Concept Note

In Search of Stronger Evidence-Based Disaster Management: Community-Level Risk Assessment in Indonesia

YOGYAKARTA, 7 August 2012 | The National Agency for Disaster Management (BNPB) recorded that in 2011 alone nearly 1,600 natural disaster events occurred in Indonesia inflicting 800 persons dead or missing, more than 300,000 displaced, 15,000 housing units heavily damaged, 3,300 moderately damaged and nearly 42,000 lightly damaged.

Between 2002 and 2011 approximately 90 percent of natural disasters were hydro-meteorological disasters such as floods, flash floods, drought, rain-induced landslides, strong winds and tidal waves, while the remaining were geological and tectonic disasters.[1]

Indonesia has made disaster management one of its national development priorities and it allocates the national budget of more than Rp 12 Trillion (USD 1.26 Bn) of which around 30% is managed by BNPB and the remaining by the other ministries and agencies like Ministry of Home Affairs, Ministry of Health, Ministry of Social Affairs and relevant other institutions.[2] And thus the pressing need to develop sound and credible disaster risk assessments mechanisms that are based more on evidence to guide and enhance the performance effectiveness of the disaster management programme and activities.

Against that background, **the Pujiono Centre for Disaster and Climate Change Risk Reduction Studies**, in cooperation with Centre for Disaster Management Study (PSMB) of UPN Veteran University Yogyakarta and Centre for the Study of History and Political Ethics (PUSDEP) of Sanata Dharma University Yogyakarta conducted a seminar entitled "**Inventory of Disaster and Climate Change Risk Assessment**" on 6 August 2012, in Graduate Program of Sanata Dharma University, Yogyakarta. The seminar was attended by more than 60 participants from the government, international organizations, UN Agencies, national and local non-governmental organizations, and community-based organizations from hazard-prone areas.

In his introduction, Dr. Puji Pujiono indicated that "Weaknesses in disaster risk assessments perpetuate shaky foundations for the disaster management. Risk reduction programmes and activities either tend to be arbitrary at best or being project-driven at worst". In addition, disaster risk assessments have mostly been dominated by scientific parameters and have a macro orientation. This creates gaps between communities that live with risks at one side and disaster actors and their risk analysis processes at the opposite side. As a result, disaster management efforts often are off mark in addressing the actual problems faced by communities living in hazard-prone areas. Pujiono concluded his introduction with a question: "How could we enhance the evidence basis for risk assessment and how could we fill-in these gaps to propel more credible risk reduction programme and activiities?"

Puji Pujiono

While the science-based disaster risk analysis regime continues to be developed, disaster management actors utilize whatever assessment techniques and instruments in their disposals and keep on innovating processes and tools. Amidst the many diverse risk assessment processes, there need an inventory of all risk assessment approaches and methods to systematize the landscape of risk assessment. Such inventory constitutes the first step to developing established risk assessment norms, standards and practices.

Panelists from the government, academics, civil society and international non-government organizations.

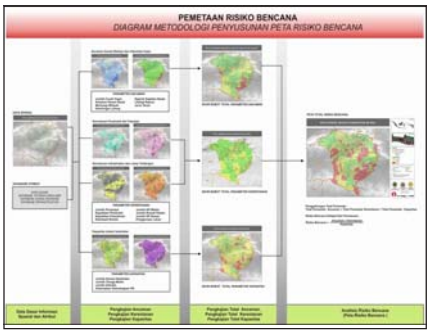
The Seminar mapped out the different risk assessment practices and programs at all disaster phases: in pre-disaster situation, during emergency response, in the post-disaster rehabilitation and reconstruction period as well as far after the recovery timeframe has been completed. Discussions in the seminar were focused on how communities take part in risk assessment processes, how this process interact with the macro risk assessments that are technology-heavy, and how they contribute to the disaster risk reduction planning and implementation after the assessments.

Following a brief introduction on the Landscape of Risk Assessment by Dr. Puji Pujiono, the Seminar went on presenting the following topics:

1. **District level Development of Flood Risk Map**, Arif Rianto, ST, M.Si. of PSMB UPN Veteran. The session discussed the development of hazard, vulnerability and capacity database with their validation with the communities that will then be projected into GIS platform. The combination of community-based information and the use of technology may enhance disaster management at the local level.
2. **Village level Self Risk Assessment at Volcanic Eruption Setting**, Puji Setiarso of Jangkar Kelud. The session talked about the activities of community-based disaster response teams in 36 villages at the highest risk areas of Kelud Volcano in East Java Province that address disaster risks as well as mobilize people to reduce their own risks and increase preparedness.
3. **Community-based Disaster Risk Assessment,** Ruhui Eka S. of Lingkar Association. The session discussed the implementation of participatory risk assessment at the grassroots level and its linkage to village middle-term development planning.
4. **Household Economy Analysis,** Puspasari Indra of Oxfam. The session talked about the use of livelihoods analysis at the household level to develop baseline data on the level of vulnerability to various different disaster risk and shock scenarios.
5. **Knowledge Contestation Against Risk Reduction:** Memory and Cultural Approach in understanding people's resistance to Jesuit Refugee Service (JRS) Indonesia DRR Programme in Kluet, South Aceh, Dedy Kristanto and Saefudin Amsa (PUSDEP Sanata Dharma University). The session discussed issues related to community's perception and contestation to post-tsunami DRR programs within the perspective of chronic social conflict with its complex social, cultural and religious background.
6. **Indigenous Risk Assessment leading to Adaptation and Mitigation Strategies** of Sikep Samin Community to the Effects of Global Warming Adaptation to Paddy farming, Dr. Eko Teguh Paripurno of PSMB UPN Veteran. Indigenous community practices in responding to the impacts of climate change and disaster on paddy farming that reflect local wisdom. The communities uncomplicated logic that puts the blame of climate change effect to rice farming to the human behavior, and the need to instigate adaptive farming practices.
7. **Climate Change Impact Studies and Programme of UNDP Indonesia**, Anton Sri P. of UNDP. UNDP supported climate change risk programming and implemented CCA pilot projects at the community level.
8. **National Disaster Risk Assessment Program of the national DM Agency**, Lilik Kurniawan of BNPB. The development of provincial risk maps in all the provinces. Later the government would develop risk analysis at the district and village levels.
9. **Joint Needs Assessment (JNA): Assessing the risk in the first 48 Hours of Disaster Emergency.** Puspasari Indra from Oxfam. Tool for assessing the risk of Food Security and Livelihood as part of initial disaster rapid assessment to develop situational definition in the first days of disaster.
10. **Multi-Cluster Initial Rapid Assessment (MIRA),** by Titi Moektijasih from UN-OCHA. The multi-cluster approach helped emergency responders obtain depiction of the emerging needs of disaster-affected communities in the first weeks of emergency response. The results from this assessment were used to formulate and implement humanitarian operations and mobilize resources in a coordinated manner.
11. **Damage and Loss Assessment (DALA),** Magda Adriani of the World Bank. The instrument was used to assess disaster situation in the first weeks of the emergency to

Jangkar Kelud community network developed a collective and participatory risk map at village (*kampong*).

Village (*kampong*) level risk map developed by Jangkar Kelud community network.



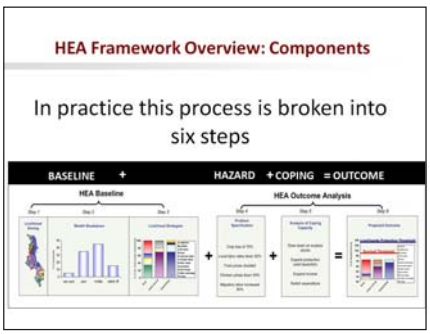
The methodology for flood disaster risk map development developed by PSMB of UPN Veteran Yogyakarta.

Flood disaster risk map developed by PSMB of UPN Veteran Yogyakarta.

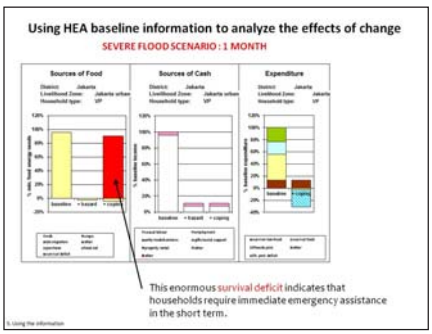
Disaster risk analysis method developed by BNPB.

Disaster risk analysis method developed by BNPB.

Drought disaster risk map developed by BNPB.



Household Economy Analysis developed by Oxfam.



Result of *Household Economy Analysis* using flood hazard scenario in Jakarta.

analyze the damage and loss to the economy and infrastructure and determine the arising needs for recovery.

12. **Human Recovery Needs Assessment**. Rinto Andriono Pujiono Centre. The instrument assesses the risks of household and communities in post disaster setting. It addresses the damage, loss and disruption to community's functions, and the conversion of the people's needs into funding resource requirements as part of the recovery plan. The component, which in Indonesia was developed by BNPD in collaboration with UNDP, combined into integrated Post-Disaster Need Assessment (PDNA).
13. **Longitudinal Study of Post-Merapi Eruption Recovery Process**. Juli Nugroho of Yogyakarta DRR Forum. The assessment examines the progression of recovery in the longer-term. The methodology started with the development of baseline data from before the disaster, during the emergency response and after the disaster.

