

Bridging the gap between top-down and bottom-up initiatives in disaster risk reduction (DRR)

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From battlefields to partnerships: knowledge and DRR

- “Scientific” knowledge is important to DRR, e.g. when it comes to rare natural hazards, future environmental changes, etc.
- But local knowledge has saved many lives too, especially in the face of recurrent phenomena or in facing events which already occurred in the recent past.

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Elder (105 y.o.) of the island of Simeulue in Indonesia in February 2006 (*B. de Coster*)



Eruption of Mt Pinatubo in the Philippines, 12 June 1991 (*Phivolcs*)

Top-down versus bottom-actions in DRR

- It is widely acknowledged that local “communities” are the first line of defence in facing natural hazards and that they can resort on some endogenous resources.
- But local “communities”, especially the most marginalized people, often need support to strengthen their livelihoods, face hazardous phenomena and access means of protection.

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Manam Island in PNG, February 2007 (*J. Mercer*)

DRR as an inclusive process

- DRR should integrate a large array of stakeholders.
- These stakeholders should include local “communities”, NGOs, local and national governments, scientists, school communities, faith groups, private sector institutions, etc..

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HFA



Hyogo Framework for Action 2005 - 2015

Building the Resilience of Nations and Communities to Disaster: An Introduction to the Hyogo Framework for Action

Every year, more than 200 million people are affected by droughts, floods, cyclones, earthquakes, wildfires, and other hazards. Increased population densities, environmental degradation, and global warming adding to poverty make the impacts of natural hazards worse.

The past few years have reminded us that natural hazards can affect anyone, anywhere. From the Indian Ocean tsunami to the South Asia earthquake, from the devastation caused by hurricanes and cyclones in the United States, the Caribbean and the Pacific, to heavy flooding across Europe and Asia, hundreds of thousands of people have lost their lives, and millions their livelihoods, to disasters caused by natural hazards.

While many know the human misery and crippling economic losses resulting from disasters, what few realize is that this devastation can be prevented through disaster risk reduction initiatives.

Governments around the world have committed to take action to reduce disaster risk, and have adopted a guideline to reduce vulnerabilities to natural hazards, called the Hyogo Framework for Action (Hyogo Framework). The Hyogo Framework assists the efforts of nations and communities to become more resilient to, and cope better with the hazards that threaten their development gains.

Collaboration is at the heart of the Hyogo Framework: disasters can affect everyone, and are therefore everybody's business. Disaster risk reduction should be part of every-day decision-making: from how people educate their children to how they plan their cities. Each decision can make us either more vulnerable, or more resilient.

2005 has been a year of disasters. The loss of life and livelihoods could have been greatly reduced. "If we had good early warning systems, fewer people would have died in the Indian Ocean tsunami. If we had earthquake safe schools, hospitals, and housing in Northern Pakistan, tens of thousands would not have lost their lives. If we had better levees in New Orleans, those who lived in the lower lying parts of the city would not have had to see their lives devastated."

Jan Egeland, Under-Secretary-General for Humanitarian Affairs



<http://www.unisdr.org/hfa>

The Hyogo Framework for Action (HFA)

- Make disaster risk reduction a priority;
- Know the risks *and take actions*;
- Building understanding and awareness;
- Reducing the underlying risk factors;
- Strengthen disaster preparedness for effective response at all levels.

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Global Network
of Civil Society Organisations
for Disaster Reduction

“Clouds but little rain...”



Views from the Frontline A local perspective
of progress towards implementation of the
Hyogo Framework for Action

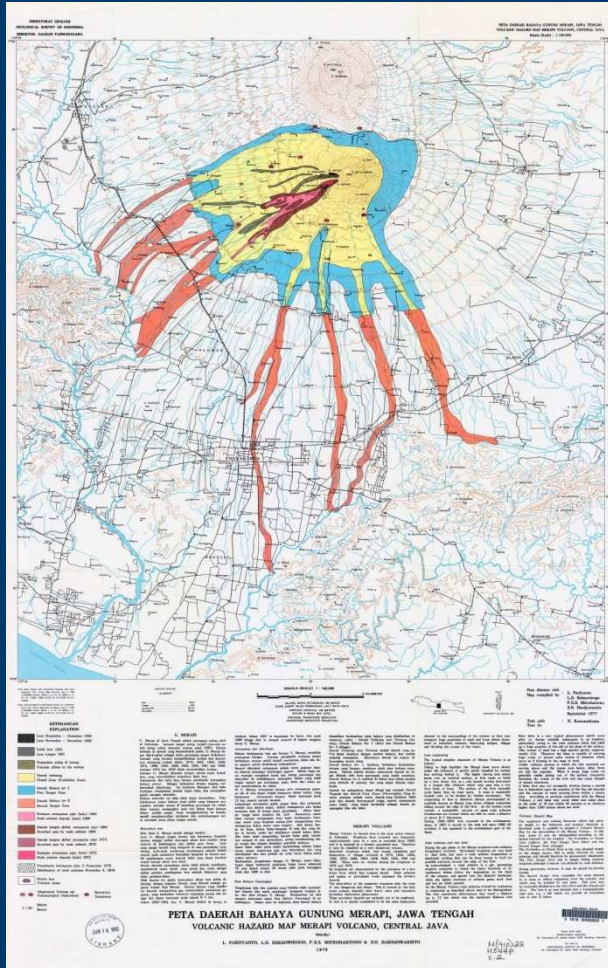
The gap: “Clouds but little rain...”

