

DRR Practices of Albay towards City Resilience

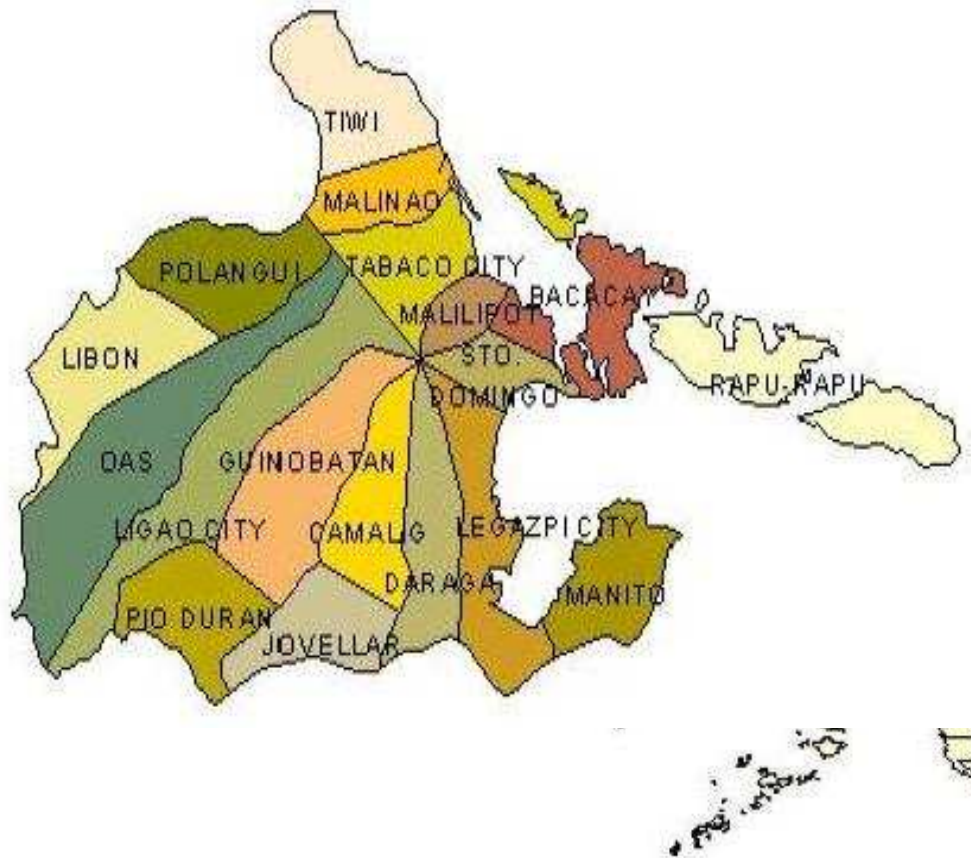
*ICLEI's 20th Anniversary Congress
Session A2 on City Resilience
Incheon, Republic of Korea
6 October 2010*



Governor Joey Sarte Salceda
Province of Albay, Philippines




Province of ALBAY



- ❑ Land Area = 2,552 sq. km.
- ❑ Population = 1,190, 823 (Aug 2007)
- ❑ Households = 231,750
- ❑ 3 legislative districts; 3 cities, 15 municipalities
- ❑ 2nd largest Province in the Bicol Region
- ❑ 4 major islands (CRaBS)
- ❑ Total coastline of 364 kms with 149 coastal barangays and 128,751 people

Takeaways from Albay

- ❑ **DRR is an investment in development.**
 - ❑ If disasters don't occur, then DRR/CCA builds local capability. *(no regrets)*
 - ❑ If climate disasters occur, then *zero casualty and less economic damages.*
- ❑ **It reduces risks, ergo, increases business returns and enhances socio-economic welfare.**
- ❑ **Key DRR investments are institutional, information technology and indigenous knowledge.**
- ❑ **“DRR is central to adaptation. Mitigation is integral to environment protection. All four - CCA, DRR, EP and climate mitigation- reduce poverty through good governance. “**
- ❑ **The key to good governance is social preparations / community mobilization and entitlement education.**
- ❑ **It is a feasible platform for local governance.**

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- Multi-hazards: climate and geological
 - Persistent poverty

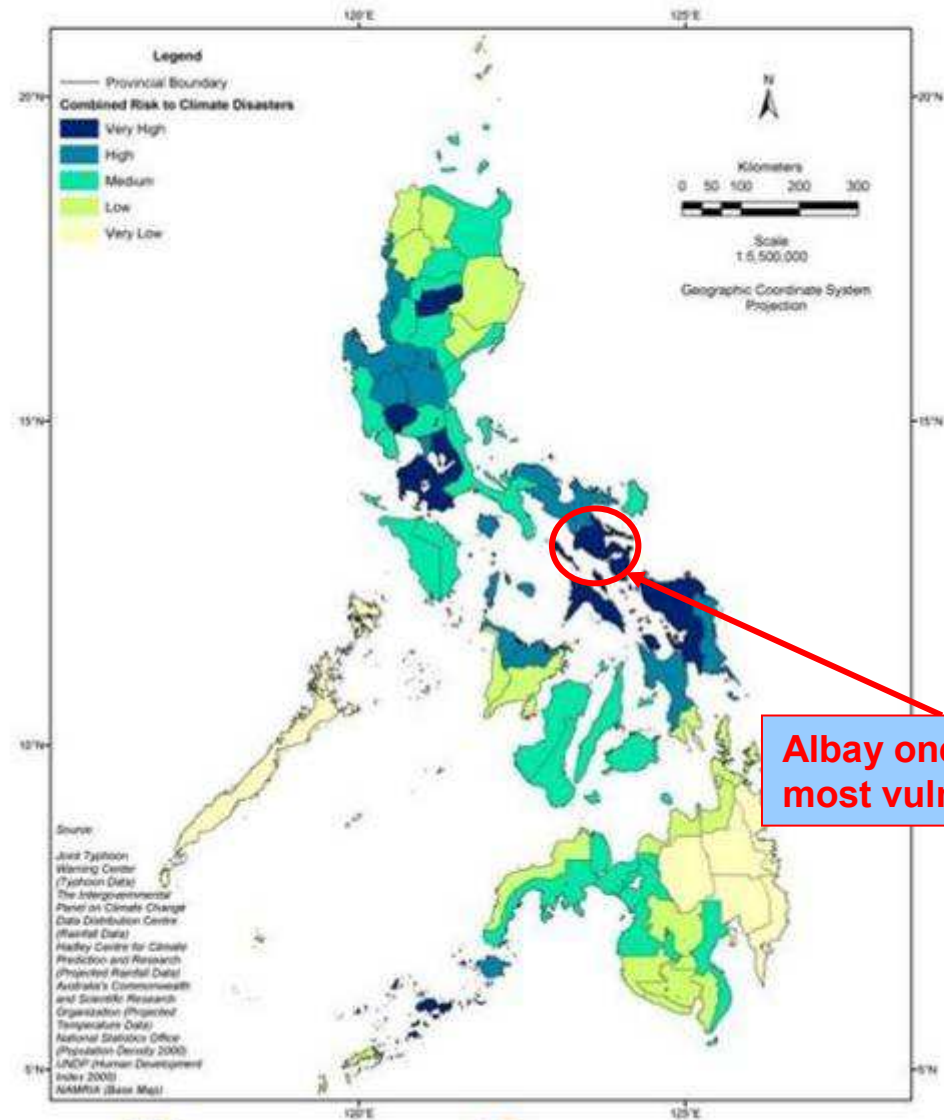
THE CHALLENGE

Disaster Risk and Vulnerability of Albay

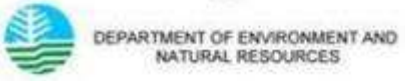
- 19 to 21 occurrences of typhoon per year in the Philippines of which 3-5 major direct hits on Province of Albay.
- About 198,000 houses threatened by wind destructions and at least 350,000 people have to evacuate.
- Mayon Volcano eruption threatens 3 cities and 5 municipalities
- 127 villages or 11,000 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.

**The Vatican of
Disasters**

Combined Risk to Climate Disasters



Albay one of the most vulnerable



Climate Disasters endanger MDGs

Implications of Climate Change for Certain Key Millennium Development Goals	
<i>Millennium Development Goals</i>	<i>Linkages with climate</i>
MDG 1 Eradicate extreme poverty and hunger	<p>The Millennium Development Goal of eradicating extreme poverty and hunger involves reducing, by 50%, the number of people living on \$1 per day and the people affected by hunger (with 1990 as baseline). It also encompasses the provision of productive employment for all. Destruction of livelihood assets due to climate disasters, and the financial requirements of adaptation and mitigation, hit at the core of development – poverty alleviation.</p> <p>Climate variability, prevalence of floods and droughts, and the resultant water stress, have a pronounced influence on farm productivity and consequently world food security. Rising food prices make basic nutrition inaccessible while also reducing the finances available with the poor for education and health services.</p>
MDG 2 Achieve universal primary education	<p>Destruction of educational infrastructure and deterioration in standards of living due to adverse climate conditions will impede achievement of universal primary education. Displacement due to climate-related catastrophes can further exacerbate the situation.</p>
MDG 3 Promote gender equality and empower women	<p>Women, given their roles in the household (which involve significant interaction with the environment), will face the brunt of climate change.</p> <p>Agriculture, an important source of livelihood for women in rural areas, is one sector that is expected to be amongst the worst hit.</p>
MDG 4 Reduce child mortality	<p>Programmes targeted at achieving health-related MDGs will need to contend with rise in the incidence of vector-borne and water-borne diseases, and growing malnutrition. (The endemicity and epidemicity of vectorborne diseases like malaria are influenced by climate changes [Hellmuth and Bhojwani 2007]).</p>
MDG 7 Ensure environmental sustainability	<p>Climate change is closely tied with resource loss and nonavailability of adequate and quality water services, even while GHG emissions contributing to climate change are amongst the biggest threat to the environment.</p>
MDG 8 Develop a global partnership for development	<p>Developing a global partnership for development is not only a stand- alone MDG but is key to meeting the other goals as well. Climate change provides both a challenge and opportunity for building a global partnership that is equitable and effective. Environment as a 'global common' needs to be governed in a framework of transnational governance that takes on board the interests of all countries and communities.</p>

Source: <http://www.adb.org/>

POVERTY HEIGHTENS EXPOSURE TO DISASTER RISKS

Region/Province	Annual Per Capita Poverty Threshold (in Pesos)			Poverty Incidence Among Families (%)						Magnitude of Poor Families					
	Threshold (in Pesos)			Estimates (%)			Coefficient of Variation			Estimates			Coefficient of Variation		
	2000	2003	2006	2000	2003	2006	2000	2003	2006	2000	2003	2006	2000	2003	2006
PHILIPPINES	11,458	12,309	15,057	27.5	24.4	26.9	1.6	1.3	1.3	4,146,663	4,022,695	4,677,305	1.6	1.4	1.3
Region V	11,375	12,379	15,015	45.3	40.6	41.8	4.2	3.6	3.5	407,176	383,625	422,278	4.7	4.3	4.3
Albay	12,144	12,915	16,128	40.3	34.4	37.8	11.5	8.1	8.4	83,398	76,200	88,676	11.2	8.5	10.1
Camarines Norte	11,505	12,727	14,854	52.7	46.1	38.4	10.9	14.4	18.8	50,670	44,874	39,421	11.8	14	22.6
Camarines Sur	11,054	11,873	14,634	40.8	40.1	41.2	9.3	7.0	5.6	120,762	121,936	134,599	11.8	7.7	6.6
Catanduanes*	11,587	11,815	13,654	43.9	31.8	37.3	10.9	10.3	22.1	18,541	13,604	16,999	10.4	29.3	33.3
Masbate	11,019	12,504	14,248	61.3	55.9	51.0	5.8			1,804	80,512	5.9	7.4	8.0	
Sorsogon	11,146	12,452	15,687	41.4	33.7	43.5	7.3			5,207	62,071	7.6	14.5	5.6	

