center
- Processing Time ± 10 minutes

BMG Target in 2007 – 2008:

- 160 Seismic Sensors – 500 Accelerograph
- Distance between sensors +/- 100 km
- 10 Regional Center and 1 National Center
- Processing Time ± 5 minutes



Capacity Building for Local SOPs

Standard Operational Procedures

Since October 2006, groups of local stakeholder involved in Tsunami Early Warning of NAD (Nangroe Aceh Darusallam), Bali and West Sumatra participated in a series of workshop on “Capacity Building for Development of Local SOPs for Tsunami Early Warning and Response”.

The main objective of the Workshop process is to **strengthen capacities** in local communities to develop SOPs for TEW and reaction to warning. In particular, the objective is to develop guidelines and tools for local government and other stakeholders to use for the development of local SOPs for Tsunami Early Warning and Response to warning by supporting a learning and validation process for three regional learning teams as they develop local SOPs for TEWS. The workshop participants will act as **outreach agents** in their communities and bring their knowledge into the local SOP development process.

Workshop Participants come from local government, PMI and NGO as well as Armed Forces and Police.

The workshops were organized and supported by national (RISTEK, BMG, BAKORNAS, KOMINFO, DEPDAGRI) and international institutions (GTZ, IFRC, UNDP, UNESCO-IOC and USAID).

1st Workshop: October, 12-13, 2006, Sanur, Bali

2nd Workshop: November, 19-23, 2006, Kota Padang, West Sumatra

3rd Workshop: January, 23-25, Jakarta

Main Issues raised on the SOP development process:

1. Through a process of discussion, the participant agreed on a common definition of SOP:

“Systematic steps by institutions on who is doing what, when, where, and how for Tsunami Early Warning and Response”
2. In term of Risk knowledge, local communities need access to existing hazard information, maps and models.
3. In term of warning dissemination, there are gaps and unclear responsibilities who will design and coordinate the dissemination process between interface institutions and community level.
4. To avoid complicated mechanism and to cope with the local tsunami risk, the direct link from National BMG to Local Level considered as the best option

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The main output from the SOP Workshop process is a documentation of lessons learned, good practices, tools and guidance for the development of SOPs for Tsunami Early Warning on the local level. Additional results will include:

- 3-4 Municipalities that are more knowledgeable, organized and prepared for planning tsunami early warning and response
- An informal network of local governments who have worked together on preparing for tsunami early warning and response
- Recommendations from participants to local governments/stakeholders for preparing for tsunami early warning and response





Warning Chain Analysis

Warning Chain

Effective early warning system is very important in disaster preparedness since it will reduce disaster risk. One of the aspects to build an effective early warning system is a good mechanism of dissemination and transmission of information from the warning center to local authorities and to the community

The study on the structure of tsunami warning system at the national, provincial and local level was elaborated by a Study Team around Krishna Suryanto Pribadi on behalf of GTZ-IS. Its objectives were to provide baseline information on the existing institutional set up for the tsunami early warning system.

The study was based on the analysis of various information collected as secondary information as well as a direct, first hand interviews with representing officials from various government and non-government organizations considered as the major stakeholders in the system.

This baseline study actually provides a photographic view of the current situation and mechanism in delivering tsunami warning information to the local communities and to the people. It describes the role of various institutions and agencies in different levels (national, provincial and local) as of the situation by the end of October 2006.

It has to be understood that the development of tsunami warning chain is a very dynamic process, where change and development are current and occur sometimes in term of days.

The authors concluded in their study:

“Many organizations have since updated their system and organization as part of the tsunami early warning system development process; such is the case of BMG which updated its warning chain in December 2006.

The investigation shows that, in reality, there is still no such an agreed operational tsunami warning chain available currently. The primary concern is how to develop a comprehensive understanding and commitment toward the need to develop an operational and integrated tsunami warning chain as part of disaster warning mechanism, at different level of government organizations, which should also contribute to the implementation of a wider operational multi-hazard warning system within each jurisdiction. A positive BMG initiative is developing a scheme of tsunami warning chain, involving various relevant stakeholders and technologies.

To support the initiatives properly in order to produce an effective warning chain, especially on the downstream side, adequate allocation of resources such as permanent personnel, facilities and equipment to facilitate the proper operation of an end-to-end tsunami warning system is necessary. Official documents and legislation in this regards are essential to promote full understanding of and commitment to the system to all relevant stakeholders, which are the decisive factors in making the system operational.”

The complete document is available at our project office. Please contact Nina.

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GTZ-GITEWS
Working Document

**“Warning Chain Analysis
for Tsunami Early Warning
on national, province
and district level”**

by:

Krishna S. Pribadi et al
December 2006





Knowledge Management

Don't invent the wheel again. Building up on existing knowledge and provision of access to experiences which already exist, this is part of our projects strategy. For that reason several Baseline Studies have been conducted during the last month to document experiences with Tsunamis and Early Warning in Indonesia.

Team Building Workshop for GTZ-IS / GITEWS Team

Since the 1st of January 2007 the GTZ-IS Team for GITEWS is complete. This was considered as the right moment to call for a Team Building Workshop to review the project strategy, discuss activities in the Pilot Areas and organize project monitoring, knowledge management and communication issues.

One day was dedicated to discuss in depth background information on tsunami hazard in Indonesia and the progress made so far in the implementation process of the Indonesian Tsunami Early Warning System. In this context the team also reviewed the Baseline Studies which were elaborated during different consultancies in 2006.



