INDONESIA'S PDNA EXPERIENCES

Application of DaLA/PDNA in the Context of Post-Disaster Rehabilitation and Reconstruction Policy in Indonesia

By:
BAKRI BECK
Deputy Chief for Rehabilitation and Reconstruction - BNPB

Presented at
World Bank DRM EAP Distance Learning Seminar Series #1
Conducting Post Disaster Needs Assessments (PDNAs)
1 April 2010
I. Indonesia’s DRM Context

II. Indonesia’s Rehabilitation and Reconstruction Policy

III. Application of DaLA/PDNA to Indonesian Context

IV. Capacity Building and Recent PDNA Experiences

V. Further Development
I. INDONESIA’S DRM CONTEXT:
Frequent Events, High Vulnerability, Increased Exposure

Building National Capacity for Post-Disaster Rehabilitation, Reconstruction and Recovery is an important part of Disaster Management

Aceh
26 December 2004 (9.0 SR)

Manokwari
January 2009 (7.2 & 7.6 SR)

West Sumatra
30 September 2009 (7.6 SR)

Yogyakarta
27 May 2006 (6.3 SR)

West Java
2 September 2009 (7.3 SR)

More than 4000 disasters between 2001-2007 alone
II. INDONESIA’S REHABILITATION AND RECONSTRUCTION POLICY

**Law 24/2007 on Disaster Management**
Objective: to develop a disaster management system

**Gov. Regulation 21/2008**
Implementation of Disaster Management

**Gov. Regulation 2/2008**
Financing of Disaster Management

**Gov. Regulation 2/2008**
Participation of Int’l Org. and NGOs

**DISASTER MANAGEMENT**

- Prevention
- Response
- Rehabilitation & Reconstruction

**Before**

**During**

**After Disaster**
Management Responsibilities in Various Stages of Disaster (Based on Law 24/2997)

**PRE-DISASTER**

- No Disaster Situation
  - Prevention
  - Risk Reduction
- Potential for Disaster Situation
  - Preparedness
  - Early Warning
  - Mitigation

**DURING DISASTER EVENT**

- Incident Command System
- Humanitarian Relief
- Emergency Phase
- Extended Emergency
- Rapid Assessment
- Transition/Early Recovery

**POST-DISASTER**

- Rehabilitation
- Reconstruction
- Normal Development

"Build Back Better" (B3)

Coordination & Implementation

Coord, Command & Implementation

Coordination & Implementation
Early Recovery, Rehabilitation, Reconstruction, Development

Early Recovery

Essential Facility

Rehabilitation

Normalization of Basic Services

Reconstruction

Rebuilding of Damaged Assets

Development

Build Back Better
Post-Disaster Response: from Relief to Development

RELIEF

Crisis

HUMANITARIAN

Reconstruction

Recovery

Transition Phase

- Stagnation
- Loss of Momentum
- Gap in disaster response
- Increased Vulnerability
- Dependence
- Neglect
- Etc.

7
Post-Disaster Response: from Relief to Development

- **Relief**
  - Stagnation
  - Loss of Momentum
  - Gap in disaster response
  - Increased Vulnerability
  - Dependence
  - Neglect
  - Etc.

- **Reconstruction**
  - Preliminary works/foundaiton
  - toward recovery
  - Normalization of government function
  - Programming

- **Rehabilitation**
  - Focused
  - Resilience
  - Independence
  - Risk Reduction
  - Comprehensive
  - Rapid Transition
  - Sustainability
  - Etc.

- **Recovery**
  - Early
  - Focus
  - Resilience
  - Independence
  - Risk Reduction
  - Comprehensive
  - Rapid Transition
  - Sustainability
  - Etc.

- **Transition Phase**
Post Disaster Assessment Process to ensure Relief-to-Development Continuum

Assessment

RAT: Rapid Assessment Team
ERNA: Early Recovery Needs Assessment
DaLA: Damage and Losses Assessment
PDNA: Post Disaster Needs Assessment

Rehabilitation, Reconstruction and Economic Recovery

Verification
Recommendations

Program

Budget

Time, Month

5 Years

Remarks
RAT: Rapid Assessment Team
ERNA: Early Recovery Needs Assessment
DaLA: Damage and Losses Assessment
PDNA: Post Disaster Needs Assessment
Damage and Losses Assessment/Post-Disaster Needs Assessment in the Context of Indonesia’s Rehab-Recon Policy

Government Regulation 21/2008

› Article 56 (3)
  Priority for Rehabilitation and Reconstruction activities are based on Analysis of Damage and Losses caused by disaster

› Article 57 (2)
  National and/or local governments shall develop Rehabilitation and Reconstruction Plan based on Analysis of Damage and Losses caused by disaster with due consideration of public aspiration.