* Coefficient of Variation (CV) of 2006 poverty incidence is greater than 20%

Albay poverty incidence at 37.8%, while lowest in region, remains high

- 
- Zero casualty in 16 years
 - Surge in investments
 - Fastest growth among regions
 - MDGs achieved ahead of 2015

THE OUTCOME

Major Disaster Events in Albay Province 1994-2010: Zero Casualty in 16 years except 2006

Calamities	Date	Classification	Casualty	Damage Cost
1. Typhoon Rosing	Nov. 3, 1995	Destructive	ZERO	P 1.7 B
2. Typhoon Loleng	Nov. 2, 1008	Destructive	ZERO	7.1 B
3. Mayon Eruption	Feb. 2000	Explosive	ZERO	284 M
4. Mayon Eruption	June 2001	Explosive	ZERO	300 M
5. Mayon Eruption	July 2006	Explosive	ZERO	50.5 M
6. Typhoon Milenyo	Sept. 27 2006	Destructive	14 dead	1.3 B

Major Disaster Events in Albay Province 1994-2010: Zero Casualty in 16 years except 2006

Calamities	Date	Classification	Casualty	Damage Cost
7. Typhoon Reming	Nov. 30, 2006	Destructive	604 dead 419 missing	3.7 B
8. Typhoon Mina, Lando and Nonoy	November 2007	Destructive	ZERO	
9. TECF, Monsoon Rains	February 2008	Destructive	ZERO	127 M
10. Typhoon Dante	April 2009	Destructive	ZERO	
11. Typhoon Ondoy	September 2009	Destructive	ZERO	

Major Disaster Events in Albay Province 1994-2010: Zero Casualty in 16 years except 2006

Calamities	Date	Classification	Casualty	Damage Cost
12. Typhoon Peping	October 2009	Destructive	ZERO	
13. Mayon Eruption	December 14, 2009 – January 2, 2010	Explosive	ZERO	

Entry of big ticket corporate investors in 2007-10, after Reming, Milenyo and Mayon

Corporation	Amount (Pbn)	Investment
APRI	4.50	Acquisition by APRI of 135MW Tiwi power plant
EDC	14.00	Development of new 40MW (up to 240MW) Kayabon geothermal capacity, on top of existing 240MW.
Raintree	3.00	Misibis
Sunwest	0.10	Hotel St. Ellis
Chan	0.05	Casablanca Suites
Sunwest	1.50	Embarcadero
LG / KORES	5.00	Acquisition of Lafayette
LKY	1.00	Modernization of Mayon Imperial Hotel
Legazpi Oil Mills	0.45	500mt/day
Globe Phils	0.50	300MT/ay
CAAP	3.40	Southern Luzon Intl Airport
Chevron	3.00	Tiwi geothermal steam generation
Total	36.50	

GRDP 2009

REGIONAL ACCOUNTS OF THE PHILIPPINES

Unit : In Percent

Table 1.3B GROSS REGIONAL DOMESTIC PRODUCT

2007 TO 2009

AT CONSTANT PRICES

GROWTH RATES

REGION / YEAR	07-08	08-09
PHILIPPINES	3.7	1.1
NCR METRO MANILA	4.7	(0.4)
CAR CORDILLERA	1.7	2.0
I ILOCOS	2.0	(1.0)
II CAGAYAN VALLEY	1.7	1.9
III CENTRAL LUZON	3.7	(1.4)
IVA CALABARZON	1.9	(1.6)
IVB MIMAROPA	3.0	0.8
V BICOL	4.1	8.2
VI WESTERN VISAYAS	4.3	5.9
VII CENTRAL VISAYAS	3.3	0.8
VIII EASTERN VISAYAS	3.4	1.8
IX ZAMBOANGA PENINSULA	2.0	6.8
X NORTHERN MINDANAO	5.2	2.9
XI DAVAO REGION	3.7	5.4
XII SOCCSKSARGEN	4.5	1.3
ARMM MUSLIM MINDANAO	1.6	2.6
XIII CARAGA	2.7	2.7

Note: GDP series not linked with previous years due to revisions in some sectors.

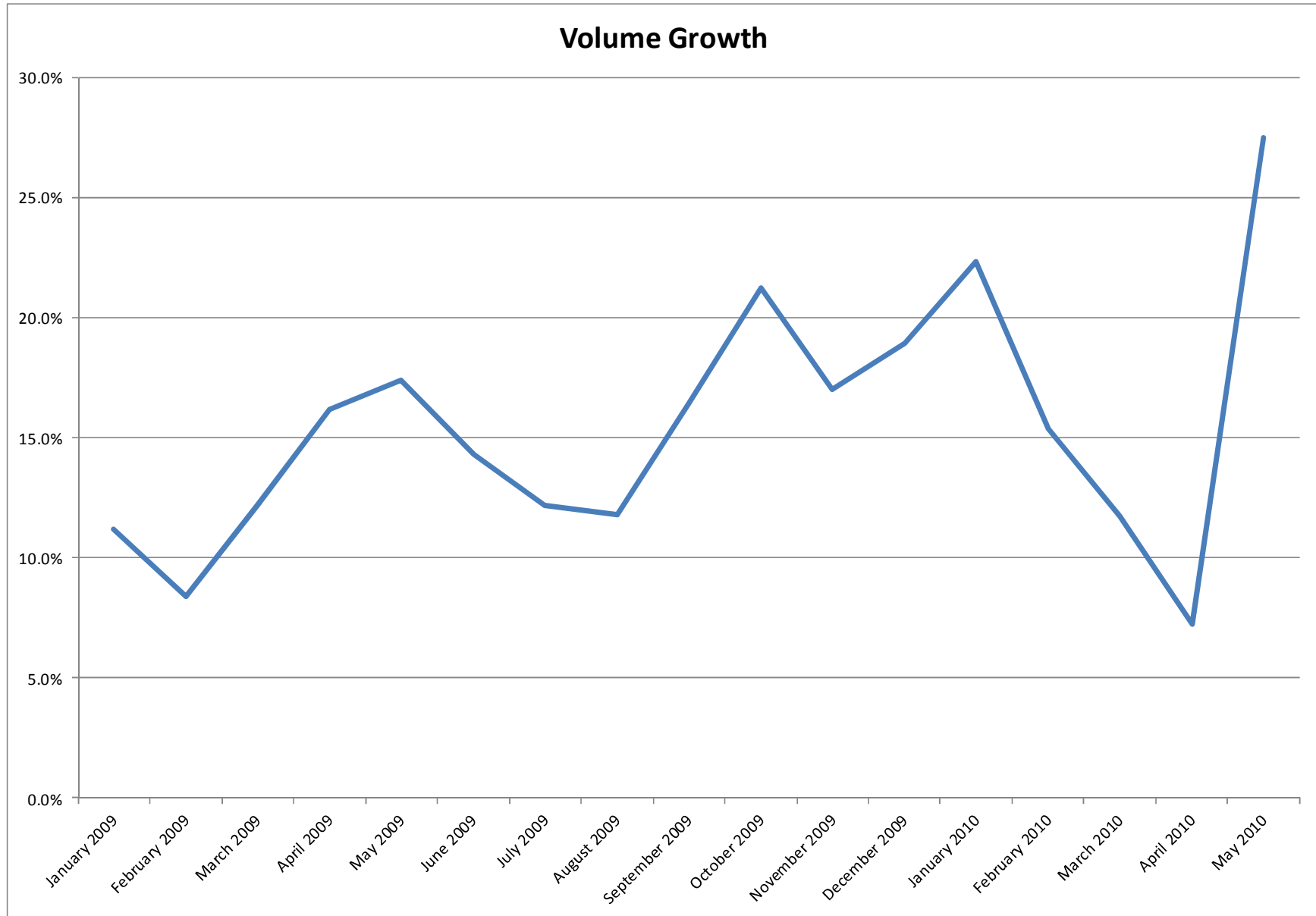
Source: National Statistical Coordination Board

Revenue Cumulative Collection

Revenue Region No. 10, Legazpi City
CUMULATIVE COLLECTION vs. GOAL
 As of June 30, 2010

Revenue District Office	Collection	Goal	Increase/Decrease	%
64 - Daet, Camarines Norte	256,705,371.17	174,291,000.00	82,414,371.17	47.29%
65 - Naga City	648,549,462.56	533,492,000.00	115,057,462.56	21.57%
66 - Iriga City	138,223,552.80	113,093,000.00	25,130,552.80	22.22%
67 - Legazpi City	901,308,201.62	781,531,000.00	119,777,201.62	15.33%
68 - Sorsogon City	180,733,273.44	150,906,000.00	29,827,273.44	19.77%
69 - Virac, Catanduanes	103,600,679.79	78,749,000.00	24,851,679.79	31.56%
70 - Masbate City	196,570,504.24	125,448,000.00	71,122,504.24	56.69%
TOTAL	2,425,691,045.62	1,957,510,000.00	468,181,045.62	23.92%

Electricity sales volume are up +27%



MDGs are achieved ahead of 2015 exc. MDG 7

Goal	Indicator	Bicol Region	Albay
1	Poverty Incidence	M	H
	Subsistence Incidence	H	H
	Underweight (IRS)	H	H
2	Participation - Elementary	L	H
	Cohort survival - elementary	M	M
3	Gender parity - elementary	H	H
4	Under-five mortality	H	H
	Infant mortality	H	H
	Proportion of fully-immunized children	M	H
5	Maternal mortality rate	L	H
	Contraceptive prevalence rate	L	M
	Condom use rate	L	M
6	Deaths due to TB	L	H
	Malaria positive cases	H	H
7	Household with access to sanitary toilets	H	L
	Household with access to safe drinking water	H	H

