

SEARCH

BROWSE

searching **Engineering Collection** [CHANGE DATABASES](#)[BACK TO TITLES](#)

Citation only

5th Civil Engineering Conference in the Asian Region and Australasian Structural Engineering Conference 2010, The

Imprint: Sydney, N.S.W.; Engineers Australia; 2010**Extent:** 1449 p.**ISBN:** 9780646537276**Publication Type:** Conference Paper**Subjects:** [Engineering](#); [Civil engineering](#); [Engineering \(Other branches\)](#)Database: **ENGINEERING COLLECTION**

Abstract: The 5th International Civil Engineering Conference (CECAR5) hosted by Engineers Australia, together with the Australasian Structural Engineering Conference (ASEC 2010) will bring together a broad cross-section of the civil and structural engineering professions who want to learn, network and advance their technical skills. The three day conference included presentations, workshops and technical site visits attracting an audience of 600-800 delegates in Sydney, Australia from 8-12 August 2010.

Papers

1 [The Effects of Shrinkage on Long-term Slab Deflection](#)

Gilbert, RI; Wu, HQ

FULL TEXT PDF (BUY NOW - AU\$8.00 + GST (156KB))

MAINSTREAMING DISASTER RISK REDUCTION STRATEGY IN URBAN MANAGEMENT OF MEDIUM SIZED CITIES IN INDONESIA

Krishna S. Pribadi¹ and Biemo W. Soemardi¹

¹Faculty of Civil and Environmental Engineering, Bandung Institute of Technology
Jl. Ganesha 10, Bandung 40132 INDONESIA

ksuryanto@si.itb.ac.id; b_soemardi@si.itb.ac.id

ABSTRACT

Indonesia is a disaster prone country due to its unique geographic position, where four global tectonic plates i.e. the Eurasian, Indo-Australian, Pacific and the Philippines plates meet each others, resulting in high seismic and volcanic activities in many parts of the country. In the past few years, climate change impacts have been identified as causing various natural calamities.

The recent political transition in Indonesia leading to the devolution of governance has brought new challenges to many new local government authorities in term of dealing with disaster impact and disaster risk. Cities are now expected to develop capacities for improving disaster risk management efforts, as vulnerabilities are known to increase in the current urban environment, especially in the fast growing cities with high population density, but are lagging behind in infrastructure investments and public awareness to disaster risk is relatively low.

Efforts to develop strategy to reduce disaster risk in the urban areas are currently in place in Indonesia, and in particular, a strategy for urban disaster reduction for medium sized cities is currently being developed by the Agency for Development Planning under the National Ministry of Planning, in collaboration with the Center for Disaster Mitigation, ITB, aiming at improving the safety of the urban population against future disasters, through the mainstreaming of disaster risk reduction programs in urban management. Priorities emanating from the Hyogo Framework for Actions 2005-2015 are used as the basis for developing the disaster risk reduction strategies, and key actions necessary to carry out the agenda are identified within each stage of the urban management processes, i.e. planning, organizing, budgeting, actuating and controlling. Some relevant local government authorities are sharing their urban disaster risk reduction experiences in the process, where best practices are captured and put in the strategy for the benefit of other less experienced cities.

Keywords: disaster risk reduction, urban management, medium sized cities

INTRODUCTION

Indonesia is a disaster prone country due to its unique geographic position, where four global tectonic plates i.e. the Eurasian, Indo-Australian, Pacific and the Philippines plates meet each others, resulting in high seismic and volcanic activities in many parts of the country. The long coastal lines of Indonesian archipelago are prone to tsunami generated by earthquakes sources in the subduction zones where the continental tectonic

plates meet under the sea bottom, as well as undersea volcanoes and landslides. Climate change impact on hydrologic pattern in Indonesia has exacerbated floods and landslide disasters in different parts of the country. Coastal urban settlement areas are threatened by coastal flooding from tidal surge, aggravated by staggering land subsidence phenomena and sea level rise. Droughts and forest fires in the past few decades have caused huge economic losses to the country.

