REPORT ON THE HAZINFO DISSEMINATION WORKSHOP INDONESIA

Sharing Knowledge on Last-Mile Warning: Community-based Last-Mile Warning Systems

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**With additional input from Indonesian Institute for Disaster Preparedness (IIDP)*

OVERVIEW

This report presents a summary of the "Sharing Knowledge on Last-Mile Warning: Community-Based Last-Mile Warning Systems" workshop that took place at the Hotel Borobudur in Jakarta, Indonesia in partnership with the Indonesian Institute for Disaster Preparedness (IIDP). The workshop provided an opportunity to discuss and share the findings of the "Evaluating Last-Mile Hazard Warning Dissemination: A Research Project" (HazInfo) with Indonesian counterparts while at the same time learning about similar initiatives and community-based hazard warning systems.

The primary objectives were:

- Obtaining feedback on the findings of "Evaluating Last-Mile Hazard Warning Dissemination: A Research Project",
- Exchanging lessons learned from end-to-end hazard detection and alerting systems that serve grassroots communities in Indonesia,
- Merging knowledge from Indonesia to develop practical solutions for communicating risk information to rural communities
- Analyze and determine methodologies for measuring the performance of Community-based Early Warning Systems
- Commencing dialogue on the development of a regional last mile warning system.

OBSERVATIONS AND COMMENTS

Overall, the workshop went well despite earlier setbacks (i.e. planning for the workshop to be on 30 January, speakers dropping out at the last minute, etc.). IIDP did an excellent job in organizing the event in Jakarta and finding a range of speakers from government to community-based organizations.

The workshop began approximately 20 minutes late due to waiting for participants and some speakers. Workshop agendas were not printed and distributed prior to the event commencement, and when they were distributed the version was incorrect. Due to a late start, group discussion following each session had to be cut and put at the end of the workshop. This precluded asking questions on particular parts of the HazInfo research and their comparisons with the Indonesian experiences.

Session Title	***Presenter***	***Title and Comments***
Inauguration **Opening Remarks**	Ms. Chandra Lukitasari, Executive Director, IIDP Chandra.lukitasari@yahoo.com	Made some opening comments to participants and speakers including a brief introduction of LIRNEasia participants.
	Dr. Ir. Tatag Wiranto, MURP, Deputy Minister for Economic and Private Business Development and Chairman, Board of Trustees, IIDP. tatagwiranto@gmail.com	Mr. Tatag Wiranto, the Deputy of State Minister of the Development of Underdeveloped Region as the chairman of the Board of Trustee of IIDP delivered welcome speech and opened the workshop officially. He informed that IIDP was founded nine months before the tsunami hit Aceh in December 2004 and this month is the 4th year anniversary (the exact date is 02-03-2004). He is thankful to LIRNEasia for the good collaboration with IIDP that enable this important sharing session to happen. He also thanks all participants from different Ministries and government institutions, Universities, NGOs and donor representatives who had spared their valuable time to participate in this workshop. This workshop is very important to share of experiences of formulation and implementation of community-based early warning system and derived lessons learned from both Sri Lanka and Indonesia, assess possibility to improve the system and potential replications. In the closure he once again reminded everyone about the need to develop capacity in the region, especially those exposed to earthquake and tsunami hazards in order to reduce the loss and

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		damage. One of important aspects is the community that in many cases has local wisdom and undisclosed capacity to reduce risks and to do first hand response quickly. On this occasion, Mr. Tatag inaugurated the 4th year of IIDP by cutting off the birthday cake and given to Rohan Samarajiva. Others received during break time.
Keynote Address	Mr. Sunaryo delivering the keynote address of Ms. Sri Woro B. Hariyono, Head of BMG.	Mr. Sunaryo, represented Ms. Sri Woro B. Hariyono, Head of BMG and delivered her keynote address and officially opened the workshop. He reiterated that Indonesia is one of the most prone areas in Asia with frequent earthquakes. He reminded the participants that 90% of tsunami was caused by earthquakes and Indonesia since 1990 experiencing 10 big earthquakes with Aceh and North Sumatra in 2005 impacted most by a consequential tsunami. He also explained about the characteristics of tsunami, how it happens and the ensuing destruction. Currently, the GoI developed a tsunami early warning system so called INADUS. This effort involving 16 Indonesian Institutions and 8 donor society including Germany, China, Japan, UNESCO, UNDP, USA etc. BMG was assigned to conduct observation or research on GPS and make statement about earthquake with or without potential tsunami. BMG believed it important to use high tech for early warning to ensure availability of accurate data and analysis. Based on Presidential Instruction, BMG is responsible for the first 5 minutes while the next is the responsibility of other institutions (life saving). BMG is responsible for collection, observation, analysis and sharing the information/warning. To do these mandates, BMG is equipped with one operation center in Jakarta, 10 Buoy Darts and 150