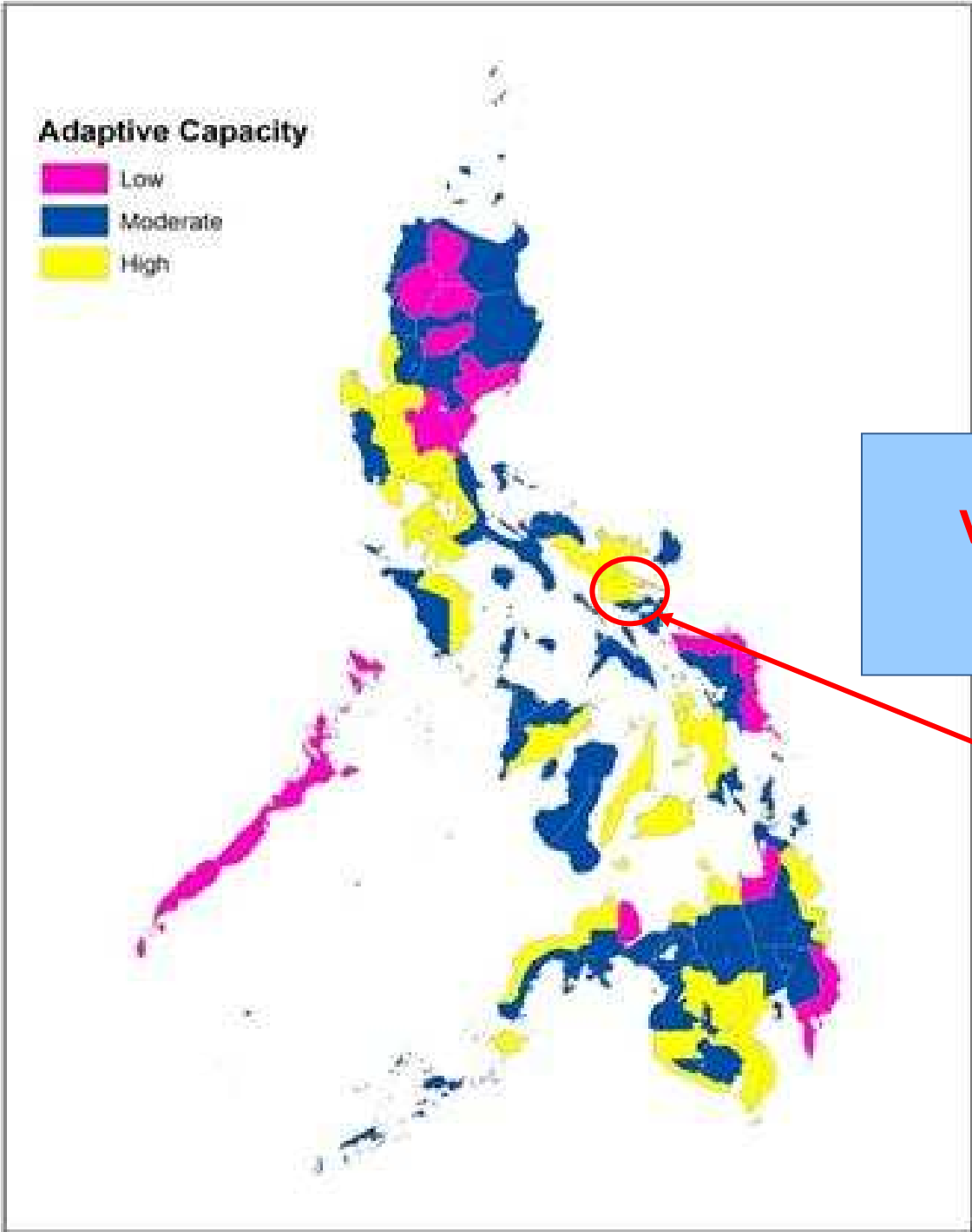
Legend:

L	low probability	H	high probability
M	medium probability		no data



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- ✓ ADAPTIVE CAPACITY
 - ✓ TEN ESSENTIALS

THE STRATEGY



Risk =
Vulnerability

Capacity

Albay one of the
most adaptive

Summary of Ten Essentials for Making Cities Resilient – Ten-point Checklist (indicators)

1. Put in place **organization & coordination** to clarify everyone's roles & responsibilities.
2. **Assign a budget** & provide incentives for homeowners, low-income families, private sector to invest in risk reduction.
3. Update data on hazards & vulnerabilities, **prepare & share risk assessments**.
4. Invest in and maintain **critical infrastructure**, such as **storm drainage**.
5. Assess the **safety of all schools and health facilities** & upgrade these as necessary.
6. Enforce **risk - compliant building regulations & land use planning principles**, identify safe land for low-income citizens.
7. Ensure **education programmes & training** on disaster risk reduction are in place in schools and local communities.
8. **Protect ecosystems & natural buffers** to mitigate hazards, adapt to climate change.
9. Install **early warning systems & emergency management** capacities.
10. After any disaster, ensure that the **needs of the affected population** are at the centre of **reconstruction**.

Ratings Basis

Level	Generic description of level of progress for overall ranking
5	Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels.
4	Substantial achievement has been attained, but with some recognised deficiencies in commitment, financial resources or operational capacities.
3	There is some institutional commitment and capacities to achieving DRR but progress is not comprehensive or substantial.
2	Achievements have been made but are incomplete, and while improvements are planned, the commitment and capacities are limited.
1	Achievements are minor and there are few signs of planning or forward action to improve the situation.

ESSENTIAL 1: Put in place **organization and coordination** to understand and reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role to disaster risk reduction and preparedness. [\[HFA 1\]](#)









Key Questions:

1. Are local organizations (including local government) sufficiently equipped with capacities (knowledge, experience, official mandate) for climate and disaster **risk reduction**?
2. Are there **partnerships** between communities, private sector and local authorities to reduce risk?
3. Does the local government support **local communities** (particularly women, elderly, infirmed, children) to actively participate in risk reduction decision-making, policy making, planning and implementation processes?
4. Does the local government encourage **women** to participate in risk reduction decision-making, assessment, planning and implementation processes?
5. Does the local government enable and actively encourage the participation of local **volunteers** in risk reduction measures?
6. Does the city / the local government participate in the **national disaster risk reduction planning** (where this exists, please indicate the host of the National Platform)?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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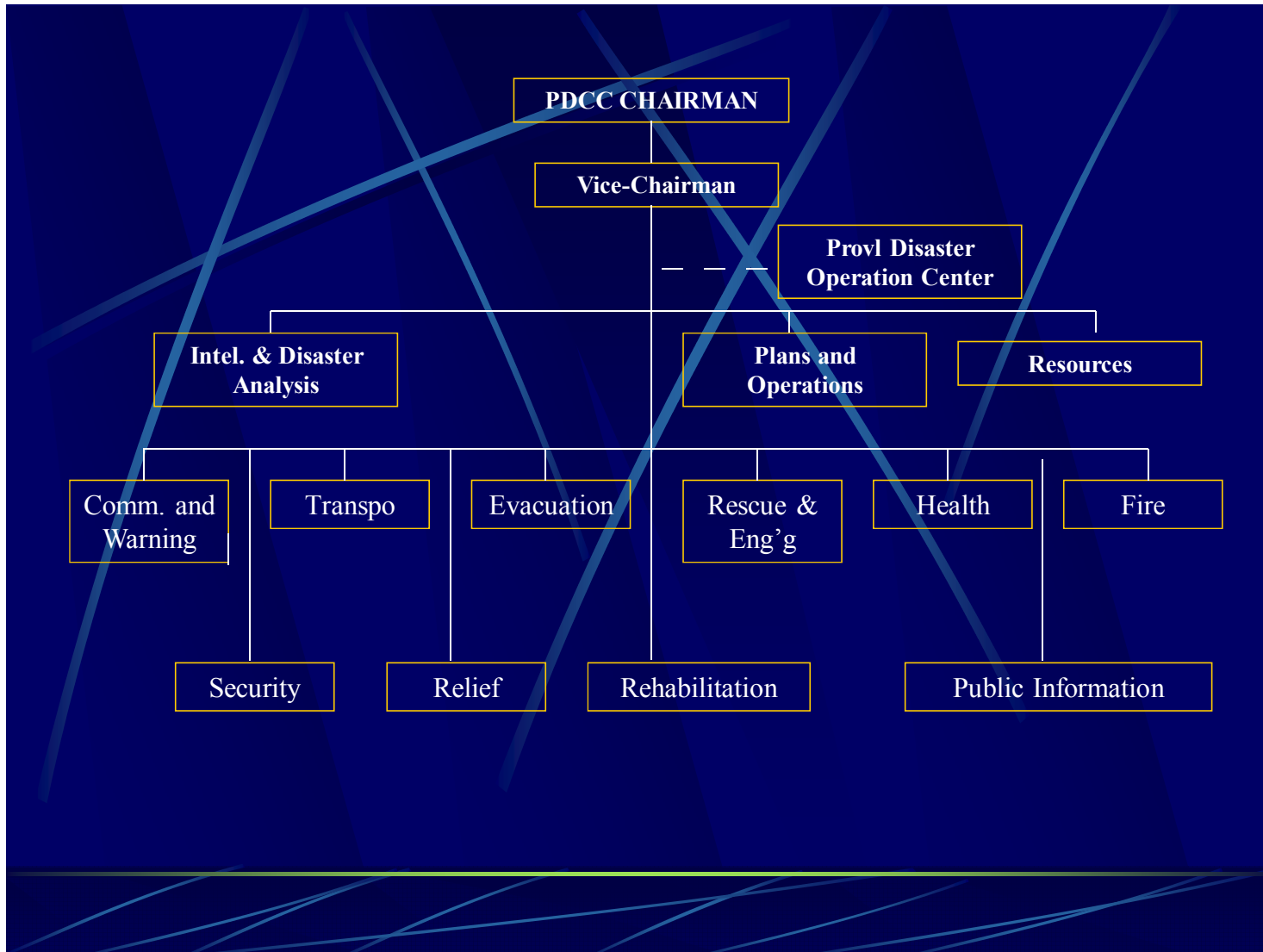
Ratings Overview

 Rated 5	6 essentials
 Rated 4	4 essentials
 Rated 3	--
 Rated 2	--
 Rated 1	--
 Ave. Score	4.6

Resources for Institutionalized DMO

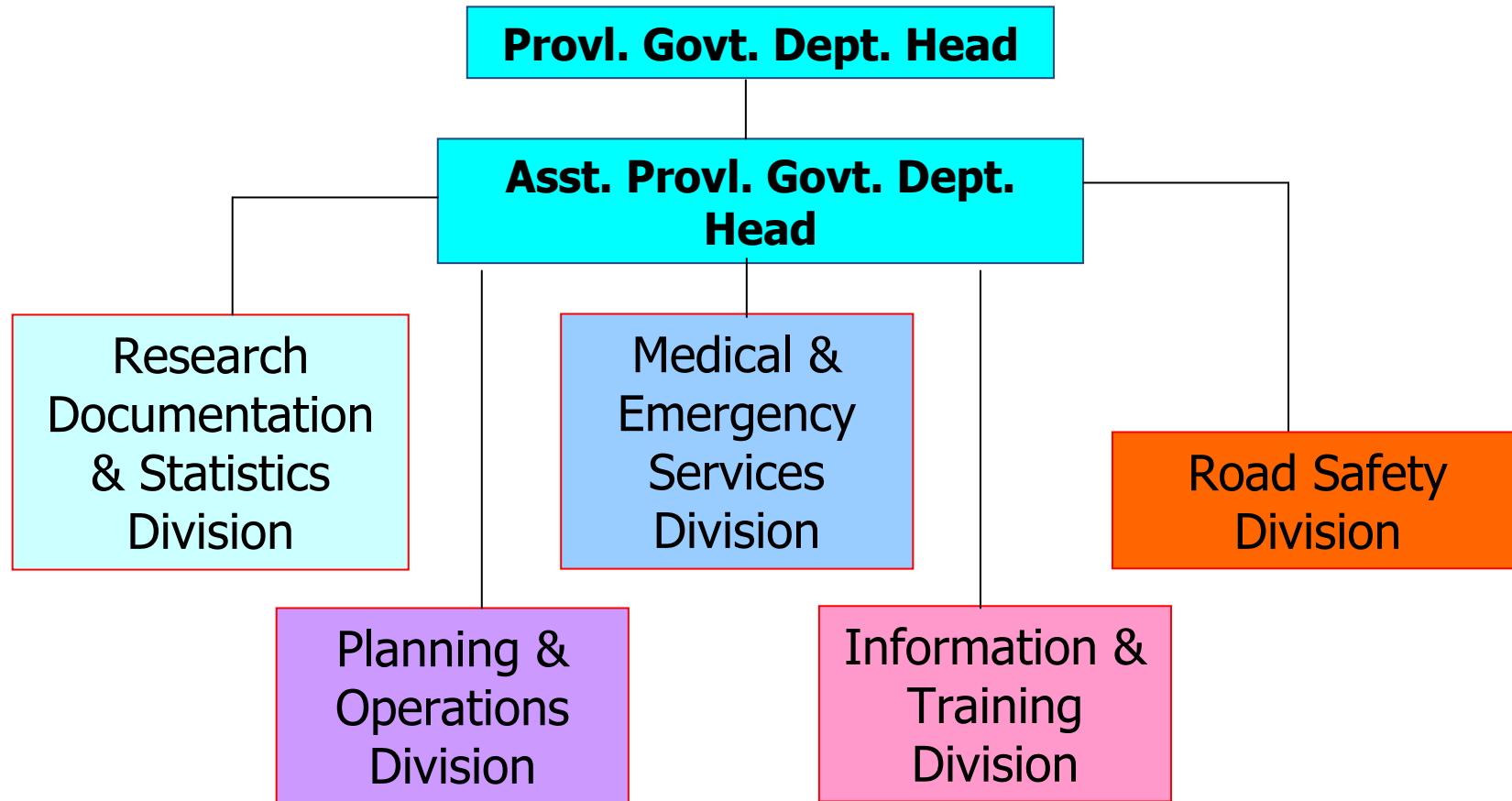
- **Permanent office (Apsemo)**
 - Albay Province was the model used in the formulation of the new law RA 10121 "Philippine Disaster Risk Reduction and Management Act of 2010" which mandates to institutionalize a Disaster Risk Reduction and Management Office in every local government unit
 - Created by ordinance in 1994 with mandates to include:
 1. **Disaster risks research and evaluation.**
 2. **Planning**
 3. **Lead Manager of Disaster Response Operations**
 4. **Education and Training**
 5. **Emergency Medical and Health Services**
 - Regular / permanent plantilla of 25 including emergency research and disaster specialists.
 - Has managed and survived disasters [including 7 governors!]
- **Sources of Funds**
 - Regular allocation from the annual provincial budget (IRA) separate from CF
 - 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

