DRM-SD
Cases from SEA (Malaysia) and the Pacific (Fiji)

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Sustainability Defined...

...development that meets the needs of the present without compromising the ability of future generations to meet their own needs...

-Brundtland Commission, “Our Common Future”

...development that meets the needs of the present while safeguarding Earth’s life-supporting system on which the welfare of current and future generations depends...
Sustainability, Security and Risk

Reconceptualization of Security and Risk - three reasons:

1. Post-war progress
2. Global SD challenges
3. Globalization

*Widened* – political-military to eco, soc & env dimensions

*Deepened* – state centred to (inter)national to human-centred

*Sectorialized* – food, water, health, energy, poverty, climate etc.
Risk Management

Hazard + Vulnerability = Risk

Impact - Adaptation = Vulnerability

Realized Risk is Disaster
Institutional Arrangement

- DRM Workshop
- Sust. Network – SEASN

Oct 28 – 1 Nov 2013 - Penang
Risk Management

ISDR Risk Equation:

Hazard \times \text{Vulnerability} = \text{Risk Capacity}

Realized Risk is Disaster
Residual Risk

Climate variable (e.g. precipitation)

“Acceptable Risk” threshold

P₁ → P₂

Adapted (explicitly)

Adapted (autonomously)

Frequency
Disaster Risk Management for Sustainable Development

Prevention:
- Risk Assessment and Planning
  - Identifying Threats
  - Identifying Exposure Units
  - Vulnerability and Adaptation (V&A) Assessment
- Risk Maps
- V&A Report
- Resource Planning and Allocation
- Stock Assessment
- Financing

Preparedness:
- ‘Win-Win’ or ‘No Regret’
- Process-based or Discrete
- Hard or Soft
- Insurance

Response:
- Search and Rescue
- Damage Assessment
- Mobilising Assistance
- Provisional Repair
- All Emergency Management Measures

Recovery:
- Resilience Enhancement
- Sustainable Development
- Readiness
- Adaptation
- Mitigation

Disaster Management:
- Reconstruction
- Strengthening of Resilience
- Restoring Utilities
- Transportation, Schools, Hospitals and Other Services
- Finances

Before the Event:
- M&E, Lessons Learned and Best Practices
- Rehabilitation
- Land-use Planning
- Technical Measures
- Modeling Scenarios
- Risk Reduction Integrated into Recovery
- Promote Equity and Sustainable Practices
- Training and Capacity Building

After the Event:
- Evacuation
- Warning
- Information
- Instruction

Realised Risk (Disaster):
- All Emergency Management Measures
RISK ASSESSMENT METHODOLOGY (R.A.M)

The R.A.M Logic

- The assessment is based on the risk equation - See PX
- Essentially in risk management, the effort is to 'reduce the cause' of the hazard and to 'prevent potential damage' of the impacts
- Once the impacts of the hazard on critical exposure units spanning the three pillars of SD are assessed, a risk rating is carried out
- Based on this prioritization, risk management approaches such as 'prevention and preparedness', before the event, and 'response and recovery', after the events are implemented

How to follow this chart?

- Start from the top
- Each blue box has an instruction or suggestion to be carried out as an act or a process, while each orange box contains a clarifying question/attribute
- Read reflectively as you traverse down to the bottom-most line

Extreme/Unusual:
- Physical event
- Phenomenon
- Human activity
- Technological accident

Severe/Destructive:
- Flood, drought, tsunami
- Climate change, poverty, species loss
- War, inequity
- Oil spill, pollution

Critical Exposure Units
- spanning?
- for which?

Social, Economic & Environmental Spheres

How the Risk Rating works?

1. Given that disasters result in 'loss', the goal is to minimize loss as much as possible.
2. Using any semi-quantitative assessment approach, assign H (High), M (Medium) and L (Low) symbols to the four attributes, shown in columns 4-7, of the impact under consideration.
3. Then use the table on the right to assign an average 'Risk Rating' symbol in column 8 (see 4 & 5).

Worksheet

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>People Livelihood</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Economic</td>
<td>Business Trade</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Environmental</td>
<td>Ecosystem Physical</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
</tbody>
</table>

Risk Rating Table

<table>
<thead>
<tr>
<th>High H (&gt;50%)</th>
<th>Medium M (50%)</th>
<th>Low L (25%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4H</td>
<td>4M</td>
<td>4L</td>
</tr>
<tr>
<td>3H, M, L</td>
<td>3M, L</td>
<td>3L, H</td>
</tr>
<tr>
<td>3M, H</td>
<td>3M, L</td>
<td>3L, H</td>
</tr>
<tr>
<td>2H, M, L</td>
<td>2L, M, H</td>
<td>2L, H</td>
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<tr>
<td>2M, L, H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. The above table has been generated assigning the upper level value (H=100%), (M=50%) and (L=25%) to average the letter representations in the left table. The entries in column 8 is also a measure of the vulnerability of the exposure units.

5. E.g. 2M, L, H = 2M+L+H = 2x50+25+100 = 56 = H

Disaster Risk Management for Sustainable Development
Flood prone Area
(Padang Terap District, Kedah)

USM APEX Project
Stakeholder Workshop
Stakeholder Workshop - FGD
Personal interviews
Weak And Failed Adaptation
Awareness building
# RAM Results for Sites

<table>
<thead>
<tr>
<th>Sub- District</th>
<th>Magnitude/Coverage</th>
<th>Intensity/Severity</th>
<th>Probability/Exact Time</th>
<th>Importance/Capacity</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belimbing Kiri</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Belimbing Kanan</td>
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<td>M</td>
<td>H</td>
<td>H</td>
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<tr>
<td>Padang Temak</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>H</td>
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<tr>
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<td>H</td>
<td>M</td>
<td>H</td>
<td>H</td>
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<tr>
<td>Tekai</td>
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<tr>
<td>Batang Tunggang Kiri</td>
<td>H</td>
<td>M</td>
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<td>Batang Tunggang Kanan</td>
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<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Risk</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
</tbody>
</table>
Community adaptation
Adaptation kit
Hard aptation
Programmatic adaptation
Structured adaptation

- Search and Rescue
- Health and Medical Services
- Media
- Support
- Security Control
- Welfare
- Warnings and Alerts

Federal
Disaster Management and Relief Committee

National Security Division

State
Disaster Management and Relief Committee

State NSD

District
Disaster Management and Relief Committee

District NSD

Federal Operation Control (Deputy Prime Minister)

State Operation Control (State Secret)

District Operation Controls (District Officer)

On-scene Post

Officer in Charge Of Police District (OCPD)
USP-AusAID Project site
Vetiver’s deep thick root system
Adaptation
Adaptation

Navukailagi
Thank You

http://cgss.usm.my