

CSOs Position Paper
English Version

The DNA Code of Risk Has TWO Intertwined Strands: Why Vulnerability Matters

A Civil Society Response to the Draft Guidelines for Disaster Risk Assessment in Indonesia

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Executive Summary

The increase of disaster risk in Indonesia is widely recognized. It is well known that Indonesia is prone to the impacts of several types of natural hazards including: tsunamigenic earthquakes along its 5000 KM coastal line, hundreds of volcanoes, landslides hotspots and coastal floods.

Indonesia's disaster losses have totalled approximately US\$ 14 billion, affected more than two million people and caused more than 175,000 deaths¹. These figures only capture the ten major disasters in Indonesia since 2004. Empirical evidence shows that the majority of these losses disproportionately affect the more vulnerable groups such as children, young people, women, the elderly and other vulnerable groups.

In formal institutional terms, Indonesia has made great strides, with new laws and regulations concerning disaster risk. Indonesia has gained new momentum for a better risk management policy under the National Disaster Management Law (DM Law 24/2007). These are supported by various parallel laws such as the new spatial planning law (SP Law 26/2007) and ancillary regulations such as the establishment of the National Disaster Management Agency (BNPB) through Presidential Regulation 8/2008 and the new governmental regulation (Peraturan Pemerintah – PP) for Disaster Management Implementation (PP 21/2008).

In January 2005, together with 168 countries, Indonesia made a full commitment to implement the Hyogo Framework for Action (HFA), the International blueprint for disaster risk reduction (DRR)² for 2005-2015. The first commitment of HFA is to “ensure that DRR is a national and a local priority with a strong institutional basis for implementation”. At the national level, Indonesia's commitment has been proven by its disaster management law (UU) 24/2007, through which subsidiary laws and regulation for DRR are made. The establishment of the Badan Nasional untuk Penanggulangan Bencana (BNPB), or the Disaster Management National Agency is another indicator of a strong institutional basis for DRR implementation.

Within this context, BNPB, supported by UNDP Safer Communities for Disaster Risk Reduction (SC-DRR), recently recruited seven natural/physical scientists and engineering experts to draft the national guidelines for disaster risk assessment (NG-DRA) for seven selected hazards (i.e. earthquake, tsunami, drought, forest fire, flood, landslide and volcano). The NG-DRA is one of the top priorities of BNPB that will later be used by at least 410 districts/municipalities and 33 provinces. The NG-DRA is both necessary and strategic in order for the BNPB office to create national guidelines for disaster risk assessment. This will be the benchmark for national disaster risk management planning. These guidelines constitute the policy orientation that will shape decision-making in the field and create a set of tools for day-to-day risk assessment. For both of these reasons these guidelines should be able to shape disaster management activities at all levels.

Unfortunately, after a deliberative process of reviewing the recently developed draft (hereinafter NG-DRA), the Indonesian DRR CSOs forum conclude that the agency only took into account the importance of hazard analysis without adequately accounting for the importance of vulnerability assessment. This paper recognizes the vital importance of hazard analysis in the NG-DRA. However, it also argues that disaster risk assessment without adequate account of vulnerability assessment will guide Indonesia's reform processes toward ineffective and unsustainable disaster risk reduction (DRR), moving the country backwards, not forward.

Based on a three-day meeting in Bali, Indonesia, the Indonesian DRR CSOs forum collectively identified several gaps of the NG-DRA which poses a distinct risk of distorting policy and decision making. The following are the identified gaps:

Firstly, silence concerning vulnerability. Despite wide acceptance of vulnerability as equally important as hazard in conditioning disaster risk, Indonesian mainstream scientists involved in advising government on disaster management continue to neglect vulnerability. Six out of the seven drafts of the disaster risk assessment guidelines do not take vulnerability into account at all as a contributing factor to disaster risk. Therefore, the models offered as the national guidelines for risk analysis/assessment, have failed to adopt the latest ‘authoritative’ knowledge and empirical research results concerning disaster risk and disaster risk analysis.

Hazard and vulnerability are inextricably bound together in the creation of disaster risk, and it is for this reason that the disaster risk reduction community views disaster risk as, in part, socially constructed. As the title of this paper suggests, the code of disaster risk has two intertwined strands i.e. vulnerability and hazard. The two factors are as intimately intertwined as the two strands of proteins that make up the double helix of DNA code. Disaster risk can neither be understood nor properly reduced through policy and practice unless both vulnerability and hazard are taken into account. This concept has emerged as a consensus within disaster risk management scholars over the last two decades. One example that demonstrates the argument for social and non-natural components in disaster risk is the unequal distribution of the death toll in the Indian Ocean Tsunami between men and women. At least four empirical research studies were conducted in Aceh and Srilanka, the results of which clearly showed that women’s survival rate is far less than men’s. These studies demonstrate that integrating gender as a factor in the distribution of risk can no longer be seen as optional but imperative. Gender analysis of risk does not appear in the draft NG-DRA guidelines.