Organizational Structure as a Council

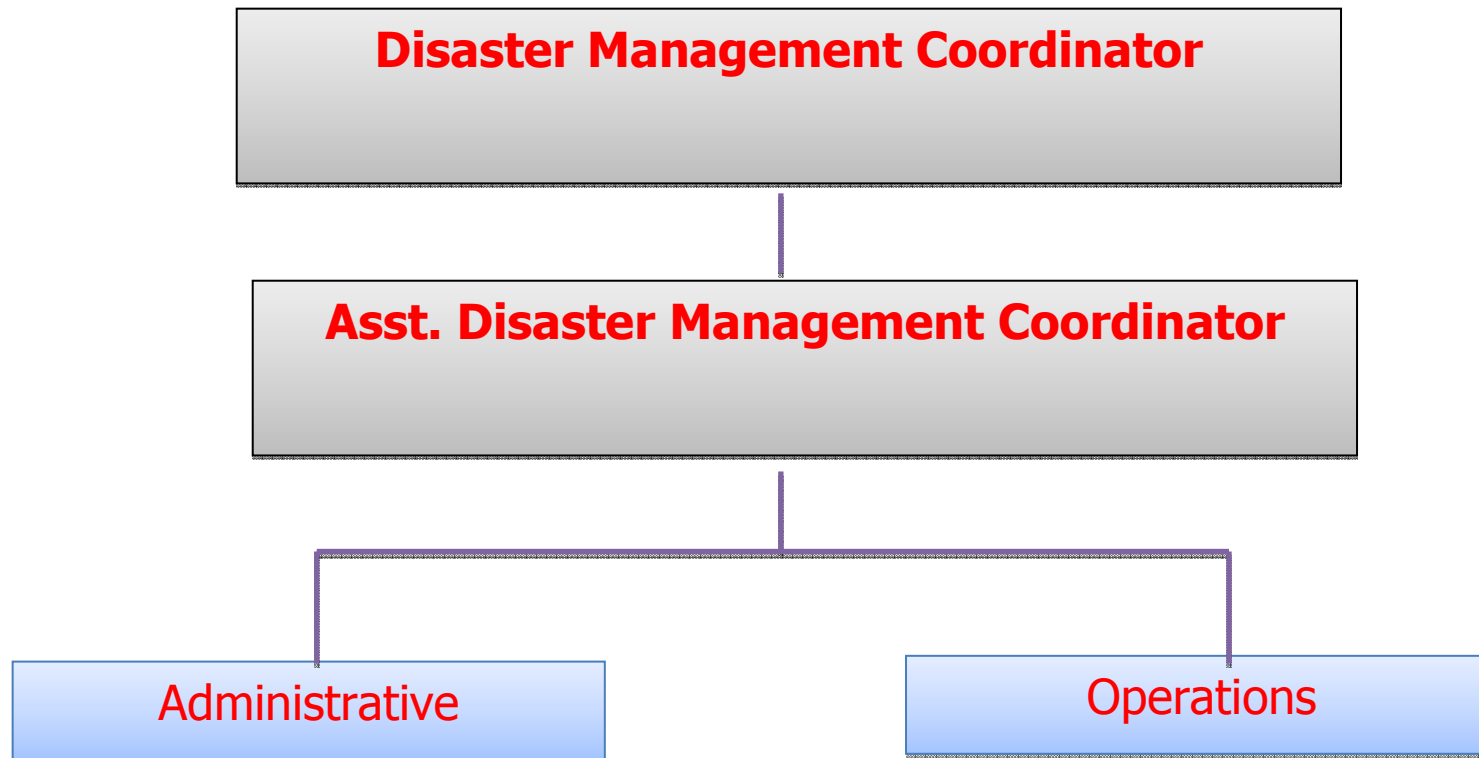


Organizational Structure as DRR Permanent Office

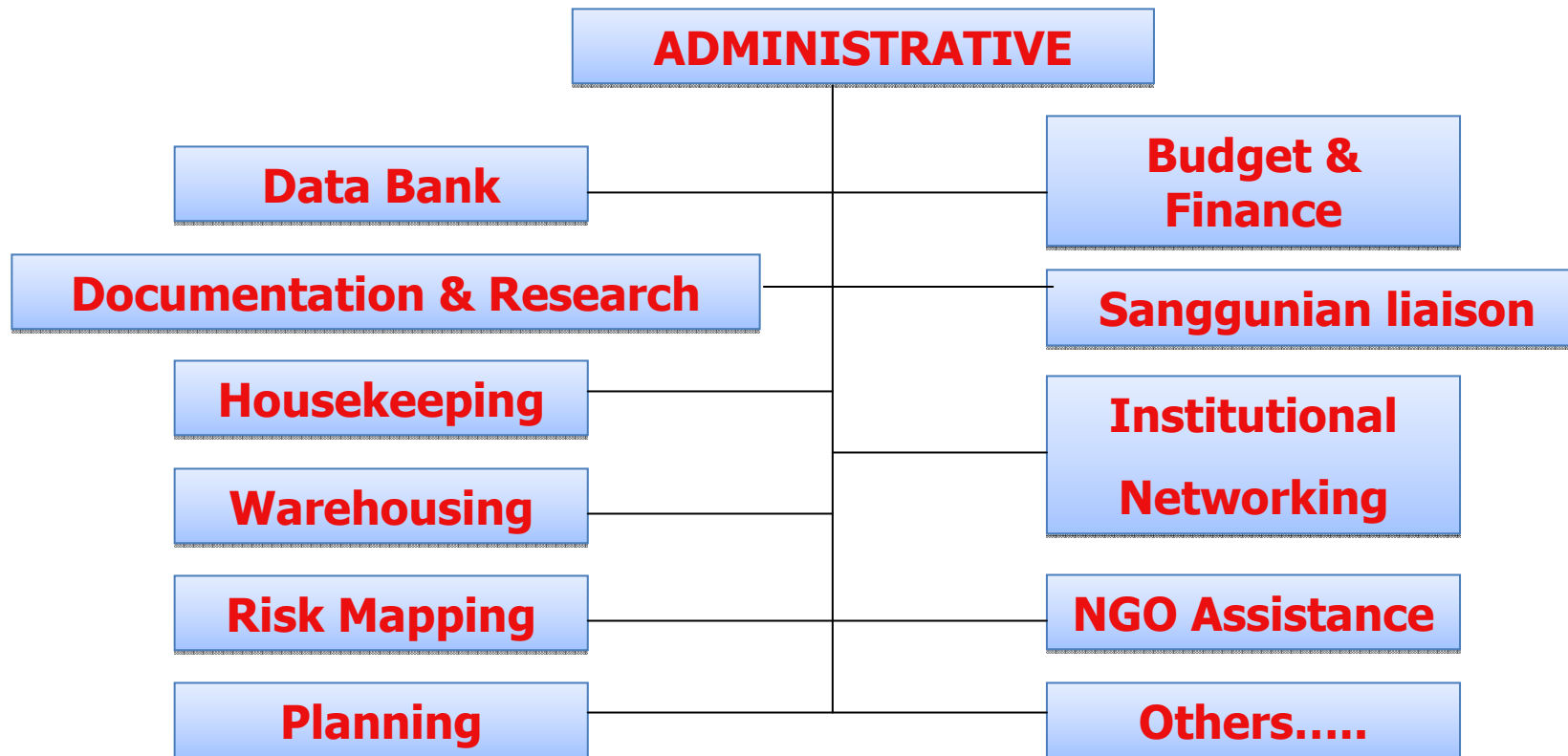
Albay Public Safety & Emergency management Office