The followings are some highlight of the discussions in the seminar:

Communities in 36 villages in the vicinity of Kelud Volcano that resided in 10 sub-districts in the District of Malang, Blitar, and Kediri joined in a network named "Jangkar Kelud". The organization developed an independent perspective on disaster risk mapping. Puji Setiarso, one of the activists of the network maintained that, "Community members have to be responsible for the risks they are facing. For that reason, we set-up village disaster response teams that are tasked with learning risk mapping and the characteristics of local disaster risks. Thus, community members themselves started to be aware and understand local hazards and their corresponding risks, and are encouraged to reduce their own risks."

Activists of Jangkar Kelud network developed community based techniques to explore hazard and vulnerability data and information from local village communities, and addressed the gaps in capacity in the local

village governments and the people. It turned out that the learning process has become an awareness raising process for the other members of the community to reduce their own risks and increase preparedness. People became more and more aware of the need to continuously enhance their capacity and disseminate the lessons learned and the knowledge they gained to the other communities.

Guided by Kappala Indonesia Foundation, Jangkar Kelud network continues to collect important lessons in DRR. Community members found that, among others, although they had been living for ages in the vicinity of Kelud Volcano, they had not realized fully the risks posed by the volcano. Also, they found that disaster risk analysis might not be made on their own without collaboration with other external concerned actors. The assessment process also had a side effect in that it also motivated partners involved to do more for communities benefit. Community members taking part in the process were challenged to replicate the same process in neighboring villages in eruption-prone areas in Kelud Volcano.

Puspasari Indra, Regional EFSL Technical Coordinator Oxfam in Asia, presented her agency's research on the livelihoods level of poor households in Jakarta. Employing the Household Economy Approach (HEA) Oxfam found that poor households in Jakarta spent 50% of their income on food consumption. This level of vulnerability had made the poor extremely susceptible to volatile shocks. Simulated shocks based on increase in oil price, one-month flooding, and one year flooding, for instance, showed how the capacity of the poor to meet their basic needs are progressive compromised into compounding vulnerability. To assist in the analysis Oxfam developed a magic calculator that may calculate the results of the HEA by just inputting data on the pre-designed format.

Director of Pujiono Centre, Rinto Andriono elaborated that, "BNPB has enacted the Regulation Number 15 Year 2011 on Post-Disaster Need Assessment (PDNA) to guide national and local governments as well as non-governmental stakeholders in assessing: disaster impacts and consequences, and their corresponding recovery needs, as well as providing disaster risk reduction and fulfillment of basic rights perspectives in post-disaster early recovery and rehabilitation and reconstruction". This assessment has to meet the principles of participatory, evidence-based, disaster risk reduction, fulfillment of basic rights, accountability, and become the foundation of the formulation of rehabilitation and reconstruction plan. The outputs of PDNA include (1) analysis of disaster impacts (damages, losses, disruption in processes, risks), (2) analysis of disaster impacts on the economy and fiscal, social and cultural, human development, and the environment, and (3) analysis of post-disaster needs (development, asset replacement, provision of assistance, recovery processes, and risk reduction).

The Seminar concluded that disaster risk assessment as the foundation of evidence-based disaster management requires the combination and good complementary mix of scientific parameters and community's perspectives. Socio-cultural aspects played a critical role in understanding the perspectives of the communities related to the risks they were facing. Meanwhile, the economic politics aspects at the local level clarified the dynamics of resources ownership that became a crucial context in vulnerability and capacity gaps analysis.

Community-based risk assessments have been piloted in many risk settings with emphasis on examining vulnerability and capacity gaps. Disaster risk analysis at the household and community levels might be combined into an integrated assessment. Similarly, there was a potential to integrate assessments for disaster and climate change risks, particularly those that shared the same scope, approach and objectives.

The seminar demonstrated that disaster risk assessments have been implemented at the community level, and at the local government and national government levels. The stakeholders have developed sometimes complex instruments and risk indexes. All these instruments for risk assessment have the potential to complement each other, and hence need to be inventoried and evaluated for further harmonization.

In the future government needs to be active in providing legitimacy for various community-based risk assessment initiatives and innovations. A process needs to be initiated to match up the macro perspectives and science-based risk assessments with those that are more community-based approaches with the same footing. Both approaches need to be enhanced to build evidence-based disaster risk assessment system, which in turn may help in building more effective and accountable disaster management in the region.

Notes:

1 BNPB: 1.598 Natural Disaster in 2011 http://news.okezone.com/read/2011/12/30/337/549497/bnpb-1-598-bencana-alam-terjadi-ditahun-2011

2 Disaster Budget in the Regions is still Limited http://m.inilah.com/read/detail/1840413/dana-penanggulangan-bencana-di-daerah-masih-minim

PUJIONO centre

Kontak: pujiono.centre@gmail.com
Rinto Andriono 08122734359
F. Asisi S. Widanto 081360267130