Baseline Studies

Warning Chain Analysis by Krishna S. Pribadi, October 2006, updated December 2006

Compilation of Tsunami & Earthquake Hazard Analysis in Pilot Areas by Martin Hardiono, December 2006

Legal Framework for Disaster Management particularly in the field of the Early Warning System by Anthony Darmawan Mulya, December 2006

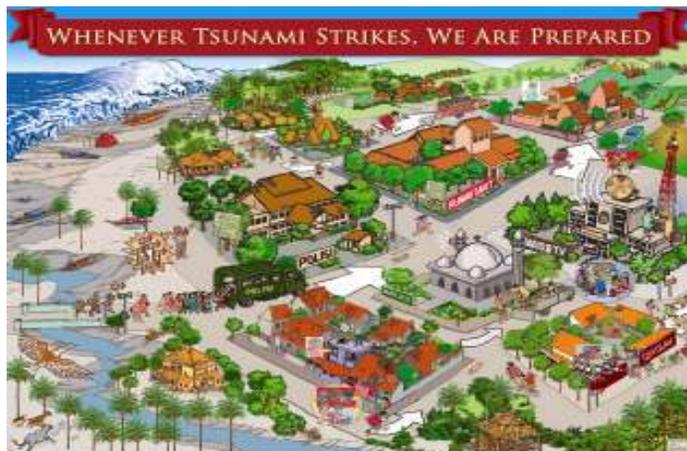
Early Warning Experiences for Flood, Volcano & Forest Fire in Indonesia and Tsunami in Pacific Region by Dr. Ir. Rizaldi Boer, December 2006

Tsunami experiences in Indonesia (1956-2006) by MPBI, March 2007



Tsunami Poster

An educational poster was developed to increase knowledge and awareness about Tsunami hazard and Early Warning. It is available in two languages: Indonesian and English. We would like to thank Yayak Yatmaka for the excellent design.



Who We Are

Harald Spahn (Harald)
Team Leader
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Harald Spahn, Geologist, with 15 years experience in international environmental and natural resources management including disaster management projects related to Hurricanes (Central America), Earthquake and El Nino (Peru).

Henny Dwi Vidiarina (Vidi)
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Vidiarina, a Presidium Board member of MPBI (Indonesian Society for Disaster Management), has 5 years experience in conflict recovery (1999 – 2002) and 4 years experience in Disaster Management (2002 – today), include Early Warning System for Flood in Jakarta and Fire in peat land & forest areas in Central and East Kalimantan.

Iskandar Leman (Iskandar)
Consultant in Pilot Area Bali
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Iskandar, Secretary General of MPBI (Indonesian Society for Disaster Management), has a broad and international experience on Disaster Management, particularly as trainer and facilitator.

Aim Zein (Aim)
Local Adviser in Pilot Area Padang
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Aim, chairman of RAPI (Amateur Radio Organization), West Sumatra Chapter, has private sector and international experience. Since the Earthquake-Tsunami in Aceh he is involved in Disaster Preparedness and response. He has excellent knowledge on institutional, socio-cultural condition in Padang.

Benny Usdianto (Benny)
Local Adviser in Pilot Area Java
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Benny Usdianto, over 5 years experience in community-based disaster risk management, community capacity and emergency aid management. He has good knowledge on institutional, socio-cultural conditions in Java.

Silva Anggraini (Silva)
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Her first experience on disaster management was related to information center and vulnerability assessment in earthquake-affected areas in Yogya during 2006. She is currently participating in a disaster preparedness curriculum development for primary schools.

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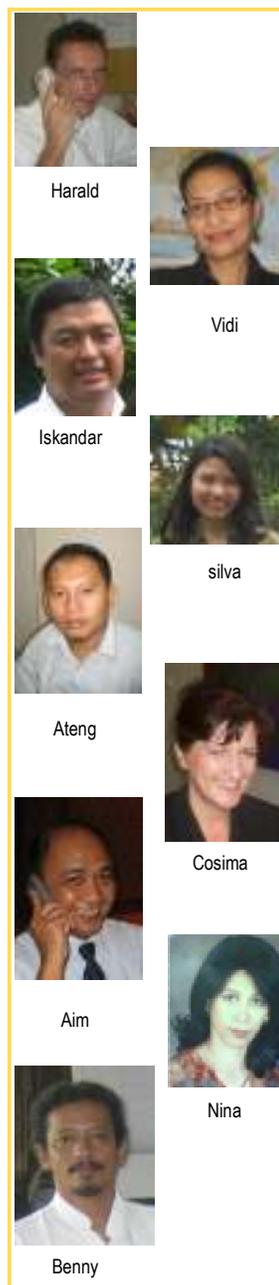
Nina has experiences in office administration and management for almost 20 years. She already worked with other GTZ projects before joining GITEWS.

Cosima Goepfert (Cosima)
Financial officer
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Cosima, Head of Administration and Finances for GTZ IS Jakarta since February 2006. She finds working in an international environment gives her a great opportunity to broaden her horizon and to reconsider attitudes which she has from growing up in Europe.

Ateng Kurniawan (Ateng)
Driver

Ateng was the first joining the project team. Despite of the heavy traffic jam in Jakarta, he always ensures that all team members are able to catch their flights on time.



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