Age is another factor too critical to be downplayed or excluded in disaster risk assessment tools such as the NG-DRA. Factoring gender, age and economic vulnerability in risk assessment will result in a more complete and accurate risk picture. However, these factors are not included in the Indonesian NG-DRA.

Finally, the CSOs forum recommends principles with some level of flexibility to account for the following factors. Firstly, the GN-DRA must stress the importance of local risk contexts, and be based on a multi-hazard and multi-vulnerability approach. The methodology must be compatible, comprehensive and applicable within local contexts and it must involve the participation of stakeholders. It should promote cultural, social-ecological sustainability, and clearly identify the target or social-economic-infrastructure element at risk. It must be functional without losing its scientific basis, and to be effective, it must be designed in a way that it can be updated regularly. The responsibility and accountability must also be considered.

Lessons to be learned and thus to be used either from Hurricane Katrina in the Gulf Coast of the U.S. or from the Indian Ocean Tsunami 2004 in Aceh, firmly confirms what Alex de Waal observed the “*impact of human disaster imprinted in social forms.*” This suggests that beneath the fault lines of social differences such as gender, age and multiple social differences lies the secret of past and future disaster risk distribution patterns. For effective disaster risk reduction it is crucial that these patterns should be captured in the assessment methods recommended by the NG-DRA. To achieve this, the NG-DRA national guidelines need to be revised, and the practice of risk assessment/analysis requires reform to truly complement Indonesia’s welcome legal and institutional changes.

1. Introduction

The increase of disaster risk in Indonesia is widely recognized. It is well known that Indonesia is prone to the impacts of several natural hazards including: tsunamigenic earthquakes along its 5000 KM coastal line, hundreds of volcanoes, landslides hotspots and coastal floods.

Indonesia's disaster losses have totalled approximately US\$ 14 billion, affected more than two million people and caused around 175,000 deaths³. These figures only capture the top ten major disasters in Indonesia since 2004. Empirical evidence show that the majority of these losses disproportionately affected the lives of children, young people, women, elderly and other vulnerable groups.

Fortunately, in legal formal institutional terms, Indonesia has made great strides. It has new laws and regulations concerning disaster risk. Indonesia has gained new momentum for a better risk management policy under its National Disaster Management Law (DM Law 24/2007), as well as various parallel laws such as the new spatial planning law (SP Law 26/2007) and ancillary regulations such as the set up of National Disaster Management Agency (BNPB) through Presidential Regulation 8/2008, and the government regulation for Disaster Management Implementation (PP 21/2008).

In addition, Indonesia has made a full formal commitment to implement the Hyogo Framework for Action (HFA), the International blueprint for disaster risk reduction (DRR)⁴ efforts for 2005-2015, together with 168 countries in January 2005. The first commitment is to "ensure that DRR is a national and a local priority with a strong institutional basis for implementation." At the national level, this has been proven by the disaster management law (UU) 24/2007 through which lower level laws and regulation for DRR are made. The birth of BNPB, an executive body at the national level, is another indicator for a strong institutional basis for DRR implementation.

Within this context, just recently, BNPB, supported by UNDP Safer Communities for Disaster Risk Reduction (SC-DRR), recruited seven natural/physical scientists and engineering experts to draft the national guidelines for disaster risk assessment (NG-DRA) for seven selected hazards (i.e. earthquake, tsunami, drought, forest fire, flood, landslide and volcano). It is clear that the NG-DRA is one of the top priorities of BNPB that will later be used by at least 410 districts/municipalities and 33 provinces. Therefore the NG-DRA is both of necessary as well as strategic importance for the BNPB office. It will provide national guidelines for disaster risk assessment as the benchmark for national disaster risk management planning.

Unfortunately, the draft (hereinafter NG-DRA) recently developed by the agency only accounts for the importance of hazard analysis without adequately account of the importance of vulnerability assessment. This paper recognized the vital importance of hazard analysis in the NG-DRA, however, it also argues that disaster risk assessment without adequate account of vulnerability assessment will definitely guide Indonesia's reform processes toward unfortunately ineffective and unsustainable disaster risk reduction (DRR) practice. This will move Indonesia backwards, not forward.