- “Nationally formulated DRR policies and plans are not generating widespread systemic change in local practices”
(*Views from the Frontline*, p. 36).
- “Turning policy into practice requires finding the appropriate balance between top-down and bottom-up engagement”
(*Views from the Frontline*, p. VI).

How wide is the gap?

- Community-based DRR is often limited to local communities and NGOs partners.
- Scientists often dismiss local knowledge.
- Governments are often enclosed within top-down and command-and-control national disaster management frameworks which give them little freedom for alternative initiatives.

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Top down actions
-
Scientific knowledge



GAP
?

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Bottom up actions
-
Local knowledge



Participatory 2D sketch map of a village on the slope of Merapi volcano, Indonesia, July 2009

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We need tools!



Volcanologist, municipal planning officer, school principal, village chief and locals
discussing DRR face-to-face in Irosin, Philippines, in January 2010

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Reducing the Risk of Disasters through Participatory 3-Dimensional Mapping



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What is Participatory 3-Dimensional Mapping or P3DM?

Participatory 3-Dimensional Mapping (P3DM) consists of building stand-alone large-scale relief maps made of locally available and cheap material (e.g. carton, paper, rocks) over people overlapped thematic layers of geographic information. P3DM enables the mapping of landforms and topographic landmarks, land cover and use, and anthropogenic features (assets, vulnerabilities and capacities), which are depicted by push-pins (points, join lines, and joint polygons). Scales range from 1:500 to 1:1000 and enable mapping and planning at the household level.



P3DM as an integrative tool for Disaster Risk Reduction (DRR)

Scientific Knowledge

Knowledge from scientific disciplines (geography, geology, hydrology, etc.) is integrated into the mapping process.

"Experts"

Local experts (community leaders, professionals, etc.) provide technical and practical insights during the mapping process.

Top-Down

Traditional top-down approaches (government-led, external funding, etc.) are contrasted with the participatory approach.

Assessment

The process starts with an initial assessment of the community's risk and needs, guided by scientific knowledge and expert input.

Dialogue

Through dialogue, local knowledge and marginalized groups' perspectives are integrated, leading to a more comprehensive understanding of the community's needs and vulnerabilities.

Action

The final stage involves developing and implementing a disaster risk reduction plan based on the insights from assessment and dialogue.

DRR

Local Knowledge

Insights from the community members, including their experiences, perceptions, and traditional practices, are vital for accurate mapping.

Marginalized Groups

Ensuring that the voices of vulnerable and often overlooked community members are included in the mapping process is essential for effective DRR.

Bottom-Up

Empowering the community to take ownership and lead the mapping process ensures that the resulting plans are tailored and sustainable.

References
Gaillard, J.-C., & Rom D. Cadag. (2012). Reducing the Risk of Disasters through Participatory 3-Dimensional Mapping. *Journal of Disaster Prevention and Management*, 23(1), 1-15.