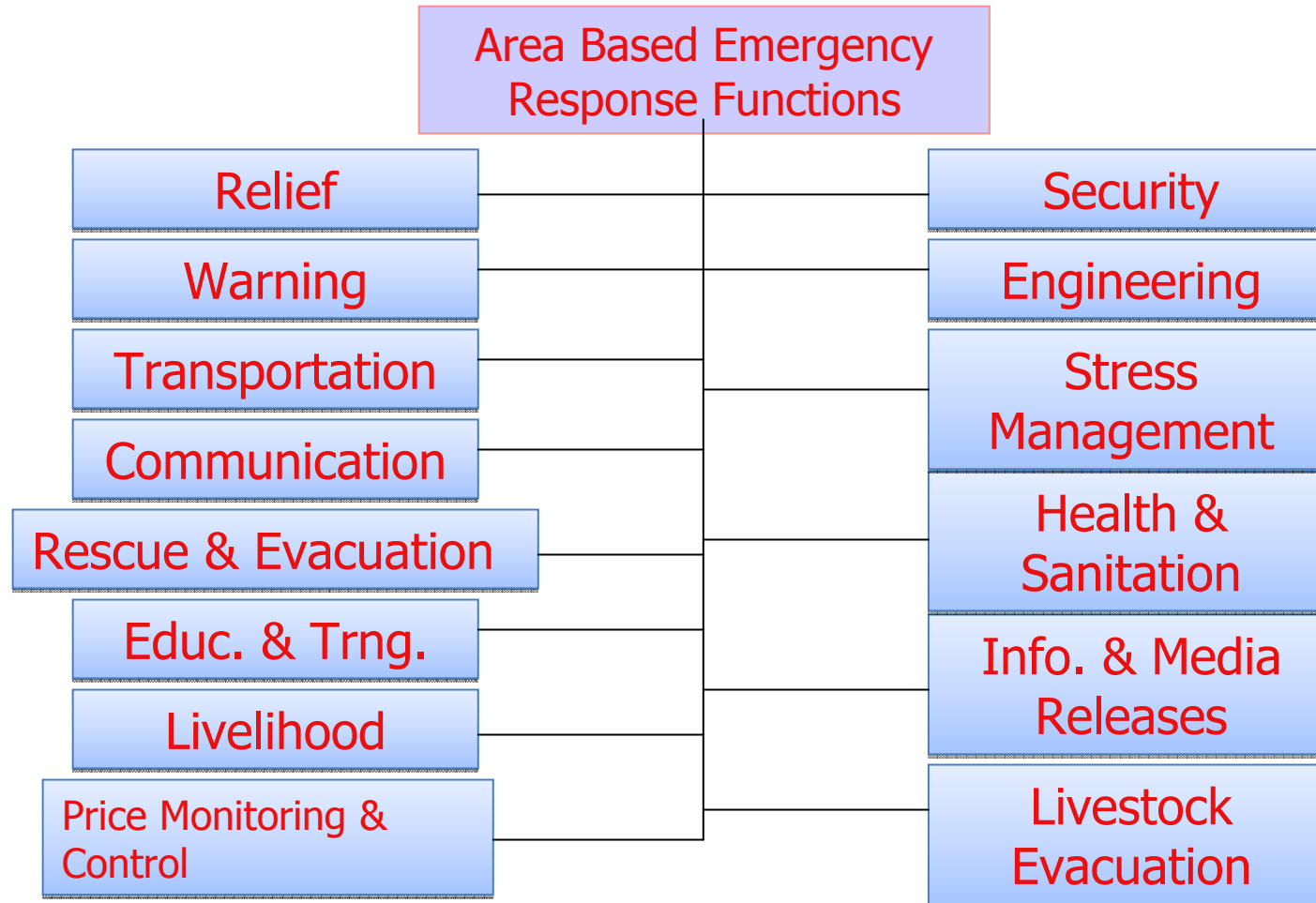
EMERGENCY MANAGEMENT STRUCTURE WHEN EMERGENCY SITUATION IS DECLARED



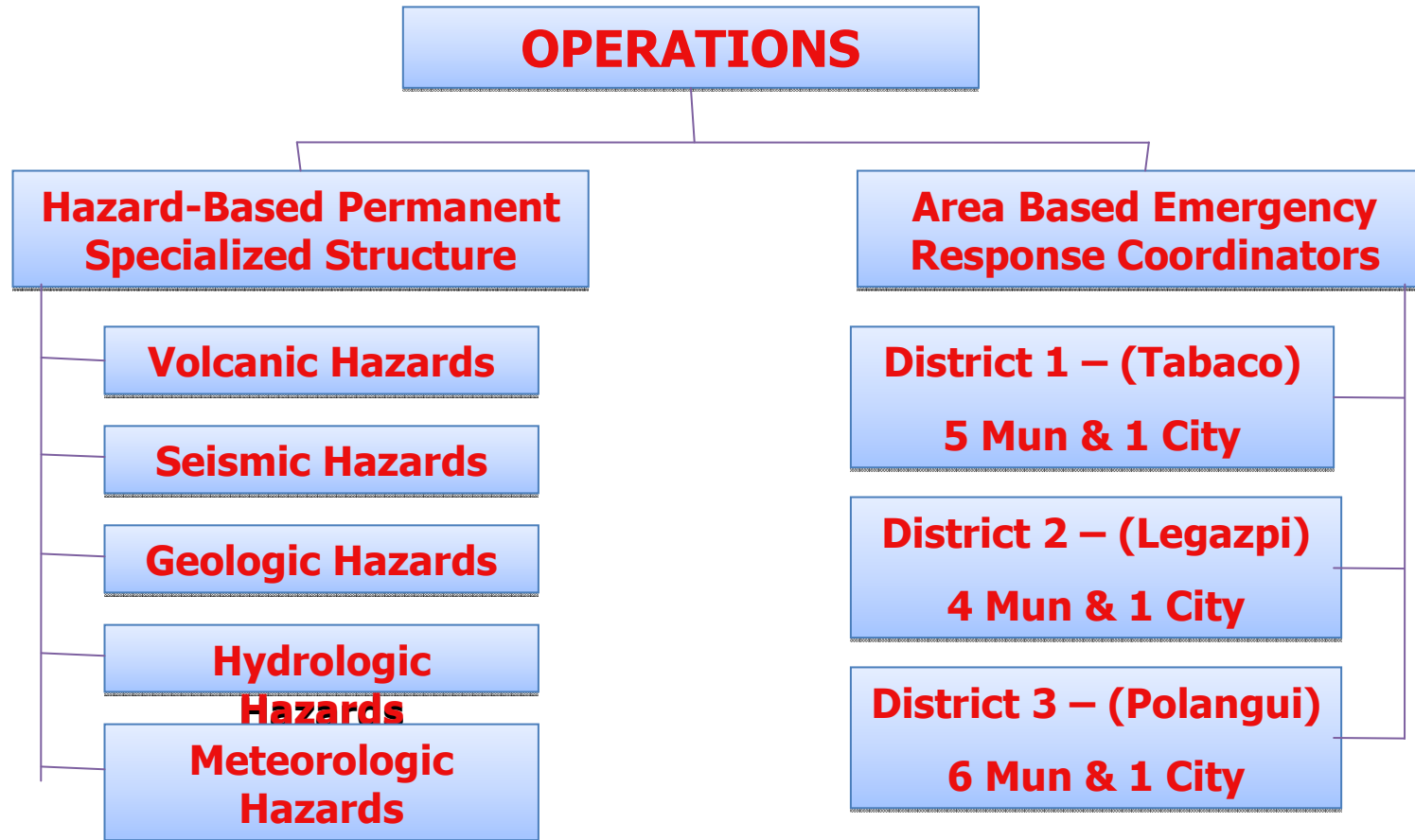
EMERGENCY MANAGEMENT STRUCTURE WHEN EMERGENCY SITUATION IS DECLARED



EMERGENCY MANAGEMENT STRUCTURE WHEN EMERGENCY SITUATION IS DECLARED



EMERGENCY MANAGEMENT STRUCTURE (HAZARD AND AREA SPECIFIC)



Disaster Operation Center Facilities and Equipment

- **Office spaces**
- **Warehouse**
- **Powerhouse and 3 units of power generators (5 kva, 3kva & 600 volts)**
- **Information room**
- **Conference room (50 - 70 person capacity)**
- **Radio room**
- **Staff quarters**
- **Communication and documentation equipment**
- **GPS**
- **2 vehicles (one 4x4 nissan frontier and One rescue ambulance with stretcher, spine board and emergency medical and rescue kits)**

Recognition to Albay DRR



ALBAY IS 2010 BEST PROVINCIAL DISASTER OFFICE IN NATIONAL DRR AWARD BY NDCC

LIST OF 2010 GAWAD KALASAG AWARDEES

- A. GAWAD KALASAG FOR BEST LOCAL DISASTER COORDINATING COUNCIL (LDCCs)**
- **Best Provincial Disaster Coordinating Council (PDCC)**
 1. PDCC Albay
 2. PDCC Bulacan
 3. PDCC Davao Oriental
 - **Best City Disaster Coordinating Council (CDCC)**
 - ✓ **Highly Urbanized City Category**
 1. Makati City
 2. Cebu City
 3. Iligan City
 - ✓ **Component/Independent Component City Category**
 1. Bayawan City
 2. Legazpi City
 3. Ozamiz City
 - **Best Municipal Disaster Coordinating Council (MDCC)**
 - ✓ **1st to 3rd Class Municipality Category**
 1. Municipality of San Jose De Buenavista, Antique
 2. Municipality of Calabanga, Camarines Sur
 3. Municipality of Peñablanca, Cagayan
 - ✓ **4th to 6th Class Municipality Category**
 1. Municipality of Guimbal, Iloilo
 - **Best Barangay Disaster Coordinating Council (BDCC)**
 - ✓ **Urban Barangay Category**
 1. Barangay Sta. Rita, Olongapo City
 2. Barangay Ma-a, Davao City
 3. Barangay Ugong, Pasig City
 - ✓ **Rural Barangay Category**
 1. Barangay Poblacion, Tupi, South Cotabato
 2. Barangay Hoskyn, Jordan, Guimaras
 3. Barangay Cagsao, Calabanga, Camarines Sur
- B. GAWAD KALASAG FOR Non-Government Organizations (NGOs) on Humanitarian Assistance**
1. Child Sponsorship for Community Development, Inc. – Legazpi City
 2. Simon of Cyrene Children's Rehabilitation and Development, Inc. – Daraga, Albay
 3. Diocesan Social Action Center, Antique

ESSENTIAL 2: Assign a budget for disaster risk reduction and provide incentives for homeowners, low - income families, communities, businesses and public sector to invest in reducing the risks they face . [\[HFA 1\]](#)



Key Questions:

1. Are **financial services** (e.g. saving and credit schemes, macro and micro-insurance) available to vulnerable and marginalised households for pre- and/or post-disaster times?
2. Are micro finance, cash aid, soft loans, lone guarantees etc available after disasters to restart **livelihoods**?
3. Do local business associations, such as chambers of commerce and similar, support efforts of **small enterprises** for business continuity during and after disasters?
4. Are there any **economic incentives** for disaster reduction actions (e.g. reduced insurance premiums for households, tax holidays for businesses)?
5. Is there a **budget** to support effective disaster **response and early recovery**?
6. Does the local government have access to adequate **financial resources** to carry out risk reduction activities in your city/municipality?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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2009 ALBAY PROVINCIAL BUDGET

Item of Expenditure	Amount	%
Personnel Services	302	38%
of which		
10% increase	27	3%
14th month + P12,000	24	3%
Regular Salaries	251	31%
<i>Mem Health PS</i>	<i>139</i>	<i>17%</i>
MOOE	127	16%
of which		
Health MOOE	57	7%
Regular MOOE	70	9%
Jail MOOE	10	1%
Programs	337	42%
of which		
Counterpart to Bgys (P101T x 720 bgys)	73	9%
Counterpart to LGU programs (ARCDP, Kalahi)	30	4%
Scholarship	37	5%
Universal Philhealth	34	4%
Tourism Development	16	2%
CIRCA/A2C2	15	2%
Apsemo / Disaster Risk Reduction	16	2%
Calamity Fund	38	5%
Integrated Social Services	16	2%
Agricultural Production	24	3%
Other capex	38	5%
Debt Service		
Debt Servicing	38	5%
TOTAL	804	100%

The budget is the best articulation of public policy and instrument for its execution.