The data from CRED-EMDAT (2009) shows that from the 1900 to 2010 there have been 356 disaster events, causing 235,506 deaths, affecting 27,030,711 people and causing almost US \$ 24 billions of damage. Fig. 1 shows the distribution of the figures among different eight hazards (droughts, earthquake, tsunami, flood, landslide, storm, volcano, wildfire).

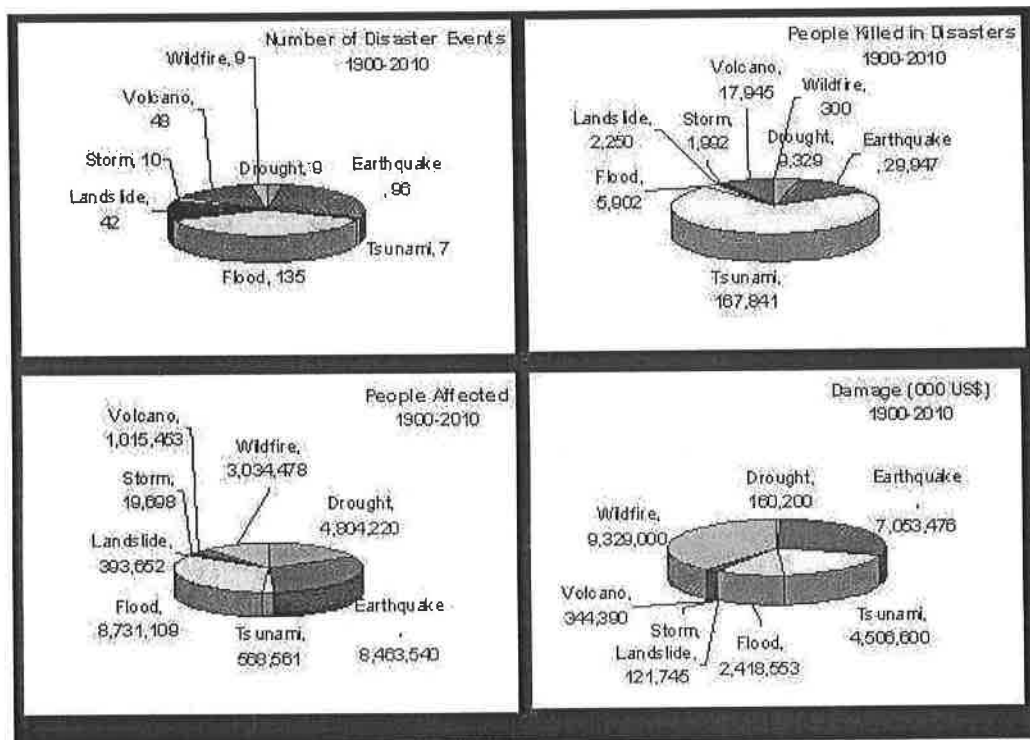


Fig.1 : Number of Disaster Events, Casualties and Damage (source: EM-DAT, 2010)

The Natural Disasters Risk Index (NDRI) released by global risks advisory firm Maplecroft (2007) rated Indonesia as the second country from 15 countries in the "extreme risk" category, for disasters including earthquakes, volcanic eruptions, tsunamis, storms, flooding, drought, landslides, extreme temperatures and epidemics. Aside from that alarming report, the urban population in Indonesia, which counts about 52% of the total of 243 millions (CIA Factbook, 2010) are particularly at risk as they are faced with poverty, poor infrastructure and dense overcrowding in high risk areas. Moreover, according to USAID report, urban population growth in Indonesia is among the fastest in the world (3.3% compared to national population growth of nearly 1.1%),

characterized by 18 % of urban poor which consists of 36% of the national population lives below the poverty line