While this paper was under development, BNPB itself noted that the existing GN-DRA is focused primarily on hazards, and is very limited in regards to vulnerability. The office also admitted that different stakeholders are utilizing different methods for risk analysis.⁵ Therefore, this paper offers a brief analysis for BNPB concerning the gaps within the GN-DRA and provides options for consideration and improvement.

Questions may be raised about why civil society organization (CSOs) should respond to a draft and not wait for the final GN-DRA before providing such suggestions. The answer is that should CSOs wait the final draft to be legalized they may miss the opportunity to provide timely recommendations, towards an effective 'people-centred' disaster risk assessment.

2. CSOs Credibility in Disaster Risk Assessment in Indonesia

The Disaster Management Law (24/2007) suggests that civil society participate mainly in the post-reconstruction phase.⁶ This was clarified through the government regulation (Peraturan Pemerintah) PP 21/2008, especially chapter 87, concerning CSOs participation in disaster risk assessment. Participation is regulated for: firstly, supporting the management of disaster-prone areas towards better management and concern for disaster-prone areas; secondly, through disaster awareness campaigning, concern and 'cooperation' amongst civil society and the private sector; and thirdly, enforcing participation in the financing of disaster risk reduction activities.

This paper clarifies the notion that CSOs are not in a position to conduct disaster risk assessment, because they have their own interests, guided by humanitarian imperative principles and the interest of the people at risk. These guidelines are supported by CSOs direct field experiences, from Aceh to Papua.

At the DRR CSOs network's consultation meeting in Denpasar, Bali (on 4-6 February 2009), it was noted that in fact CSOs have already been playing roles in building local government capacities in several districts in the provinces including Jogjakarta, East Nusa Tenggara, West Papua, North Sulawesi, Central Sulawesi and South Sulawesi. Even though most of these

projects are in their pilot phases, there has been concrete capacity building components set for both for technical participatory disaster risk assessment and for the legal drafting of disaster management regulation at the local level.

Based on both the knowledge and experiences attained through these activities, the CSOs in Indonesia have been able to witness and gain direct experience of the gaps in the national draft (NG-DRA), which need to be resolved.

3. GAP Analysis of GN-DRA

Collectively, the civil society organizations gathered in Bali critically evaluated the seven drafts of the GN-DRA drafted by BNPB scientists. Following are the key gaps that need to be resolved:

1. **Silence concerning vulnerability.** Despite widespread acceptance of vulnerability as being equally important as hazards in conditioning disaster risk, the scientists involved in advising the government on disaster management are continuing to neglect vulnerability. For example, six out of the seven drafts of disaster risk assessment guidelines take no account of vulnerability as a principal contributing factor to disaster risk. Therefore, the models offered as the national guidelines for risk analysis/assessment fail to adopt the latest knowledge and empirical research results concerning disaster risk and disaster risk analysis. **These draft(s) are not “people centred”** and they ignore human and policy dimension of risk assessment. Lacking comprehensiveness, they are too technical to be applicable. Some of the drafts explicitly suggest that there is no need for stakeholder participation, and recommend that engineers alone be responsible for assessing the risk of disasters. Not only is the key factor of vulnerability missing, but also missing the issues of local capacity and resilience .
2. **Exclusive focus on exposure.** In almost all of the drafts (6 out of 7), physical vulnerability (exposure) is accounted for, while social and economic factors are completely neglected. Therefore, there is a tendency to assume that people at risk with the same level exposure, experience the same level of vulnerability.
3. **Multiple-Hazard: Yes, but Multiple-Vulnerability: No.** It is clear that the BNPB/UNDP-SC-DRR have considered the multi-hazard approach (if not all-hazard approach), reflected by the knowledge produced, experts recruited, and the drafted guidelines. However, there is no sign of an “all-vulnerability” consideration, covering the various aspects by which vulnerability can be assessed i.e. social: gender, age, disability;

economic: access to resources, markets, credit; political: access to decision making, ability to make one's voice heard.