Highlights

- 9% of regular budget for DRR and Adaptation
- 24% for health
- 2% for social services
- 3% for agriculture

Internal sources:

- IRA
- Royalties geothermal

External sources:

- UNDP/AECD- P16m
- BSWM- P5m

ESSENTIAL 3: Maintain up - to - date data on hazards and vulnerabilities, **prepare risk assessments** and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them. [\[HFA 2\]](#)



Key Questions:

1. Has the city / municipality conducted thorough disaster **risk assessments** for various development sectors in your city/municipality?
2. Are these regularly **updated**, e.g. annually or on a bi-annual basis?
3. Does local government regularly communicate to the community, information on local hazard trends and risk reduction measures (e.g. using a **Risk Communications Plan**) including early warnings of likely hazard impact?
4. Are local government risk assessments linked to, and supportive of, risk assessments from **neighbouring** LGAs and state or provincial government risk management plans?
5. Do communities have access to local, national and regional **experiences** and information on vulnerability, disaster risk reduction, climate change adaptation measures, forecasts and early warning etc, in your city/municipality?
6. Is this information being made available and actively disseminated using **local languages** or dialects?
7. Has the local government identified which **livelihood** (economic) sectors are the most vulnerable to the potential impacts of gradual and sudden onset of more extreme climate variability?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Risk Reduction: Risk Mapping

- **Risk mapping**
 - Risk mapping is a common resource to all phases of DRR- risk mitigation, preparedness, damage assessment, response, relief and recovery
 - Sources of Funds:
 - **PHIVOLCS**
 - Earthquake mapping
 - Volcanic Hazard Mapping
 - REDAS training for LGUs
 - 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

UPDATE OF POPULATION AT RISK BY TYPE OF HAZARD

Municipality	Total Population	Household Population 2010	POPULATION AT RISK																
			Bgys Affected 6km-pdz	MV Eruption		Bgys Affected	Lahar / Mudflow		Bgys Affected	Flooding		Bgys Affected	Landslide		Bgys Affected	Tsunami / Storm surge		Bgys Affected	Typh
				Families	Persons		Families	Persons		Families	Persons		Families	Persons		Families	Persons		Families
TIWI	49,185	8,524							9	1,476	10,012	7		934	12	1,614	8,877		9,649
MALINAO	39,516	6,814							14	1,602	8,015	7		1,874	8	369	2,031		8,721
TABACO CITY	123,513	21,373	4	290	1,490	11	4,769	25,941	47	4,081	31,200	3			14	7,381	36,905		18,085
MALILIPOT	33,593	5,826	3	590	1,641	3	1,480	7,258	4	612	3,120	3		134	3	595	3,150		7,313
BACACAY	61,574	10,665							25	596	2,540	6		90	34	1,941	10,204		9,919
STO. DOMINGO	30,711	5,167				6	2,871	12,692	15	1,121	4,561	5		31	11	708	3,894		6,961
LEGAZPI CITY	179,481	31,053				8	4,748	23,546	29	4,050	22,634	8		175	17	5,869	28,440		12,370
RAPU-RAPU	32,646	5,661							16	1,495	7,808	5			28	4,215	23,183		3,926
MANITO	21,652	3,747							15	1,463	7,500	9		2,621	11	626	3,834		5,121
DARAGA	110,625	19,128	1	relocated		17	9,964	47,901	23	1,060	4,668	3							3,563
CAMALIG	60,319	10,438	3	457	1,956	7	3,035	14,845	16	2,551	11,476	8		485					13,759
GUINOBATAN	74,386	12,868	1	55	296	8	4,445	18,831	25	676	3,500	8		14					9,610
LIGAO CITY	101,179	17,502	2	283	1,613	7	1,949	10,515	8	279	1,178	16		380	3	217	1,194		8,023
JOVELLAR	17,615	3,042							10	917	4,555	-							4,447
PIODURAN	44,972	7,782							11	1,510	9,060	2		134	9	2,993	16,643		7,687
OAS	63,888	11,056							14	545	2,500	5		1,691	5	831	4,578		8,983
POLANGUI	77,122	13,342							20	704	3,640	9		1,104					7,231
LIBON	68,846	11,921							11	1,225	5,564	11		1,014	6	2,790	14,892		25,605
TOTAL	1,190,823	205,909	14	1,675	6,996	67	33,261	161,529	312	25,963	143,531	115	-	10,681	161	30,149	157,825	-	170,973

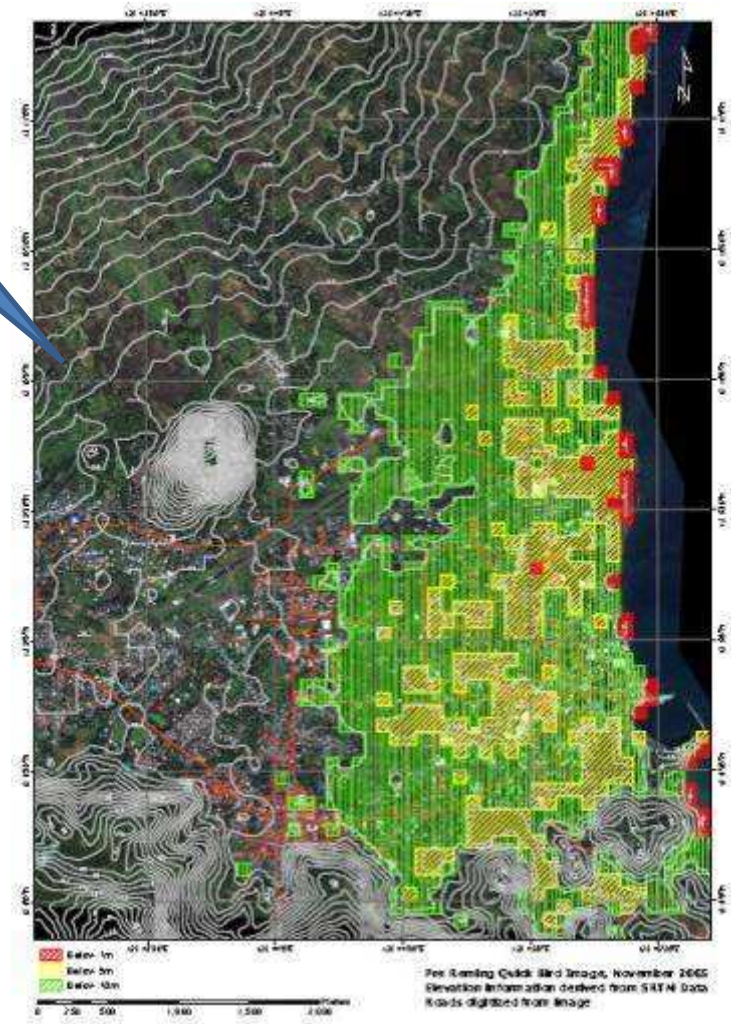
Data Source: LGUs, Barangay Officials; NSO RV

EARTHQUAKE MAP

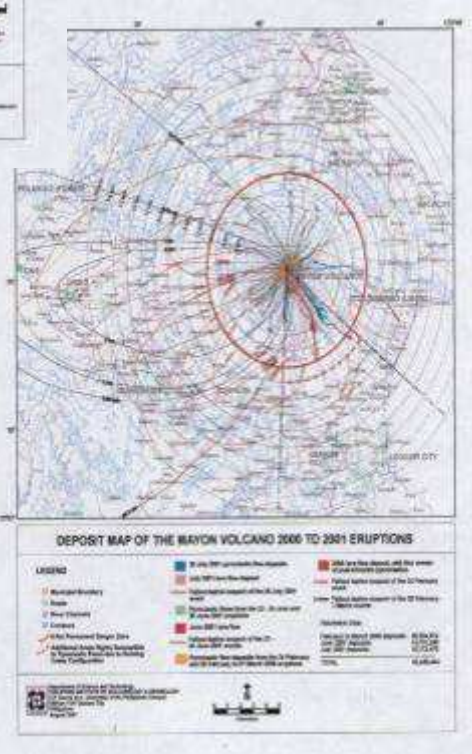
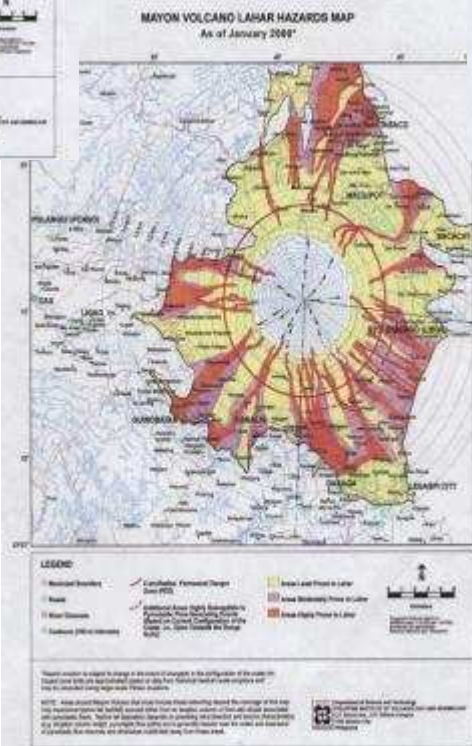
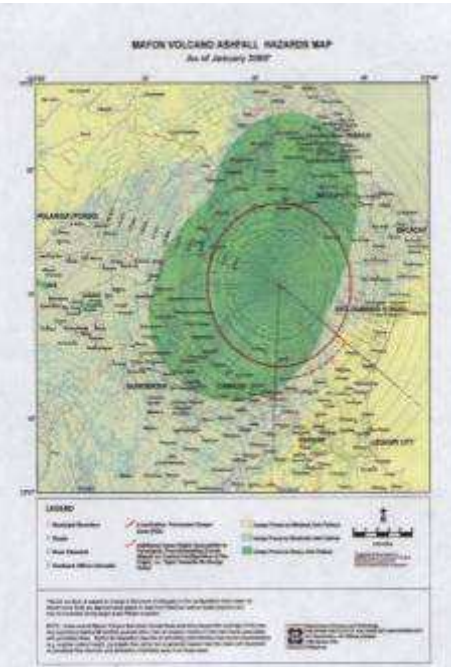
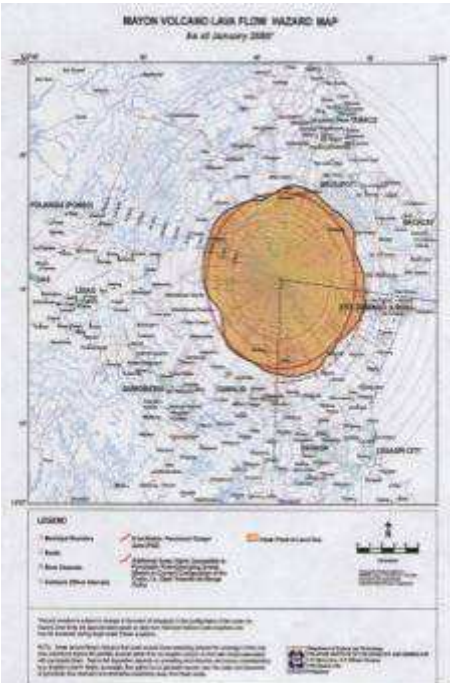
FAULTS