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		Earthquakes censors. So far the BMG is able to inform the community level (selected and registered) within 5 minutes after the quakes to enable community prepare themselves and respond. He closed the remarks by thanking LIRNEasia and IIDP for the good initiatives bringing different actors to share and discuss methodology, technology and approaches for improvement of the existing early warning system.
"Long Last Mile" Video Screening		The video provided a sound basis for the audience's understanding of the workshop's main topic, "Evaluating Last-Mile Hazard Information Dissemination" pilot project.
Opening Address: "Elements of a community-based warning system"	Dr. Rohan Samarajiva, Executive Director, LIRNE*asia* Samarajiva@lirne.net	Reviewed the basic elements of a community-based early warning system. The disaster cycle, early warning chains (standard vs. HazInfo), reasons for this type of system, overview of HazInfo results and implications for regionalization.
Aceh Tsunami Victims Testimonial	Ms. Titi Moektajasih, UNOCHA	Gave a brief overview of the impact of the 2004 tsunami in Aceh from a personal perspective.
Notes on Inauguration		• Commitment of the government is one of the key factors in the development of a reliable early warning system • Good collaboration between government, NGOs, community and the private sectors is pivotal in development of good, solid and applicable community based early warning system • There are good sample of success stories in Sri Lanka and Indonesia on the implementation of community based early warning system that could be used to derive lessons learned for replication and improvement of the current system in other countries in the region. • Involvement of local leaders (community, religions, ethnics, women, youth, etc) is important to ensure that local wisdom and gender aspects are considered in the system. • Testimonials and presentation of documentary movies are effective to remind the people about the tragedy so they could see the context and the impact of the absence of knowledge and readiness of people that caused lots of loss of live and damages. • "more time to run more live saved" is a good motto for all actors active in disaster management.
Session I – Methodology	Jan Sopaheluwakan, Ph. D., Indonesian Institute of	"From Emergency Response to Community Preparedness". Prof.

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Preparedness, Training and Community Organization	Sciences (LIPI)	Sopaheluwakan discussed the involvement of LIPI in monitoring and detection, warning and community preparedness. He noted that Indonesia is taking the lead on driving the process of early warning. It has been most interested in pushing preparedness, mitigation and response within community preparedness. He discussed 4 main elements of community-based early warning systems: 1. Risk knowledge 2. Monitoring of EW 3. Dissemination & Communication 4. Response Capability (*Can* people evacuate?) There are 3 spheres: 1. Environmental -> ocean monitoring 2. Social -> early warning 3. Economic -> tsunami preparedness The LIPI approach: In the context of partnership and information sharing, LIPI as the research institute conduct research and survey on physical, environmental and social/economic vulnerabilities to come up with the total vulnerability. This will lead to the understanding of the disaster risks. Based on the information on the disaster risks (type of hazards, magnitude and effects), LIPI developed two equally important responses: Public Education (PUBED) and Community Preparedness (COMPRESS). This concept and methodology has been tested and implemented in several provinces in Indonesia. For replication, LIPI has developed so called “3 + 1 strategy” with clear staging and activities to be conducted in each stage.
	Natasha Udu-gama, Dissemination Manager – HazInfo, LIRNE*asia* udu-gama@lirne.net	Discussion of the HazInfo project from the perspective of methodology, participation in training, community organization and preparedness.

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Notes on Session

- People awareness and community education is important aspects in community based early warning system
- Research and assessment by Competent Institutions are key components to assure reliability of data
- Multi hazard, multi facet and multi level interventions are needed in the formulation of integrated and broad early warning system
- Community training and drills are among other ways in improvement of community preparedness
- Utilization of the current technology with necessary adjustment or adaptation is the most economical way to build the early warning system with technological base.
- Pilot project approach is the best way to test the system before expansion and replications.