› Article 59
  (1) Proposal for funding assistance shall be verified by Inter-Departmental Team coordinated by BNPB
  (2) The verification will determine the size of assistance from the National Government to Local Government

DaLA/PDNA becomes essential tool for planning, budgeting, and accountability
IV. APPLICATION OF DaLA/PDNA IN INDONESIA

- Economic Damage and Losses
- Needs
- Rehabilitation and Reconstruction Strategy
- Funding and Supervision

DaLA
PDNA
RR Master Plan
Conceptual Basis:
Economic Assessment Methodology

Indirect Impacts
- Agriculture
- Environmental
- Disruption of Public services
- Death & Injuries
- Dislocation
- Memorables
- Health Impact
- Cultural & Heritage
- Infrastructure
- Alternative Accommodation
- Emergency Relief Operations
- Cleanup
- Fences

Direct Impacts
- Agriculture
- Residential Housing
- Commercial Building
- Structure
- Contents
- Content (incl. equipment & sock)
- Emergency Relief Operations
- Business Disruption
- Network Disruption

Intangible Effects
- Agriculture (loss of production)
- Disruption of Public services
- Environmental
- Death & Injuries
- Dislocation
- Memorables
- Health Impact
- Cultural & Heritage

Source: Bureau of Transport Economics, Australia (Gentle, et. al., 2001) , with modification
### Methodology Used in Indonesia: ECLAC Definition of Disaster Effects

#### Immediate Effects

<table>
<thead>
<tr>
<th><strong>Damage</strong></th>
<th><strong>Medium-Term Effects</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Destruction of physical assets during the event</td>
<td><strong>Losses</strong></td>
</tr>
<tr>
<td>Measured in physical units and valued at replacement cost</td>
<td>Changes in economic flows</td>
</tr>
<tr>
<td></td>
<td>Occur after the natural event, and over a relatively long time period</td>
</tr>
<tr>
<td></td>
<td>Valued at current prices</td>
</tr>
</tbody>
</table>

#### Total Effects: Damage + Losses
Practical Application in Indonesia

ACCOUNTING

Total Economic Cost of Disaster

Losses Value Estimation

Local Typology & Cost Assumption

Damage Value Estimation

ANALYSIS

Damage Inventory
Damage Extent classes, Count

Disruption Inventory
Nature and extent of disruption

SURVEY

RECOVERY PLANNING

Practical Application in Indonesia

Survey Analysis Accounting

Practical Application in Indonesia

Total Economic Cost of Disaster

Losses Value Estimation

Local Typology & Cost Assumption

Damage Value Estimation

Practical Application in Indonesia

Survey Analysis Accounting

Practical Application in Indonesia

Total Economic Cost of Disaster

Losses Value Estimation

Local Typology & Cost Assumption

Damage Value Estimation

14
<table>
<thead>
<tr>
<th>Effects</th>
<th>Damage</th>
<th>Losses</th>
<th>Total</th>
<th>Private Sector</th>
<th>Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Sectors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education &amp; Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Productive Sectors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cross–Sectoral</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Link from Damage and Losses to Needs

### Post disaster urgent activities:

<table>
<thead>
<tr>
<th>Reconstruction Program</th>
<th>Economic Recovery Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <em>To replace</em> physical assets</td>
<td>- <em>To restore</em> income, public services and production activities:</td>
</tr>
<tr>
<td>- Damage + (Tech/quality improvement + Relocation cost + mitigation cost + inflation), basis data to define reconstruction needs</td>
<td>- <em>Losses</em> data as indicator of economic recovery needs</td>
</tr>
</tbody>
</table>
Process of Allocating Government Post-Disaster Financial Assistance

1. **Damage inventory Local DMA**
   - Proposal Provincial/Local Govt

2. **INVENTORY By BNPB**
   - Damages & Losses Assessment (DaLA)

3. **VERIFICATION INTERDEP**
   - Post-Disaster Needs Assessment (PDNA)

4. **RECOMMENDATION**
   - HEAD OF BNPB

5. **CENTRAL**
   - Min of Finance
   - Parliament

6. **Local Govt, Units & Others**
7. **Funding Assistance Grant**
### DaLA/PDNA as the Basis for Division of Responsibility

<table>
<thead>
<tr>
<th>DaLA COMPONENT/ PDNA AND ACTIVITY (SECTOR)</th>
<th>DaLA</th>
<th>NEEDS INDICATION</th>
<th>BUDGET SOURCE INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>UNIT</td>
<td>LOCATION/TARGET</td>
</tr>
<tr>
<td>HOUSING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFRASTRUCTURE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRODUCTIVE ECONOMY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CROSS-SECTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The existence is verified and validated toward damage data
- It is proposed based on competency, to be further process according to planning and budgeting mechanism

---

**PP 22/2008, Chapter II Section 4**
**PP 23/2008 Chapter II Section 5**
V. CAPACITY BUILDING AND RECENT PDNA EXPERIENCES

2 DaLA Training 2005 & 2006
Curriculum & Module Development
Training of Trainers
Field Exercises Dam Burst Jakarta
DaLA/PDNA West Java & West Sumatra

14-16 Jan ’09 22-24 Mar ’09 2-4 Apr ’09 2-15 Oct ’09

Office Work
Field Work

4 International TOTs and 5 National Trainings with more than 100 experts trained in DaLA/PDNA
Indonesia’s DaLA/PDNA Experiences

- Tsunami Aceh 2004
- Yogya Earthquake 2006
- Jakarta Flood 2007
- Bengkulu Earthquake 2007
- W Sumatra Earthquake 2007
- W Java Earthquake 2009
- W Sumatra Earthquake 2009
- Numerous verification reports for smaller scale disasters
V. FURTHER DEVELOPMENT

- Finalize and disseminate DaLA/PDNA TOT Module

- Develop simplified Toolkit for DaLA/PDNA and Recovery Planning for Local Governments

Indonesia is ready to assist others in conducting PDNA
Ir. Bakri Beck, MMA.
Deputy Chief for Rehabilitation and Reconstruction - BNPB
Jl. Ir. H. Juanda 36 Jakarta 10120
Phone/Fax. 021 3519738, Cell 0811.889098
bakri_beck@yahoo.co.id ; bakri_beck@bnpb.go.id
www.bnpb.go.id