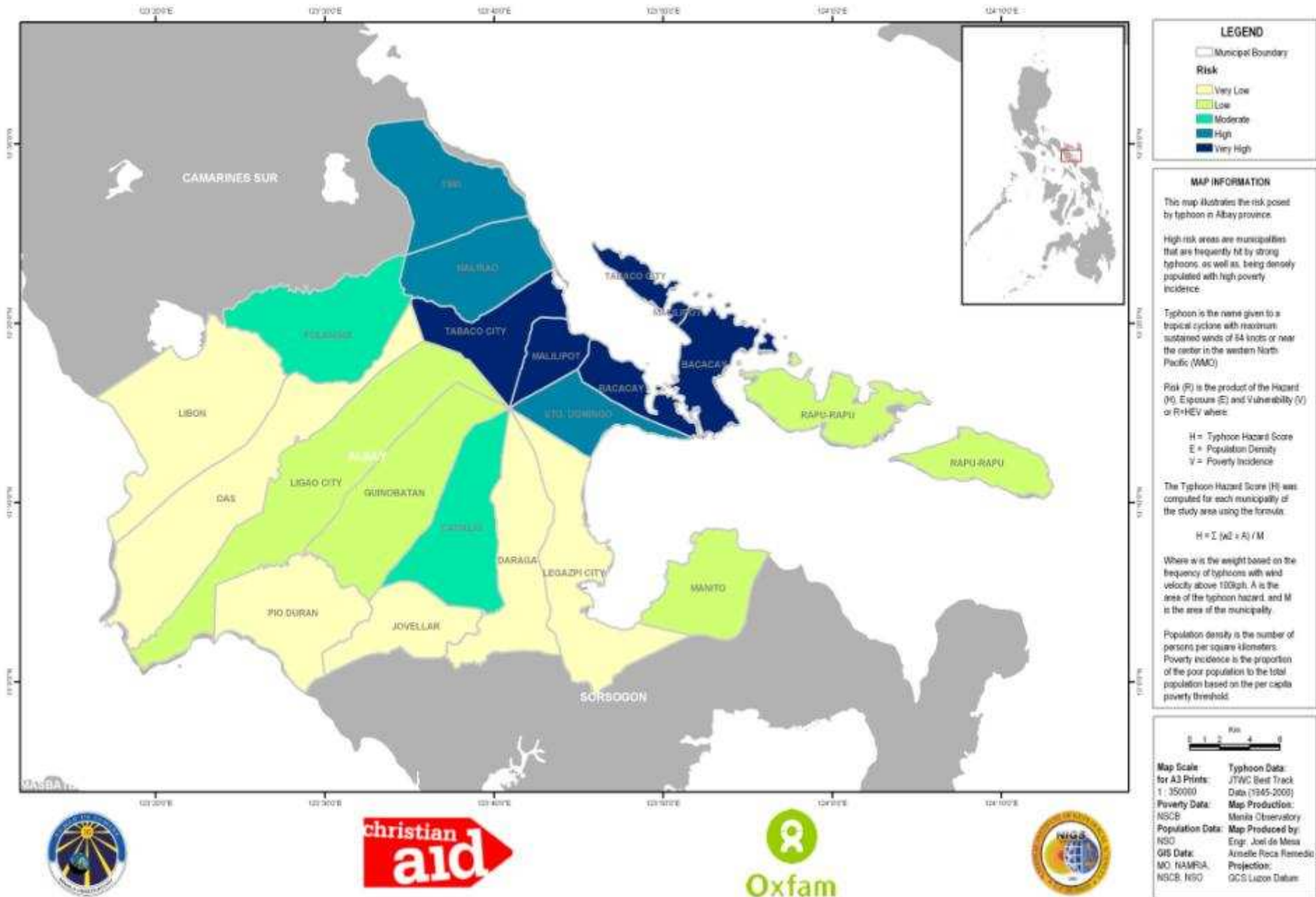
TSUNAMI



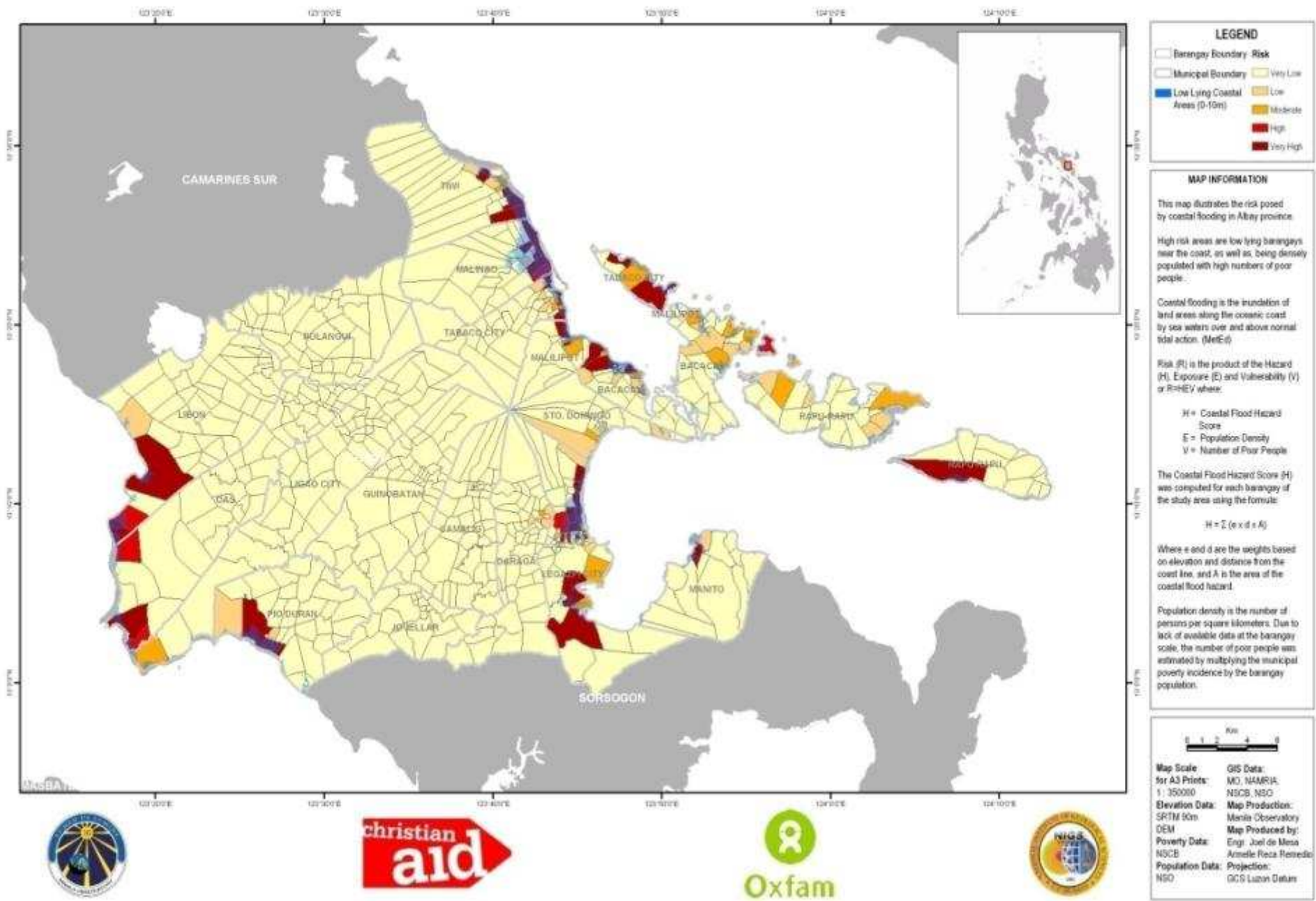
VOLCANIC HAZARDS



Typhoon Risk Map of Albay Province, Philippines



Coastal Flooding Risk Map of Albay Province, Philippines



LEGEND

- Barangay Boundary
- Municipal Boundary
- Very Low
- Low
- Moderate
- High
- Very High

MAP INFORMATION

This map illustrates the risk posed by coastal flooding in Albay province.

High risk areas are low lying barangays near the coast, as well as, being densely populated with high numbers of poor people.

Coastal flooding is the inundation of land areas along the oceanic coast by sea waters over and above normal tidal action. (MetEit)

Risk (R) is the product of the Hazard (H), Exposure (E) and Vulnerability (V) or R=HEV where:

- H = Coastal Flood Hazard Score
- E = Population Density
- V = Number of Poor People

The Coastal Flood Hazard Score (H) was computed for each barangay of the study area using the formula:

$$H = \sum (e \times d \times A)$$

Where e and d are the weights based on elevation and distance from the coast line, and A is the area of the coastal flood hazard.

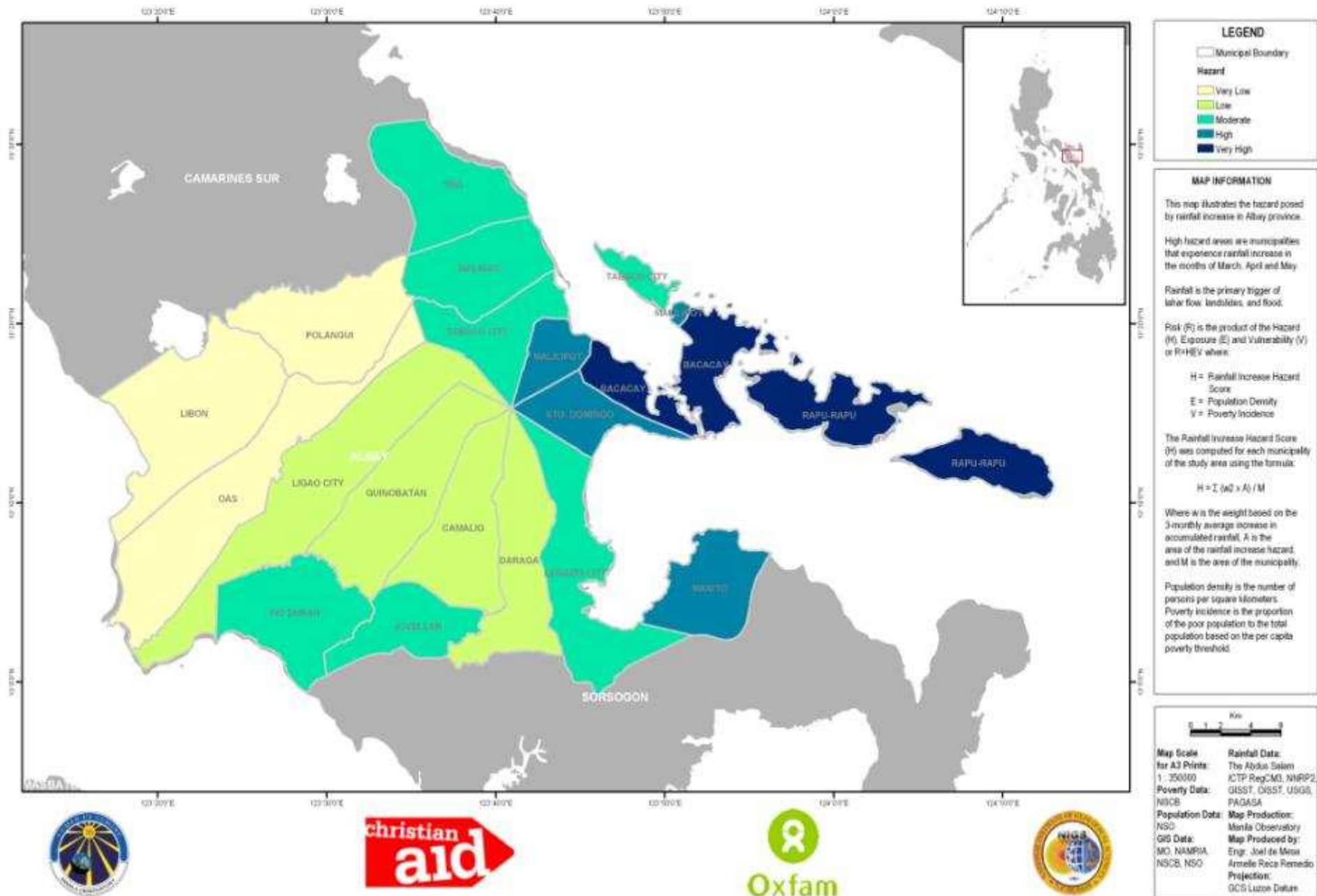
Population density is the number of persons per square kilometers. Due to lack of available data at the barangay scale, the number of poor people was estimated by multiplying the municipal poverty incidence by the barangay population.

