INNOVATIONS IN
DISASTER RISK REDUCTION AND
CLIMATE CHANGE ADAPTATION
Albay Province, Philippines

DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
AND THE
PROVINCIAL GOVERNMENT OF ALBAY

(PHILIPPINES)
THE CHALLENGE

- Multi-hazards: climate and geological
- Persistent poverty
ALBAY PROVINCE
LEGASPI CITY, ALBAY
Disaster Risk and Vulnerability of Albay

- 19 to 21 typhoons per year in the Philippines with 3-5 major direct hits on Albay.

- About 198,000 houses threatened by wind destructions and at least 350,000 people have to evacuate.

- Mayon Volcano Eruption threatens 3 cities and 5 municipalities

- 127 villages or 11,000 to 12,000 families threatened by landslides

- About 300,000 population out of 1.2M threatened by tsunami

- Eight municipalities and two cities threatened by floods.
<table>
<thead>
<tr>
<th>Calamities</th>
<th>Date</th>
<th>Classification</th>
<th>Casualty</th>
<th>Damage Cost</th>
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THE INNOVATIONS

☑ Institutionalized DMO, Climate Office and MDG Office
☑ Risk Mapping
☑ Geostrategic Intervention
☑ Relocation
☑ Community-Based DRR
☑ Engineering Interventions
☑ Capacity Build-up
☑ Disaster Response
☑ Cluster Approach to Early Recovery
Institutionalized DRRMO

- Created by a Provincial Ordinance since 1994
- Strengthened with 25 regular personnel including emergency research and disaster specialists.
- Managed and survived disasters
- Funded thru regular allocation from the annual provincial budget (IRA)
- Access to calamity fund for the operations 5% of IRA
- Intermittent but steady flow of technical and logistical assistance from NG Agencies, NGOs and INGOs for capacity building and skills training
Institutionalized the Center for Initiatives and Research on Climate Change Adaptation (CIRCA)

- Created by a Provincial Ordinance in 2007
- Implement MDG-F JP
  - Localized climate scenario
  - Climate-proof CLUP
  - Integration of climate change into education curriculum (Gr 4 to 4th year)
- Advocacy and knowledge management
- National Conference on Climate Change Adaptation (2007, 2009)
- LGU Summit (2010)
- Climate Change Academy
  - Disaster City
  - Climate sciences center at Bicol University
Institutionalized the Center for Initiatives and Research on Climate Change Adaptation (CIRCA)

Sources of Funds

- Regular allocation from the annual provincial budget (IRA)
- P16M from MDG-F JP
- Intermittent but steady flow of technical and logistical assistance from NG agencies, NGOs and INGOs for capacity building and skills training
Risk Reduction: Risk Mapping

- Risk mapping: is a common resource to all phases of DRR

- PHIVOLCS
  - Earthquake mapping
  - Volcanic Hazard Mapping
  - Tsunami

- PAGASA
  - Flood Mapping

- Mines and Geo-Sciences Bureau
  - Landslide mapping

- Manila Observatory
  - Mudflow (Lahar) mapping

- LGU
  - Population and Resource Mapping
  - Comprehensive Land Use Plan
### Summary of Risk Analysis by City/Municipality

**ALBAY PUBLIC SAFETY AND EMERGENCY MANAGEMENT OFFICE**  
Provincial Disaster Operation Center  
Legazpi City

**As of December, 2009**

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**Sources:**  
CDCCs/MDCCs  
NSO 2007  
Barangay's

**NOTE:** Some of the population threatened by Mayon Volcano eruption are also threatened by other hazards like food and lahar due to weather hazards

**Prepared by:**

MA. CRISTINA S. ADOR  
Statistician IV

Cedric D. Daep  
APSEMO Department Head
RELOCATION PROGRAM

- Program being undertaken under Albay MDG Office
- 10,076 households in high risks areas already provided with developed lots in safer locations
- Lots are already sufficient, but has shelter gap of 5,454

- Funded by central government (NHA, DSWD) and international aid (USAID, Habitat for Humanity) and local NGO (GK)
- Site is provided by the Provincial Government of Albay
Relocation Areas
Risk Reduction: Land Use Planning and Zoning

Comprehensive Land Use Plan

- Against disaster: science-based adaptation
- Integration of climate and disaster risks into zoning ordinance with 3 cities and 18 municipalities trained
- Funded under the UNDF MDGCF (USD 400K)
Community-Based Disaster Risk Reduction

Continuous Training and Education

- Household/Community preparedness (first responder capacity)
- LGU preparedness (first integrator)
- Skills development for government and volunteers
- Warning System Communication Protocol and Evacuation Procedures
- Evacuation and Community Kitchen Management
Community-Based Disaster Risk Reduction

Continuous Training and Education

- Critical Incidence Stress Debriefing
- Community Risk Mapping and Contingency Planning
- Education-On-Air with local broadcast media
- Conduct of drills and exercises in schools, hospitals, hotels, malls and communities to pre-test the hazard specific contingency plan on volcanic eruption, earthquake typhoon and fire
- Regular annual provincial budget
Community Training and Seminar
Community Drills
Institutionalized Training of Emergency Paramedics Units
Training of Rescue Volunteers
STARTING THEM EARLY ON DRR
CHILDREN DRR THROUGH GAMES
CHILDREN DRR THROUGH MAGIC
The CBDRR (Zero Casualty Formula)

- Early Warning System
- COMMUNICATION and INFORMATION PROTOCOL
- Evacuation Procedures

ZERO CASUALTY
Basic Elements Required in Early Warning System

Weather Station

Community Warning System

Community LGUs Other Stakeholders

FORECAST

DETECTION

DECISION

COMMUNICATION

MOBILIZATION
# Mudflow Warning Plan

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<th>Warning Level</th>
<th>Criteria</th>
<th>Interpretation</th>
<th>Required Actions</th>
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<td>Alert Stage</td>
<td>Monitoring of rainfall</td>
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<td>Rain at 25–30 mm per hour</td>
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<td>Local Authorities and Community are preparing to evacuate</td>
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## Flood Warning Plan

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<td>Local Authorities and Community are preparing to evacuate</td>
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## Landslide Warning Plan

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School Building Insurance

- P750 per P300,000 coverage of school buildings negotiated with GSIS-GIF
- \( \frac{1}{4} \) of 1% premium per year
- 6,500 school buildings at P5.6m
- In 3 years, P16.8M versus 2006 repairs of P478M
- Funded by the Provincial Government of Albay
Preemptive Healthcare

Pre-emptive Healthcare

- Universal health coverage esp targeted at indigent families
- Regular medical missions in high risk areas prior to disaster season
  - For typhoons, ahead of disaster season
  - Mayon eruption targeted at 56 barangays
    - affords sufficient leeway and could be done only when alert status is raised
- Funded thru the public health programs of Provincial Health Office, PCSO, DOH, Medical missions of civic organizations, e.g. Rotary Club of Legazpi
Universal Phil Health Coverage: 2007-2010

Number of Families Enrolled

Source: PSWDO, Albay
THE OUTCOMES

- Zero casualty in 16 years
- Surge in private investments
- Fastest growth among regions
- MDGs achieved ahead of 2015
- Two national laws enacted used Albay model