4. **Absence of identifying interaction among hazards.** In the draft documents there is no consideration of the interplay between hazards, which can amplify the total disaster risk. For example, in the interplay of earthquake, landslides, and floods, or secondary chemical releases and explosions following an earthquake, or the interplay of forest fire and later flooding and landslides. Thus, should such guidelines be used by local level disaster management authorities in Indonesia, they will certainly reduce the “vision of risk” by those that are directly responsible for disaster risk management.
5. **Possible policy and decision-making distortions.** These national guidelines constitute both a policy orientation that will shape decision-making in the field, and also a set of tools for day-to-day risk assessment that will shape disaster management activities at lower levels. Therefore, the absence of many important factors for determining disaster risk reduction (DRR) is likely to severely distort decision-making and policy. Other distortions will be a result of the absence of social scientists on the drafting teams; the fact that the drafting process did not include all key stakeholders, gender gaps within the team, and the failure to take guidance from the Hyogo Framework for Action. Finally, the lack of communication and consultation within the drafting process itself.
6. **Terminology.** The Bali meeting found that there is still much confusion regarding terminology. Unclear terms such as those used to define disaster, hazards and vulnerability, combined with the haphazard combination of legal, scientific and practical working terms. The scope and the structure of the guidelines need to be revised. The guidelines themselves lack coherence, such as procedural steps for analysis and assessment. There is also a lack of consideration regarding local governance and local knowledge.
7. **Applicability and sustainability.** The absence of social science and gender considerations in both the content and the developing team, coupled with the lack of adoption of the Hyogo Framework for Action, contribute to the flaws of the draft as a practical and applicable guide for the process of risk assessment in Indonesia. Consequently, risk reduction guided by the existing draft would neither be achievable, much less sustainable. (See UNISDR 2008 “Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action”).

Increased understanding of disaster risk analysis/assessment in Indonesia will be a key learning process for wider stakeholders including local administrators, scientists, national level policy makers, journalists, etc. However, the information provided and the language used is that of scholars and scientists; while the results of these studies are supposed to be used to support the work of disaster risk management and risk reduction practitioners at the local government office level and by NGOs.

The NG-DRA national guidelines need to be revised. The practice of risk assessment/analysis requires reform that complements Indonesia's welcome legal and institutional changes.

4. Understanding the decentralization process in Indonesia

The NG-DRA is to be used at the province and district level (BNPB 2008, Latief 2008 and Triutomo 2008), as required by both the law 24/2007 and HfA (priority no 2.).

This paper also suggests that the NG-DRA guidelines should be framed within the context of decentralization in Indonesia. The World Bank (2005) once called this decentralization process in Indonesia as a "*big bang*," – considering that the speed of the process was the fastest within the East Asian region. Therefore, if this guideline is designed to recognize the current relationships between central-provincial-district governmental roles – for instance in risk sensitive spatial planning roles - the guideline could prove to be a positive asset to the decentralization process .

Not all of the functions of the government have been decentralized. Special observation technical issues at the district level suggest that national guidelines still play important roles (i.e. seismic design and codes, reinforced concrete codes, wind codes, and spatial planning guidelines), thus, the central government may still have important roles.⁷ Even though spatial planning at local levels is often conducted with consultants/contractors, the technical guides that are referred to are the national standards.

Another observation showed that much of the production of tools for disaster risk knowledge is still not decentralized. Production is primarily concentrated within Indonesia's educational hub cities such as Bandung, Jogja and Jakarta. Haynes et. al. 2009 also site that DRR government staff are still struggling to understand what DRR actually signifies. This of course has serious implications to vulnerability reduction for people at risk.

In short, it is extremely relevant for BNPB to continue its responsibility in producing comprehensive draft guidelines, and these guideline need to provide adequate knowledge, enriched by recent empirical evidence from areas at risk in Indonesia.

5. The DNA Code of Disaster Risk

The science of disaster risk is clearly an interdisciplinary science, and this paper follows the definition of interdisciplinary studies as suggested by Klein and Newell “a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession.” (Cited in Mollinga 2008:4). This definition is important, as in practice, disaster risk may be approached by more than 26 field of studies, coming from at least seven distinct schools of thought and expertise i.e. geography, sociology, development studies, health sciences, geophysical sciences with engineering and psychology (Alexander 2005:26).

Twenty years ago, William Freudenberg noted the unnecessary division that risk assessment is the domain of physical sciences, “..... with social scientists focusing instead on risk management and communication.” While unmasking the claim of accuracy from physical sciences, he argued that “social science input is needed for more accurate calculations of risk consequences and probabilities and for identifying potential biases created by certain risk assessment procedures, as well as in analyzing and explaining public responses to risk.” (Freudenburg 1988:44)

Research and practice on disaster management is now increasingly focussed on reducing the social vulnerability of people at risk (see Wisner 2006, Birkmann 2006, Pelling 2003; Bankoff et al. 2004; Wisner et al. 2004; IPCC 2007; UNISDR 2004). This understanding has come from the realisation that vulnerability to disasters is greatly enhanced by social, economic and political processes, which influence how people reduce their risks from, cope with, and respond to, hazards in varying ways (Wisner et al. 2004: 7).