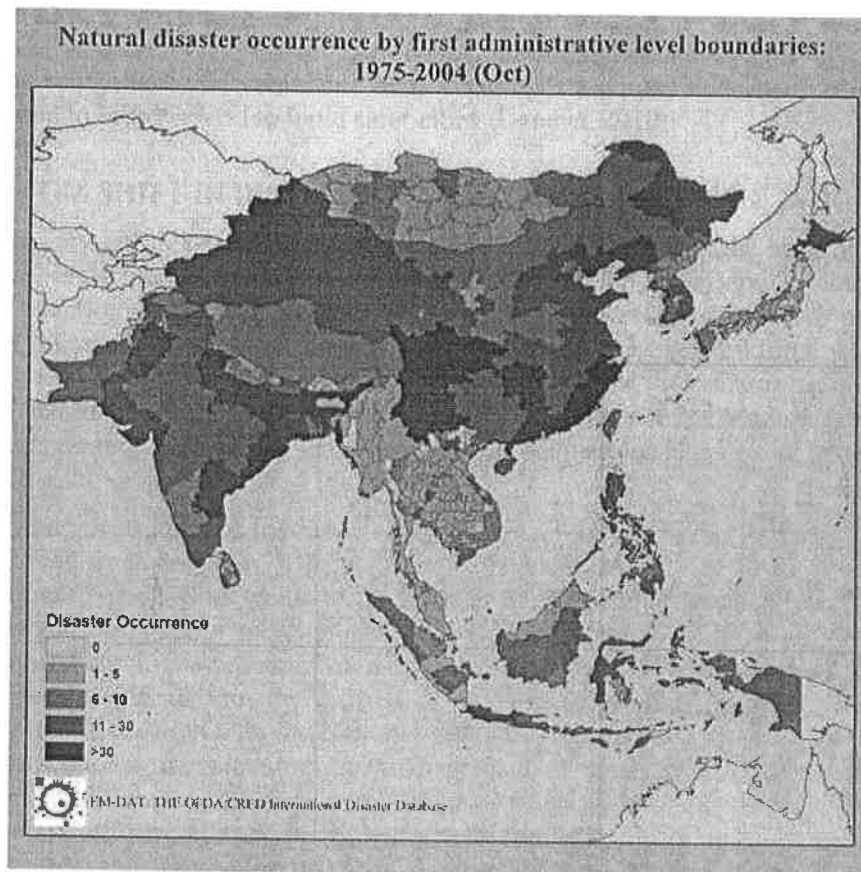


Fig.2 : Disaster Occurrence, by Nations (source: EM-DAT, 2010)

As part of the democratization through the political transition process since the 1998, Indonesia is implementing decentralization in 2001, based on Laws No. 22/1999 on Regional Government and No. 25/1999 on the Fiscal Balance between the Central Government and Regional Governments, which later were amended in 2004 by respectively Law No.32/2004 and No.33/2004. These laws transfer the powers, taxes, funds, and personnel to the regions and devolve the authority of the central government to sub-national or local governments, except for defense, diplomatic, judicial, fiscal and religious policies (Takeshi, 2006). Together with the enactment of a new law on disaster management (Law No.24/2007), the local government authorities (cities and districts) are facing new challenges in term of dealing with disaster impact and disaster risk as they are now responsible for the coordination and implementation of the whole disaster management stages in their jurisdictions.

Responding to those challenges, urban risk, city planning and the role of local governments in dealing with risk reduction have been recognized as key factors to build resilient communities and nations since the beginning of the International Strategy for

Disaster Reduction. The Hyogo Framework for Action 2005-2015 considers that both communities and local authorities should be empowered to manage and reduce disaster risk by having access to the necessary information, resources and authority to implement actions. Poor urban governance, informal settlements on unsafe land, declining ecosystems and vulnerable rural livelihoods are main underlying risk drivers, which need to be addressed to build safer cities (Geneva, 2010).

PARADIGM SHIFT IN DISASTER MANAGEMENT POLICY IN INDONESIA

In the past the policy regarding the management of disaster laid in the hand of Ministry of Social, under coordination of Coordinating Minister of Social and Welfare, which mainly adopting emergency disaster response approach rather than more preventive ones. In the event of a natural disaster the government's disaster taskforce, along with red cross and other voluntarily units, would coordinate and take action to mitigate the damage and helped those who suffered from. It could be said that almost no long-term plan of action was deployed. Such approach was deemed inadequate and less effective in reducing the risk of disaster.