Session II – First Responder Action

Mrs. Patra Rina Dewi, M.Sc., Executive Director, KOGAMI Padang
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"Tsunami Early Warning System: Lessons Learned from Padang City". Ms. Patra Rina Dewi of Padang shared KOGAMI's experiences in community based tsunami preparedness. They concerned about this due to the fact that Padang city inhabited by more than 400,000 people located along the coast of West Sumatera, only 30 km from the location where the submerging of two faults that according to Geologist and Earthquakes Experts has potentiality of tectonic earthquakes and tsunami. Therefore they believed the importance to build a reliable early warning system with full participation of the community with the following requirements: 1) lead by one institution (to avoid confusions), 2) the dissemination of the warning should be based on compilation of the reliable data (info-watch-advisory-warning/cancellation), 3) share only to the "target area" not all (to avoid unnecessary panicking of people in other areas), and 4) availability of SOP (Standard Operation Procedures). Unfortunately, the current system lead by BMG was not sufficed yet. The SMS system needs to be improved with more detail information on location and warning message or cancellations. Mr.

Sunaryo of BMG responded that the second generation of SMS system will have better features and be much more rapid. He also reminded everyone that the SMS system is limited to 160 characters that hindered to send full messages. In the case of LIRNEasia method, they able to overcome this technological limitations. This is one important aspects could be adopted into the Indonesian warning system. Other criticisms were about lack of electricity back-up. RANET system though useful but no delay system that able to keep the data when electricity off nor contingency plans if sirens system doesn't work.

Currently in Padang, the SOP is available but not legalized by the local parliament yet, an Operation Center is set and operational, community drills has been conducted several times and successful with enthusiastic community participations. This is good indications that people awareness level in Padang are high and they are prepared.

There is rule of thumbs shared to community in anticipating tsunami: when the earthquake very strong (people could not stand up properly), happening last more than one minutes and when the building structure collapse. People know that they have to run to the higher places.

Note: This is a good simple rule and easy to be understood by ordinary people even un-educated group. This could be share to other countries in the region.

Nuwan Waidyanatha,
Project Manager, HazInfo,
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"Transmission of Warnings to Local Levels: HazInfo Experience". Outlined the differences between a traditional alerting system and HazInfo. Explained the HazInfo input

		applications and terminal devices, Common Alerting Protocol (CAP), Calculation of certainty and efficiency and results from HazInfo in determining the most effective methods for transmitting warnings to communities.
Notes on Session		• Awareness building followed with community drill has been proven as an effective way to build community preparedness • Dedicated NGO activists are one of key factors of success of the efforts • Openness and commitment of the multi-level governments to improve the current early warning system is another key factor for success. • Multi-stakeholders collaboration ensured the synergy of top-down (technology based) and bottom up (community participation) early warning approaches to happen. • Use simple language and simple rule could improve people's awareness and increase people's participations in the training and drills.
Session III – Transmission of Warning to Local Levels	Mr. Aim Zein, Padang Advisor, GTZ - GITEWS	"An Experience from Padang". Mr Aim Zein of GTZ Padang EWS shared what they doing in supporting the development of EWS in Padang area. He reminded to all that dissemination of warning is a complicated process involving different factors with combinations of communication devices. Up to now, people are using intuitions and senses to decide what have to be done when earthquake or tsunami is happened. The challenge is how to simplify and make more direct from BMG to the community. One of the possible solutions is using RDS (radio Data System) in alerting public. Two important aspects are to educate and communicate a warning to people and SOP with multiple communication methods. Currently GTZ supported the local government in developing a transmission system so called RABAB using VHF radio and Community Band (CB) with traditional transmitter system. In the near future Padang provincial

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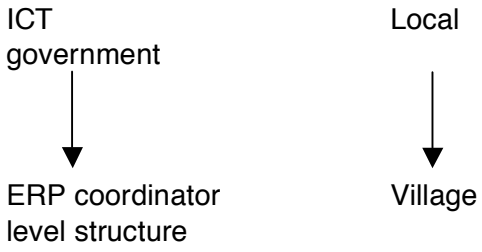
	government will refine the available SOP and established 9 sirens system. He compared the current with the future systems which is basically improvement of the existing system with warning or advisory not just an earthquake parameter and tsunami potentials, plus more detail information about tsunami info with magnitude, speed and projected time of arrival.
Drs. Sunarjo, MSc. Kepala Pusat Sistem Data dan Informasi Geofisika, Bureau of Meteorology and Geophysics (BMG) Sunaryo@bmg.go.id	The BMG is responsible for the first 5 minutes of a disaster. Afterwards, other institutions are responsible. RA-Net has a 2-minute delay and is installed in more than 100 locations throughout Indonesia. They have SMS and radio dissemination systems – the technology used is more advanced than that of the GoSL. They say that the problem with SMS is the 150-character limit (CAP could solve this). There is also a tsunami siren network consisting of both federal and TELKOMSEL (largest national telecom provider) sirens. The local government is the one that decides to push the "button" or not. Since both police and army are deployed 24/7 the government works closely with them to be responsible for assisting at all levels.
Nuwan Waidyanatha, LIRNE*asia*, waidyanatha@lirne.net	The HazInfo pilot project using satellite radio combined with the CDMA mobile phone. He explained about the equipment required to run the system and described it in four categories: DEWNS, ANNY, IPAC and CALL. Furthermore he described the ICT components and its equivalent to Indonesia context.