Sociologists, geographers, and development studies have developed the consensus view that risk is a function of the natural hazard and the vulnerability of people exposed. That is, that $R = H \times V$. This formula have been used in the UNISDR Report entitled “Living with Risk: “A global review of disaster reduction initiatives.” (Version 2004, see “the Nature of Risk, in chapter 2 “Risk Awareness and Assessment).

Not all people exposed are equally vulnerable. Different groups of people (differentiated by class, caste, religion, etc.) each have local knowledge and skills that allow them some degree of ability to cope with extreme events. However, economic and political conditions may block or degrade this local knowledge and skill. If we us “C” for the capacity to cope, then the formula becomes $R = (H \times V) / C$. Likewise, in each situation there is a degree of social protection provided by government. Calling this degree of social protection “M” for

mitigation, we have $R = [(H \times V) / C - M]$. Twigg (2007) developed the “C” using resilience concept to represent the “C” (see explanation on the vulnerability and resilience from Twigg 2007:6-7).

Thus hazard and vulnerability are inextricably bound together in the creation of risk, and it is for this reason that the disaster risk reduction community views disaster risk as socially constructed (see i.e. Wisner et. al. 2004, Tierney 1999, 2005, and 2007, Lewis et. al. 1976, Westgate 1976). This view has been reconfirmed numerous times by social scientists in the journal *Engineering and Science*, as well as the outstanding geophysics professor from Caltech, Kerry Sieh -- well known amongst Indonesian scientists – who contributed a paper with the title, “Acts of God, Acts of Man: How Humans Turn Natural Hazards into Disasters.” Sieh (2000) assessed land use decisions in relation to seismic fault lines and suggested that “we can learn where to put our bridges, campuses, houses, and factories to minimize the destruction” in the third millennium. For the urban poor in Indonesia’s cities, such land use and location decisions are heavily influenced by a household’s livelihood options, their perceptions of the balance between risk and opportunity, and their access to land in the city near to livelihood opportunities. Thus vulnerability is as important as the physical location of earthquake faults, extent and location of flood plains, etc.

Sieh’s account on disaster risk is not new (See Tierney 2007). Thirty years ago in *Nature*, O’Keefe et. al. called the world to “take the naturalness out of natural disasters” – already suggesting that “disaster marks the interface between an extreme physical phenomenon and a vulnerable human population. Without people there is no disaster,” (O’Keefe et al. 1976:566). This notion confirms the 250 years old thought about disaster expressed by Rousseau in response to the deadly earthquake that struck Lisbon, Portugal on Easter Sunday, 1755 “... that nature did not construct twenty thousand houses of six to seven stories there” (See Dynes 2000:106).

Birkman (2007: 21) observes that “the concept of vulnerability has been continuously widened and broadened towards a more comprehensive approach encompassing susceptibility, exposure, coping capacity and adaptive capacity, as well as different thematic areas, such as physical, social, economic, environmental and institutional vulnerability”.

While most people think vulnerability must be assessed qualitatively, there are also quantitative approaches. For example, the Schneiderbauer and Ehrlich (2006) account for aggregates of vulnerability (i.e. individual, household, administrative community, cultural

community, national and regional). They also break this account down further into detailed parameters and indicators for social level.

Another quantitative model is the community based disaster risk management (CBDRM) index developed by Bollin and Hidayat (2006) as part of fieldwork conducted in the Sikka and Kulon Progo districts, Indonesia. The model is simple if the necessary data is available. The vulnerability is divided into four categories (i.e. physical, social, economic and environmental) with a scoring system based on physical, economic, societal and management/institutional characteristics. The risk index is the aggregate of all aforementioned vulnerability/capacity categories combined with the hazard and exposure analysis.

The unequal distribution of the death toll in the Indian Ocean Tsunami between men and women showed that there is a social and non-natural component in disaster risk.

Feltenbiermann (2006) quoted a research result showing that the ratio of male to female deaths in the tsunami was 1:3. While Oxfam's sponsored research in tens of selected villages in Aceh showed an average of 1:5 for the M/F death ratio. Rofi & Doocy (2006) and Doocy et al. (2007) also studied the Aceh experience; while Nishikiori et al. (2006) presented Srilanka's similar pattern of mortality based on gender.

Thus, the integration of gender as an important factor in shaping the distribution of risk can no longer be seen as optional, but imperative. However, gender analysis of risk does not appear in the draft NG-DRA guidelines.