In 2007 the government of Indonesia enacted Law no 24 on Disaster Management. The Disaster Management law stipulates the establishment of the National Disaster Management Agencies as well similar Disaster Management Organizations (DMO) at the provincial and district and city level. Currently there are 28 DMO at provincial level and another 5 are in the process, whereas at district and city level there are 87 DMOs, as well as another 10 new in the process. These provincial and district/city DMOs are working in coordination with the National DMO in Jakarta. The DMOs are mandated to be responsible for the planning and management of disaster prevention, mitigation, Cities and districts are now expected to develop capacities for improving disaster risk management efforts, as vulnerabilities are known to increase in the current urban environment, especially in the fast growing cities, due to their high population density, where investments for infrastructure are lagging behind and public awareness to disaster risk is relatively low.

In addition to the new law on Disaster Management, the government also developed and adopted the National Disaster Management Plan 2010-2015. Priorities emanating from the Hyogo Framework for Actions 2005-2015 are used as the basis for developing the disaster risk reduction strategies, and key actions necessary to carry out the agenda are identified within each stage of the urban management processes, i.e. planning, organizing, budgeting, actuating and controlling. Some relevant local government authorities are sharing their urban disaster risk reduction experiences in the process, where best practices are captured and put in the strategy for the benefit of other less experienced cities.

Efforts to develop strategy to reduce disaster risk in the urban areas are currently in place in Indonesia, and in particular, a strategy for urban disaster reduction for medium sized cities is currently being developed by the Agency for Development Planning under the National Ministry of Planning, in collaboration with the Center for Disaster Mitigation, ITB, aiming at improving the safety of the urban population against future disaster, through the mainstreaming of disaster risk reduction programs in urban management.

The enactment of Law no 24/2007 has shifted the paradigm of disaster management. This shifting, among others, changes the orientation of disaster management:

- From centralized to decentralized by empowering provincial and district/city DMOs
- From emergency response action to preparedness, and prevention of disaster at all level.
- From impact management to a more rational and accountable risk management.
- From individual sectoral responsibility to multi-sector responsibility by better coordination amongst government units and agencies, at both central and locals.
- From single hazard approach to multi-hazard consideration, taking all account of possible risk.
- From government control toward community and private sector participation.

MAINSTREAMING DISASTER RISK REDUCTION IN URBAN SETTING

Law no 24/2007 structures the disaster management system into three main functions in accordance to the timing of disaster phases: Disaster Risk Reduction- DRR (pre-disaster), Emergency Response – ER (during disaster), and Post-Disaster (PD). While the last two functions have been implemented as part of the old paradigm, the

Increasing appreciation of the need to mainstream disaster risk reduction into development was formalized in January 2005 when the Hyogo Framework for Action 2005–2015 was adopted by the World Conference on Disaster Reduction with 168 nation and multilateral institution signatories. The Hyogo Framework is centered around three principal strategic goals, the first of which is “the more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.” (Benson and Twigg, 2005)

Urban risk, city planning and the role of local governments in dealing with risk reduction have been recognized as key factors to build resilient communities and nations since the beginning of the International Strategy for Disaster Reduction. The Hyogo Framework for Action 2005-2015 considers that both communities and local authorities should be empowered to manage and reduce disaster risk by having access to the necessary information, resources and authority to implement actions. Poor urban governance, informal settlements on unsafe land, declining ecosystems and vulnerable rural livelihoods are main underlying risk drivers, which need to be addressed to build safer cities. (Campaign, 2010).

Poor urban governance, territorial occupation and urbanization, declining ecosystems and vulnerable rural livelihoods are identified as main underlying risk drivers, which need to be addressed. The report identifies as a major gap that neither local nor national policies are focusing on addressing these underlying risk factors; there is insufficient articulation between the policy frameworks that deal with disaster risk, climate change and poverty reduction in support of effective local actions. Improved urban and local governance is a prerequisite for this to happen.