Further scope and limitations

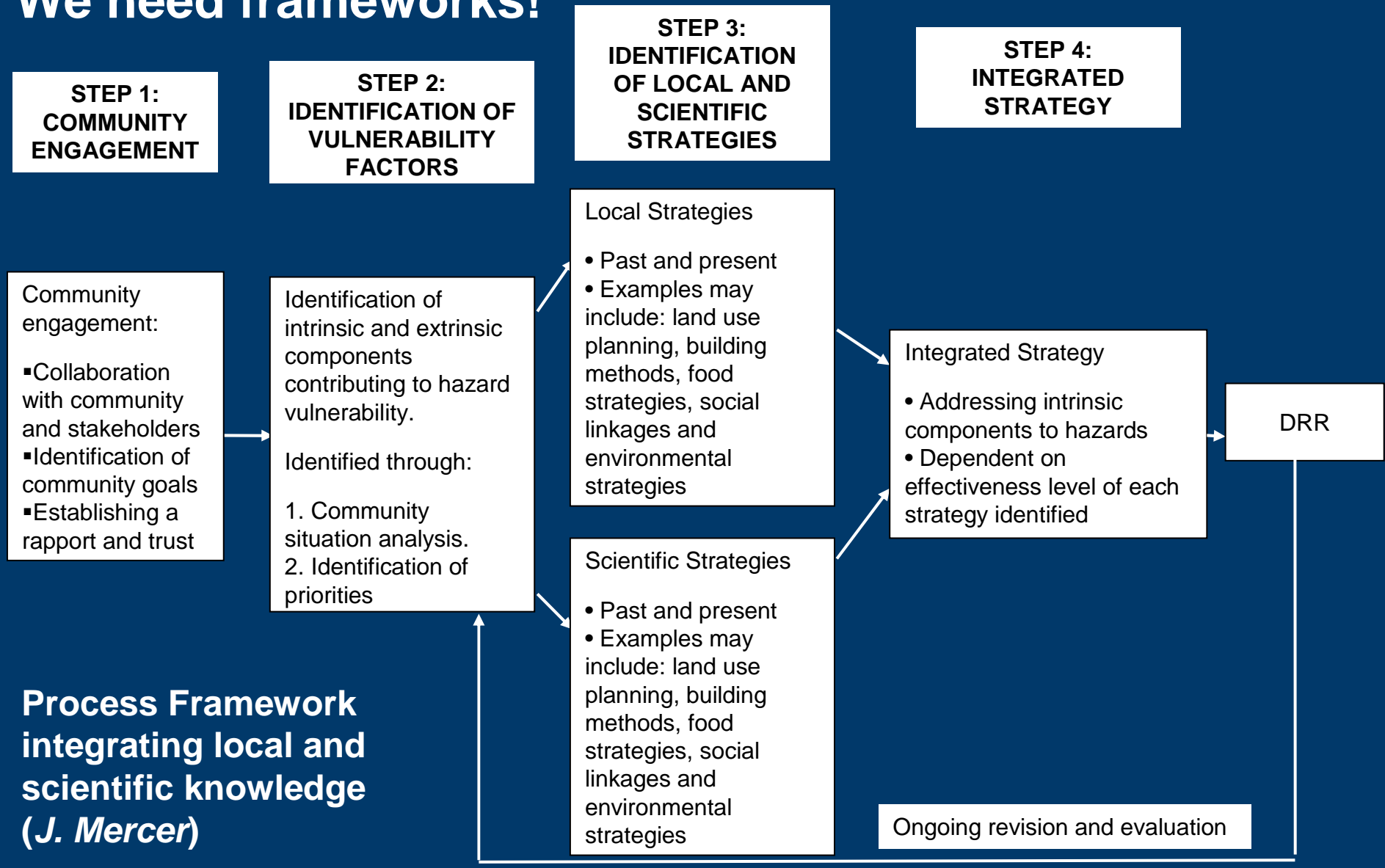
- P3DM allows livelihood mapping
- P3DM enables to integrate DRR into development planning
- P3DM facilitates the resolution of territorial conflicts
- But...
- P3DM is not a stand-alone tool
- P3DM offers limited possibilities to integrate time variations
- P3DM partially disregards social inequalities

Acknowledgment
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We need frameworks!



**Process Framework
integrating local and
scientific knowledge
(J. Mercer)**

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We need institutional recognition!

LAW OF THE REPUBLIC OF INDONESIA
NUMBER 24 OF 2007
CONCERNING
DISASTER MANAGEMENT

BY THE GRACE OF GOD
PRESIDENT OF THE REPUBLIC

- Considering:
- a. that the State of the Republic of Indonesia has a duty to protect all people of Indonesia in order to protect life and livelihood and create public welfare that is in accordance with the 1945 Constitution of the Republic of Indonesia;
 - b. that geography, geology, hydrology, and climate of the State of the Republic of Indonesia are sources of natural, non-natural and man-made environmental damage, loss and impacts that, in certain circumstances, can cause disaster;
 - c. that existing provisions of disaster management is not sufficient to meet the needs of disaster management at the national level.

Republic of the Philippines
CONGRESS OF THE PHILIPPINES

FOURTEENTH CONGRESS
Third Regular Session

REPUBLIC ACT NO. ____

AN ACT
STRENGTHENING THE PHILIPPINE DISASTER RISK REDUCTION AND MANAGEMENT SYSTEM, PROVIDING FOR THE NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT FRAMEWORK AND INSTITUTIONALIZING THE NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT PLAN, APPROPRIATING FUNDS THEREFOR AND FOR OTHER PURPOSES

Enacted by the Senate and House of Representatives of the Philippines in

This Act shall be known as the "Philippine Disaster Risk Act of 2010".

Policy. – It shall be the policy of the State to:

protect the people's constitutional rights to life and property by addressing their vulnerabilities to disasters, strengthening the country's institutional disaster risk reduction and management and building the resilience of local communities to address and manage the adverse effects of climate change impacts;

adopt the universal norms, principles, and standards of the global effort on risk reduction as concrete expression of the State's commitment to overcome human sufferings due to recurring disasters; promote the internationally accepted principles of disaster risk reduction and management and the implementation of national, regional and local disaster risk reduction strategies, policies, plans and budgets; and adopt a risk reduction and management approach that is holistic, integrated, and proactive in lessening the socio-economic and environmental impacts of disasters including climate change, and promotes the



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**KUA MUTU!
KIA ORA!**