Age is another factor far too critical to disaster outcomes to be downplayed or excluded in disaster risk assessment tools such as the NG-DRA. Peek (2008) found that "large-scale disasters, including the 2004 Indian Ocean earthquake and tsunami, the 2005 Pakistan earthquake, and 2005's Hurricane Katrina, brought into sharp relief the pain that disasters may cause for the youngest victims." Mitchell et al. (2008:225) quoted the Tsunami Evaluation Coalition (TEC) finding that the most affected groups in the tsunami were children under 15 and women. Peek listed about 17 types of risk that children often face in the disasters (Peek 2008:5).

The trend of higher life expectancy globally means that there are more elderly people living in poverty, and hence, with reduced ability to cope with extreme natural events (Geller and Zenick 2005, Weichselgartner 2008). In addition, there will be also more aging women than men (HelpAge 2008).⁸ Factoring the interplay of gender, age and economic vulnerability will result in more definitive risk pictures. However, these key factors cannot be measured using the recently drafted Indonesian NG-DRA.

6. Concluding remarks

As the title of this paper suggests, the DNA code of risk has two intertwined strands i.e. vulnerability and hazard¹ They are intimately intertwined, as are the two strands of proteins that make up the double helix of DNA code.² Disaster risk can neither be understood nor properly reduced through policy and practice unless both vulnerability and hazard are taken into account.³ This concept has emerged as a consensus within disaster risk management scholars over the last two decades (Pelling and Wisner 2009:34)Lessons to be learn and thus to be used either from Hurricane Katrina in the Gulf Coast of the U.S. or from the Indian Ocean Tsunami 2004 in Aceh, firmly confirms what Alex de Waal observed the “*impact of human disaster imprinted in social forms.*” This suggests that beneath the fault lines of social differences such as gender, age and multiple social differences lies the secret of past and future disaster risk distribution patterns. For effective disaster risk reduction it is crucial that these patterns should be captured in the assessment methods recommended by the NG-DRA. In addition, this paper argues that if managed appropriately, disaster risk analysis/assessment may be transformed into a critical learning process for all stakeholders, including communities at risk. In any event a wider circle of experts can be formed through the learning processes. Therefore, in itself, risk analysis is a process that can play roles in risk knowledge transfer and risk communication/consciousness. This can reduce the transaction-cost of conventional risk communication often labelled as the “socialisation” of risk knowledge. There are actually many options for BNPB. A great deal of knowledge, which combines hazard and vulnerability analysis are already in existance. Recent publications include those edited by Birkmann (2006) entitled “Measuring Vulnerability to Natural Hazards” which presents 20 different models of how to incorporate vulnerability into risk analysis. The ProVention Consortium, headquartered at the IFRC in Geneva has developed a web-based tool kit for implementing community risk assessment, contains dozens of manuals and sets of guidelines as well as more than 50 critically annotated case studies (ProVention, 2009). A list of existing risk assessment models, with considerable account on vulnerability analysis, can be seen in annex 1.

¹ This illustration treats vulnerability and hazard as the umbrella concept to discuss the nature of disaster risk. While the notion of exposure and suceptibility as important factors to risk are treated as sub theme of vulnerability concept in broader sense. To avoid the “babilonian confusion,” please consult Thywissen 2006

² Illustration of double helix of DNA once suggested by Prof. Dave Bentley, Wilson Profesor of Durham University, UK (Source: Ben Wisner, personal communication, 18 Jan 2009)

³ This paper avoids debate on the roles of hazard exposure and susceptibility as some disaster management authors suggest them to be different. For further definition, please see Comparative Glossary of Thyssen 2006

7. Recommendation

Considering the importance of the GN-DRA as the first step towards national risk reduction planning at the national, province and district level, within the context of high diversity in Indonesia, the CSOs network meeting did not foresee the feasibility of an effective single minded exclusive approach to risk assessment for Indonesia.

The CSOs forum does however recommend adaptable principles that are presented as guidelines to be implemented with some level of flexibility. Firstly, the GN-DRA must stress the importance of local risk contexts, and be based on a multi-hazard and multi-vulnerability approach. The methodology must be compatible, comprehensive and applicable within local contexts and it must involve the participation of key stakeholders. It should promote cultural, socio-ecological sustainability, and clearly identify the target community and / or element of the communities at risk. The GN-DRA must be functional, without losing its scientific basis. Furthermore, to be effective, it must be designed in a way that can be updated regularly. The responsibility and accountability for data must also be clearly defined.