CASE STUDY OF PALU CITY, SULAWESI

A study by Center of Disaster Mitigation ITB, in collaboration with Ministry of National Development and SC DRR UNDP has selected Palu city as the initial step in implementing strategy toward disaster risk reduction. This capital of Central Sulawesi province has natural and geological condition, coupled by its social and cultural characteristic that makes it an ideal reflection of Indonesia urban city with considerably history against disaster.

In the study has taken into consideration on all aspects of urban city lives that may initiate or worsen the disaster into disaster risk reduction program which is to be implemented into the city's short and long-term development plan. The city of Palu has population of 302,201 people in 2008, occupying an area of 395.06 Km², and has higher poverty rate (31.39%) than the national average (15.42%), making it one of the many poor cities in Indonesia. Palu lies in a bay area that prones to natural disaster, such as earthquake, tsunami, flashflood, and landslide. In addition, Palu is also facing the risk of social conflict due to social and ethnical background of the people that often lead to arson and fatality.

Tab. 1 : Disaster Risk Reduction Strategy Matrix

Stage of Development	Main Strategy				
	Institution and Regulation	Disaster Risk Information	Dissemination, Education and Reserach & Technology	Reduction of Risk Factor	Preparedness
Planning					
Organizing					
Budgeting					
Actuating					
Controlling					

The strategy developed for reducing risk of disaster in Palu city was developed based on the Hogyo framework of actions for DRR, which is then implemented in the form of Palu's DRR strategic matrix. The matrix defines what action should action in five aspects in accordance to the stage of development, from planning to actuating and controlling. The development of such matrix was the result of active participation of local government as well as various organizations.

CONCLUSION

Palu city was selected as model for initial step toward empowering the disaster management units in the effort to reduce risk of disaster in urban area. The unique but complex natural condition of Palu, along with its characteristic of urban area, makes it an ideal reflection of typical urban area in Indonesia to simulate the readiness to face disaster. The involvement of both the government and the community as well of the private sector in a coordinated effort is the important key ingridient in incorporating disaster risk reduction into both spatial and non-spatial short and long-term planning.

Although such a model has yet to be tested, it becomes clear that effort to reduce risk of disaster should not be considered as cost of development but rather as investment for future development. Therefore, such effort should be part of any sector of development, be it at the planning level or at the implementation.

REFERENCES

Benson, C. and Twigg, J. 2005. Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organization.

Campaign, 2010. Local Governments and Disaster Risk Reduction Good Practices and Lessons Learned A contribution to the "Making Cities Resilient" Campaign, Geneva, Switzerland, March 2010.

CIA Factbook, 2010, <https://www.cia.gov/library/publications//the-world-factbook/geos/id.html>, accessed 28 May, 2010.

CRED-EMDAT, 2009, <http://www.emdat.be/result-country-profile>, accessed 27 May 2010.

Ito Takeshi, 2006, The Dynamics of Local Governance Reform in Decentralizing Indonesia: Participatory Planning and Village Empowerment in Bandung, West Java Asian and African Area Studies, 5 (2): 137-183.

Maplecroft, 2010, http://www.maplecroft.com/about/news/natural_disasters.html, accessed 27 May 2010.

USAID, 2010, <http://www.makingcitieswork.org/files/pdf/southeast-asia/Indonesia.pdf>, accessed 28 May 2010.

BRIEF BIOGRAPHY OF PRESENTER

Dr. Krishna S. Pribadi is a leading researcher in Disaster Management at Center for Disaster Mitigation at Bandung Institute of Technology. He is also an Associate Professor in Construction Engineering and Management research group.

Dr. Soemardi is an Associate Professor and head of in Construction Engineering and Management research group at Faculty of Civil and Environmental Engineering – ITB. His research interest includes infrastructure and asset management.