What most important of this system is the availability of the reliable ICT with high certainty and efficiency. To evaluate the ICTs it is important to have the Common Alerting Protocol (CAP).

Notes on Session

- Due to lack available system that able to transmit warning or information down to the community, many people using their sense and intuitions when experiencing disaster
- Transmitting early warning is a complex process involving various actors and combination of different communication devices. Need high commitment and good coordination of all related actors at all levels
- The system being used in Indonesia and Sri Lanka each has own characteristic. Although its work in different context and environment, there are room for improvements. Both systems should be improved to reach economies of scale and ready to be used for national wide and sustainable.

Session IV – Determination of Hazard from National Level	Natasha Udu-gama, Dissemination Manager – HazInfo, LIRNE*asia*, udu-gama@lirne.net	"Determination of Hazard from the National Level: Sri Lanka Experience". Drew comparisons on government action between Dec. 26, 2004 and Sept. 12, 2007 and described how the HazInfo pilot might help in structuring a national early warning system to be effective throughout the EWS chain.
	Dr. Ir. M. Dirhamsyah, Director, Tsunami and Disaster Mitigation Research Center (TDMRC), Syiah Kuala University, mdirham@yahoo.com	Dr. Dirhamsyah explained that an MoU has been signed with several other universities in February 2005 on coordination for early warning systems. He explained the TEWS framework, DRR framework (policy, non-structural and structural elements), the work of Syiah Kuala University in tsunami and disaster mitigation, their annual regional meeting in December and the DRR-A (Disaster Risk Reduction for Aceh)

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		project.
Session V: Next Steps	Dr. Rohan Samarajiva, Executive Director, LIRNE*asia,* samarajiva@lirne.net	"Roles of policymakers, regulators, private sector and civil society". Organizational problems must be solved for EW technologies to be fully realized. Early warning must be complemented by preparedness, evacuation plans, etc. Reiterated the need for the government to take the lead in providing early warning. Private sector and civil society can support and strengthen.
	Kusuma Adinugroho, Senior Programme Officer, Crisis Prevention and Recovery Unit	Mr. Adinugroho as moderator gave brief summaries following each session. Here he gave a summary of points discussed throughout the workshop and their implications for Indonesia.

Notes on Session

- The government priorities two focused laws and regulations
- Lack of inter agency coordination is causing an ineffective EWS
- EWS should not be politicized because this is not about bigger budget but saving lives and
- Disaster is too big for any one entity and the problems are large enough for everyone to contribute.

Discussion and Lessons Learned

The group discussion at the end of the workshop served to sum up the main points of the workshop. Mr. Kusuma Adinugroho of UNDP led the discussion by asking participants to review the questions posed in the workshop agenda and flesh out issues that had arisen during the workshop. Mr. Adinugroho made copious notes during the workshop so that group discussion turned out to be both interesting and fruitful.

- Issues related to Legal Framework and regulations
  - The disaster management bill is available (UU no 24, 2007) but no further guide is available.
  - The National Board of Disaster Management (NBDM) was recently established but not operational yet and its existence received many protests from local governments (provincial and district levels) regarding the structure, mandates and the status.
  - Furthermore the participants questioned the capacity of the newly established structure in dealing with the complex disaster management.

- Issues related to research and assessment
  - The participants in the same opinion that research and assessment is important part in developing community based EWS
  - LIPI and Kogami had provided a best practice of research / assessment on the current condition of the community as the basis of further interventions
  - The questions about the cost and complexity of the research and assessment that not affordable by most of NGOs and community groups.
  - It is hope that simple research methodology could be developed and shared to all actors involved in the community based early warning system.