As previously noted, there are several ways for BNPB to formulate a balance account of 'multi-hazard' and 'multi-vulnerability'. Bollin dan Hidayat's (2006) CBDRM Index with the case study in Sikka and Kulon Progo can be scaled up for nationwide risk assessment tool

For context-specific needs, such as volcano risk assessment, Dream UPNVN Jogjakarta have developed an extensive index approach. However, this approach must be subject to revision to be applicable for the context of other volcanos.

Simple models such as HCVA (*hazard, capacity and vulnerability analysis*) (Anderson 1998) are another option; Cardona (2006) or the revised BBC (Bogardi- Birkmann-Cardona) model (2006); Schneiderbauer and Ehrlich (2006) and Bollin & Hidayat (2006) are the recommended models and frameworks for disaster risk assessment. At the district level, Wisner (2006) may also be a potential option.

If the suggestions outlined in this position paper are recognized within the development of the GN-DRA the Indonesia DRR CSOs forum is in full support.

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List of Modules of GN-DRA

Code	Modules / Guidelines	Document Ref.	Remarks
M-G001	Potential Analysis of Forest Fire Risk	Saharjo, B. H. 2008, 114 pp.	
M-G002	Volcano Disaster Risk Assessment	Grandis, H. 2008 26 pp.	
M-G003	Flood Disaster Risk Assessment	Sutardi 2008, 102 pp.	

M-G004	Drought Disaster Risk Assessment	Adrian, E. 2008. P. 57	Meteorologist
M-G005	Analysis of Earthquake Hazard & Risk	Natawidjaja, D. H. 2008, 94 pp.	Geophysics
M-G006	Analysis of Tsunami Hazard and Risk	Latief, H. 2008 84 pp.	Modeller
M-G007	Landslide Risk Assessment	Annon 84 pp.	

Anex 1. List of Options for Risk Assessment Models/Framework

1. Model Schneiderbauer and Ehrlich 2006
2. DREAM Jogja's Model 2008 (Risiko Gunung Api)
3. Model Queste and Lauwe 2006 (Critical infrastructure model)
4. Kok, V. Narain, S.J. Wonink and J. Ja'ger
5. Unesco (2003) Framework for risk assessment
6. Disaster risk index (UNDP 2004)
7. Disaster risk hotspots (Dilley model – Univ. Columbia)
8. Cardona's Disaster Deficit Index (DDI)
9. Cardona's Disaster Risk Management Index
10. Cardona's Local Disaster Index
11. Bollin and Hidayat's CBDRM Index
12. Grieving's Integrated Risk Index (2006)
13. CVA framework (Anderson 1998)
14. Human Security Index (Plate 2006)
15. ADRC's self assessment models for hazard/vulnerability
16. Villagran's sectoral approach (2006)
17. Wisner's participatory HCVA model
18. BBC Framework & Simplified BBC Framework
19. IIASA CATSIM model - Public sector financial vulnerability to natural hazards (2006)
20. ADPC's "Pra-disaster" ECLAC Model – Forthcoming
21. ECLAC's post disaster model
22. Cutter's Social Vulnerability Model (2008)
23. Simpson 2006's Disaster Preparedness Index , Vulnerability Index & Disaster Resiliency Index - Fritz Institute
24. Miscellaneous (See <http://www.proventionconsortium.org/?pageid=36>)

The Jakarta Post Opinion “Feeling better, doing worse?”

<http://www.thejakartapost.com/news/2009/02/26/feeling-better-doing-worse.html>

Jonatan Lassa , Bonn | Thu, 02/26/2009 1:58 PM | Opinion

There is an increasing trend of social economic losses in "natural" disasters due to the rising number of natural hazard incidents together with the increasingly vulnerable population in Indonesia.

The United Nations International Strategy for Disaster Reduction (UNISDR) jointly with Leuven Catholic University's Center for Research on Epidemiology of Disasters (CRED) reported recently that 2008 showed an increase in the number of deaths and economic losses compared to the 2000-2007 yearly average.

The recent 7.2-magnitude earthquake (S.R.) in the Talaud Islands regency in North Sulawesi, that caused hundreds of injuries and damage to 500 buildings according to the national media, show one important lesson. The people not only live in a vulnerable environment in regard to housing and infrastructure but also lack the infrastructure to react quickly to the warning of a potential tsunami.