- Issues related to Technology and methodology of Early Warning System

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- Due to incomplete information through SMS and media, the participants concluded that so far GOI shares info not a warning yet. Needs further improvement to ensure accurate information and warning to be transmitted to the people. There is high expectation from the participants that the new generation of warning system being implemented by BMG addressed this issue.
- Late issuance of warning and inaccurate information had caused fast reaction of people due to distrust, bad experience, trauma, panicking. This should be stopped and all related institutions should find solutions and improvements.
- So far the GOI and some donors focused on Padang, Bengkulu, Aceh, and Denpasar. Considering Indonesia is a great country and many places are prone to earthquakes and tsunami needing the same treatment and receiving the same services as the areas mentioned above.
- Early warning system is a complex and using sophisticated technology that not necessary user friendly. There are needs to simplify it to allow ordinary people and community understood and participate in the operation and implementation of the system
- Learned from other project, the participants reminded all actors about the need to give serious attentions to the optimum use of the equipment that not cheap and maintenance for long last utilization.
- The participants agreed the importance of high quality and accuracy of the info and warning to be transmitted to the people to ensure applicable end to end EWS.
- Considering EWS as a closed system, there is a great need for feedback mechanism that allow people and other actors to provide inputs and critiques for system improvement
- LIRNEasia proposed to BMG and GOI to develop multi hazards and multimedia EWS not only for earthquakes and tsunami. The participants supported the idea.

- Issues related to community training, community organization, and effects of the drill to the preparedness and community behavior:
  - Except in certain provinces, in general no local capacity has been used / developed
  - Less trauma and panicking in well educated / trained community
  - Training and drill has great effects to community readiness / preparedness (they know about earthquakes / tsunami and what to do)
  - Considering Indonesia is disaster prone area, there are great needs to institutionalized the training curricula in the education system
  - To ensure the government understood their mandate and obligation in the establishment and operation of early warning system, there is a need to lobby and convincing high level government officials through the existing Government Training institutes and career development programs, i.e. SEPAMA, LEMHANAS, etc.
  - Beside general understanding about tsunami or earthquakes, there is a need on technical knowledge on evacuation (more contain fashion) participatory drill, etc.
  - In order to maintain high training standard there is a need for profession certification by a legitimate National Body. (Need further discussion as this is an old issues that has been discussed in different levels with unresolved pro's and con's)

- The need to accommodate local wisdom and culture:
  - To ensure that local wisdom and local culture is accommodated in the processes, there are great needs to improve capability of the actors in adapting to local culture. This may be part of the communication skills and cross culture sensitivity
  - Training / course modules should have context specific and include the important to admit local wisdom / local knowledge
  - One of the effective ways to accommodate local wisdom and culture by involving local leaders (community, culture, religion, etc)
  - There is need to consider high tech versus local warning system that in some cases did not support each other.

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- Issues related to multi-stakeholders coordination
  - There is lack of coordination on message, method and guides to be shared to the community. This problem is not exclusive for Indonesia but also happened in many countries in the region including Sri Lanka.
  - In order to improve commitment and coordination of among of the related sectors and institutions, there is a great need to develop the same vision and understanding about Community Based Last Mile EWS

- Issues related to replication and sustainability
  - BMG plans to replicate the tools currently implemented in Padang, Aceh and Bali to other parts of Indonesia (8 region) with ISDR and Unesco support.
  - While GTZ still committed to support GOI in improvement of the community based EWS in Padang, Central Java and bali
  - From the presentation and discussion, it is concluded that the EWS ala LIRNEasia is considered less expensive with simpler technology that also available in many part of Indonesia. Therefore several NGOs shows their interest to replicate the LIRNEasia methodology with necessary adaptations. It is suggested to them to have direct communication with LIRNEasia.
  - Further info related to the replication plan and also potential funding support could be obtained through the following web: www.sahana.com.

Recommendations to the Organizers

- Presentations must be received prior to workshop commencement. This has been an ongoing problem; speakers must be forced to take the workshop seriously.
- Workshop documentation, such as programs, must be printed and distributed prior to the onset of the workshop.
- Coordination with partner organization needs to be improved. There must be a reliable contact who will keep documentation received updated and share necessary documents.
- Ensure that the partner organization is equipped with necessary technical equipment (such as computer, recorder, etc.) for timely and accurate proceedings.
- Start the workshop at a later time. Nine o'clock start times are difficult in several parts of Asia.
- Having one moderator in this workshop turned out to be more efficient. It is best to have a moderator who is not a speaker but experienced in the subject matter.

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