We witness floods in many provinces in Indonesia today, which cause losses and damage to livelihood, life and infrastructure, coming together with "the unpleasant guests" such as dengue, malaria and diarrhea (see The Jakarta Post , Feb. 14). Hence, one may be wrong asserting that Indonesia is not moving forward to reduce disaster risks amid the increasing trend of disaster risks.

On the other hand, one may share the optimistic view, asserting that Indonesia is getting better, or far better, at disaster risk management today than in the past. In terms of laws and regulations concerning disaster risks, under the auspices of the National Disaster Management Law 24/2007, followed by various ancillary regulations such as the set up of the National Disaster Management Agency (BNPB) through Presidential Regulation 8/2008 and the government regulation for Disaster Management Implementation 21/2008, Indonesia has gained new momentum for a better risk management policy.

But why do many people feel worse when the government is doing better in anticipating natural disasters? This question was once asked by Aaron Wildavsky in 1977 within the United States' context in his famous paper Doing Better and Feeling Worse: The Political Pathology of Health Policy, published by MIT Press. It later became known as the Wildavsky paradox.

But in the Indonesian context today, the paradox can actually be reversed "why are we feeling better while actually we are not doing enough?"

Recent efforts by the BNPB to take the first step in disaster risk reduction, that is, the draft of the National Guidelines for Disaster Risk Assessment (hereinafter NG-DRA) clearly validates the English saying "the devil is in the details." Therefore, the optimistic view may miss the fact of the shortcomings of the NG-DRA draft.

The critical point of this article is to propound why Indonesia needs better national guidelines for the better practice of disaster risk assessment. The notion that disaster risk assessment is the first step towards better disaster risk management planning has been long held by many international scientists working on disaster risk assessment.

The first step is crucial, as it will drive operational policy in the field to reduce future risk, so we and our children may enjoy less disaster risk in the future.

On the contrary, just recently, the BNPB, supported by the Safer Communities for Disaster Risk Reduction (UNDP), recruited seven natural/physical scientists and engineering experts to the NG-DRA for seven selected hazards (i.e. earthquake, tsunami, drought, forest fire, flood, landslide and volcano).

The NG-DRA is one of the top priorities of the BNPB that will later be used by at least 410 regencies and municipalities and 33 provinces. Therefore the NG-DRA is both necessary, important and strategic to the BNPB office, to complete the national guidelines for disaster risk assessment as the benchmark of national disaster risk management planning.

Unfortunately, the draft guidelines for disaster risk assessment only recognise the physical events of natural hazards. It does not touch on the social, economic, cultural, political and environmental aspects of disasters. The models offered as the national guidelines for risk analysis/assessment fail to adopt the latest knowledge and latest empirical research results concerning disaster risk and disaster risk analysis.

It fails to recognise the unequal distribution of the death toll in the Indian Ocean tsunami between men and women showed that there is a social and non-natural component in disaster risk.

At least four empirical researches were done in Aceh and Sri Lanka and all came out with the convincing results that women's survival rate is far less than men's. Thus, integrating gender as an important factor that shapes the distribution of risk can no longer be seen as optional but imperative.

Gender analysis of risk does not appear in the draft NG-DRA guidelines. The guidelines also fail to recognise the interplay of gender, age and economic vulnerability which may result in greater risks.

The shortcoming of the guidelines may come from the assumption that the science of doing disaster risk assessment does not really need social sciences contribution but natural science alone.

Therefore, disaster risk assessment taking into account the physical aspects of natural hazards without taking adequate account of the multiple vulnerabilities will guide Indonesia's reform processes toward ineffective and unsustainable disaster risk reduction (DRR) practices and will move the country backward, not forward.

About the editor

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End Notes

¹ This figure is taken from Haynes et. al. 2009. See ref in the original position paper.

² See <http://www.proventionconsortium.org/?pageid=36> [access on 23 January 2009]

³ This figure is taken from Haynes et. al. 2009. See ref in the original position paper.

⁴ See <http://www.proventionconsortium.org/?pageid=36> [access on 23 January 2009]

⁵ This is clearly shown by the First Deputy of BNPB, Dr. Sugeng Triutomo in the latest Asian Conference for Disaster Reduction, 13-14 December 2008.

⁶ Term participation ("partisipasi") appears in chapter 4, 26, 59, 60 and 69 of the UU/24 2007Bab 59, 60 dan 69 tentang kebijakan rekonstruksi.

⁷ Interview with a staff of Bappeda di Maumere, June and Agustus 2008.

⁸ See facts and figures at <http://www.helpage.org>, please also download data from UN Ageing Population dataset: <http://www.un.org/esa/population/publications/ageing/ageing2006chart.pdf>