Scale: 0 2 4 6 Km

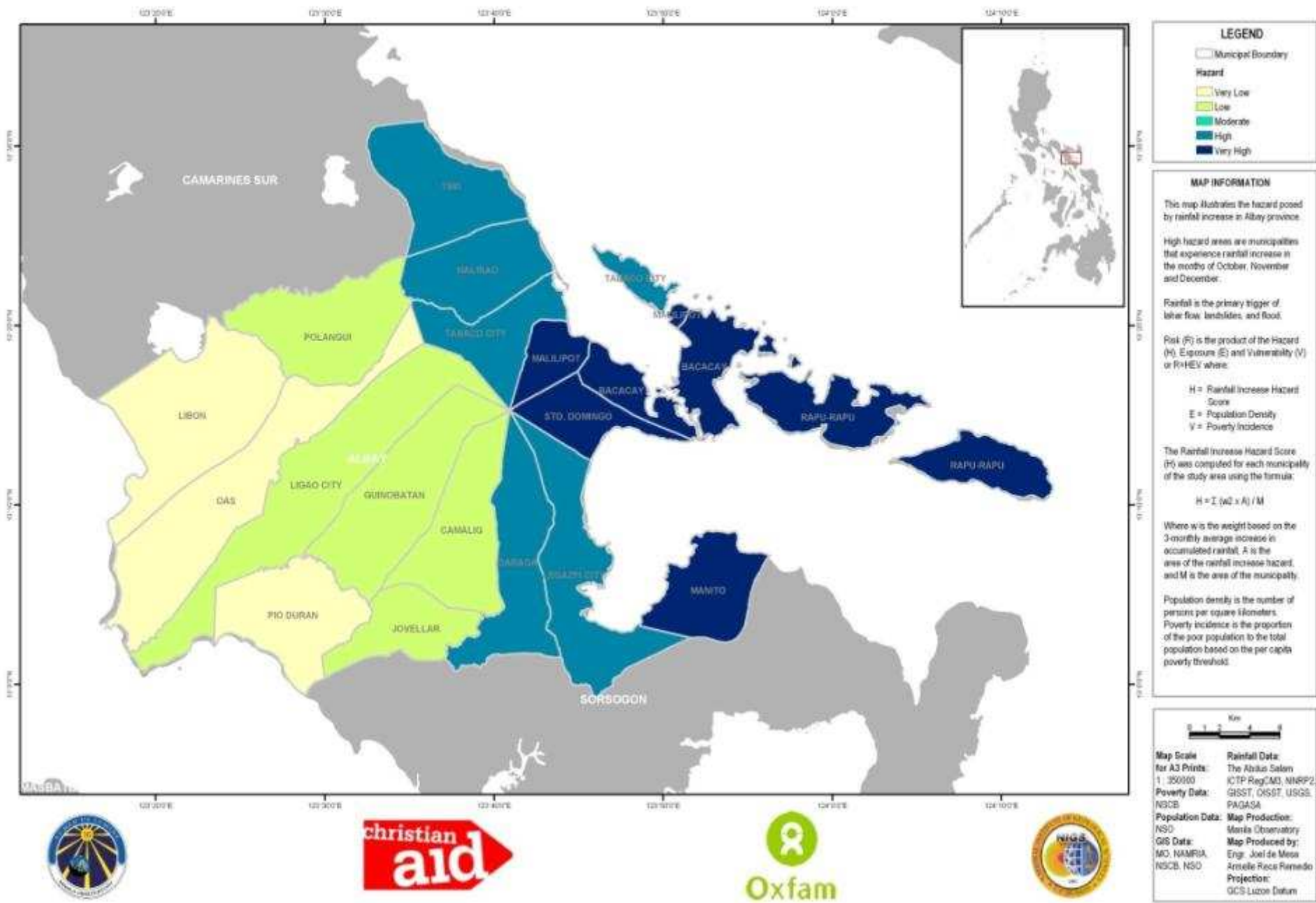
Map Scale: for A3 Prints: 1 : 350000	GIS Data: MO, NAMRIA, NSCB, NSO
Elevation Data: SRTM 30m DEM	Map Production: Mentis Observatory
Poverty Data: NSCB	Map Produced by: Engr. Joel de Mesa Armedillo Reza Remedios
Population Data: NSO	Projection: GCS Luzon Datum



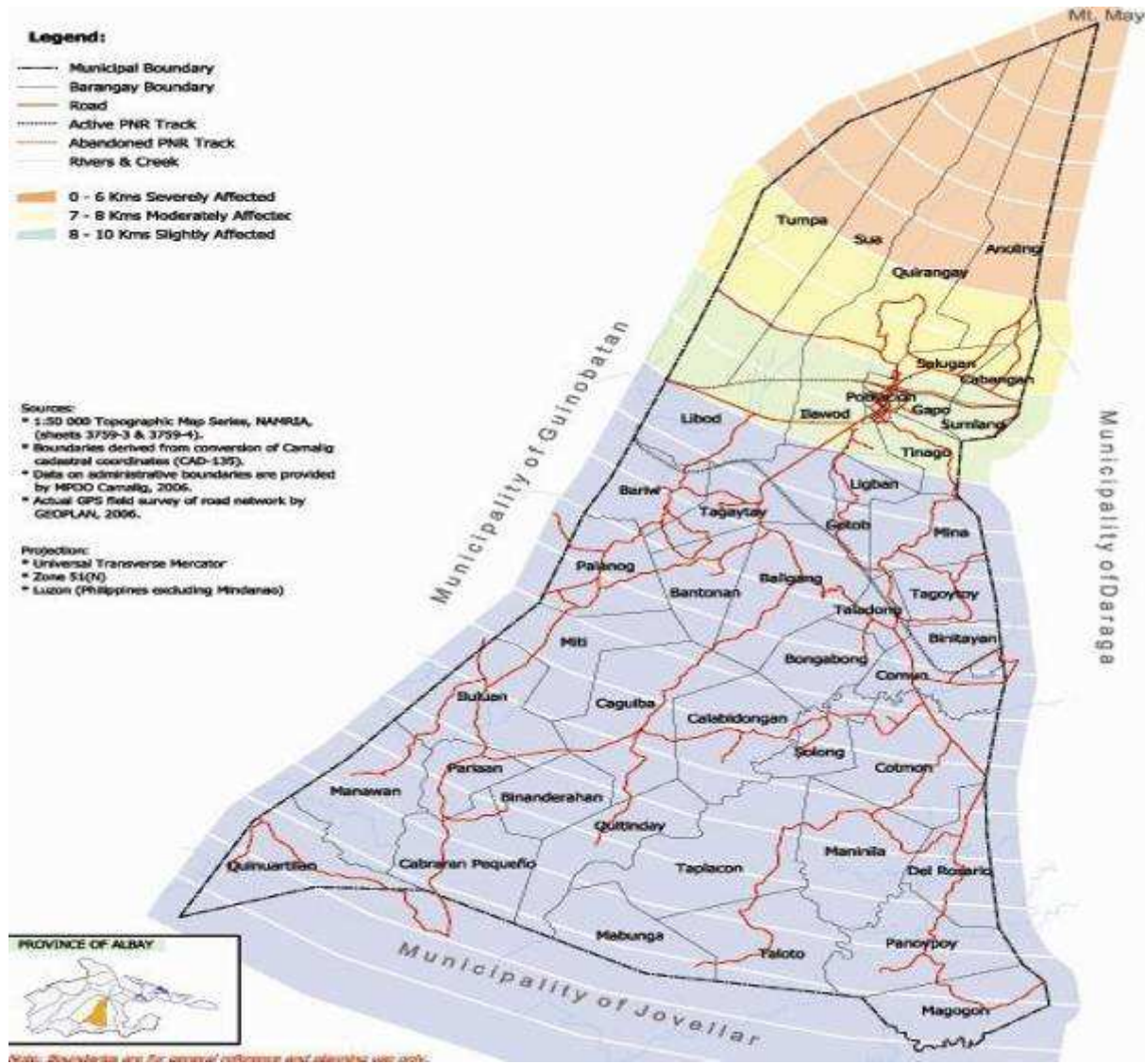
Rainfall Increase Hazard Map (Dry Season) of Albay Province, Philippines



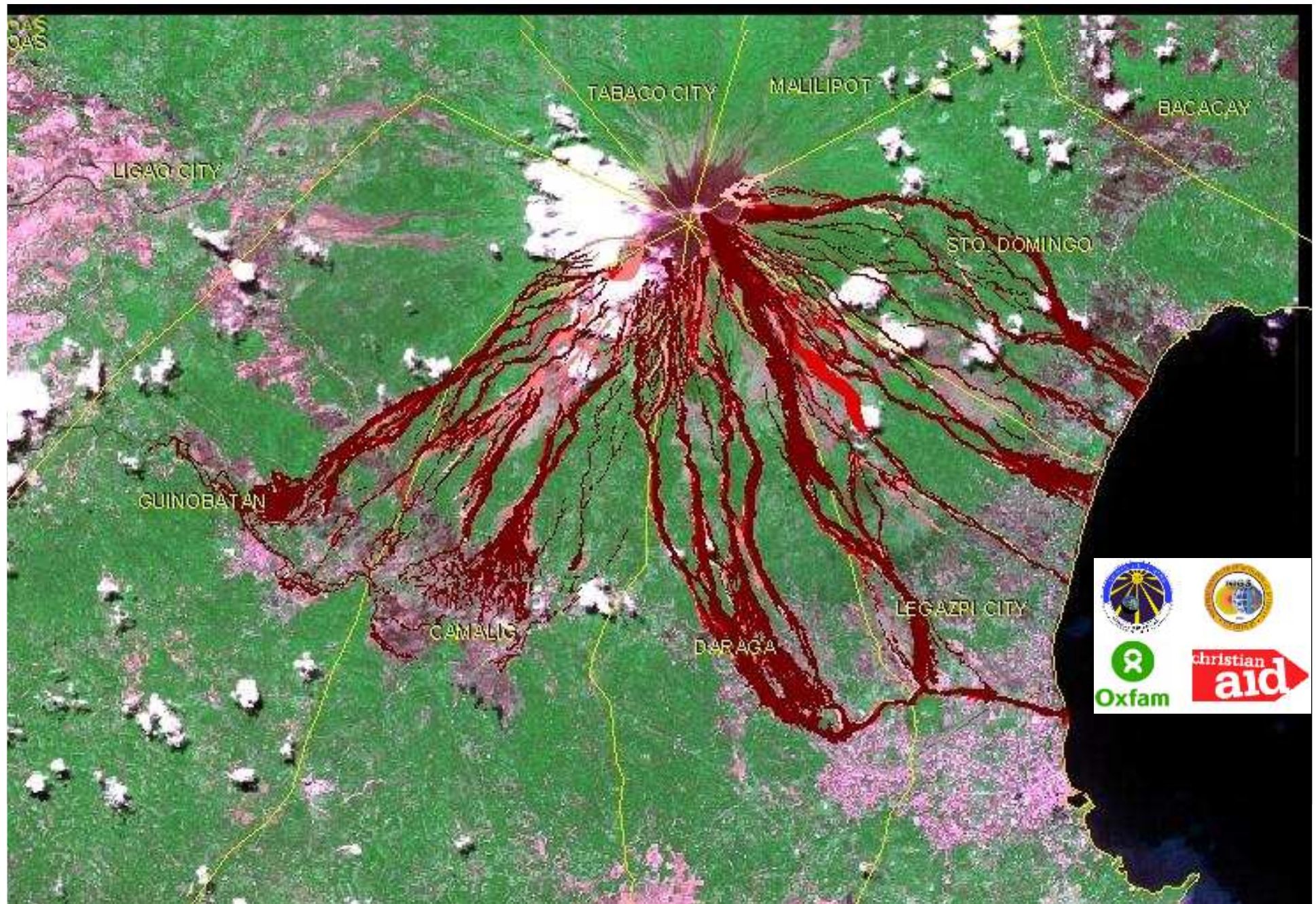
Rainfall Increase Hazard Map (Wet Season) of Albay Province, Philippines



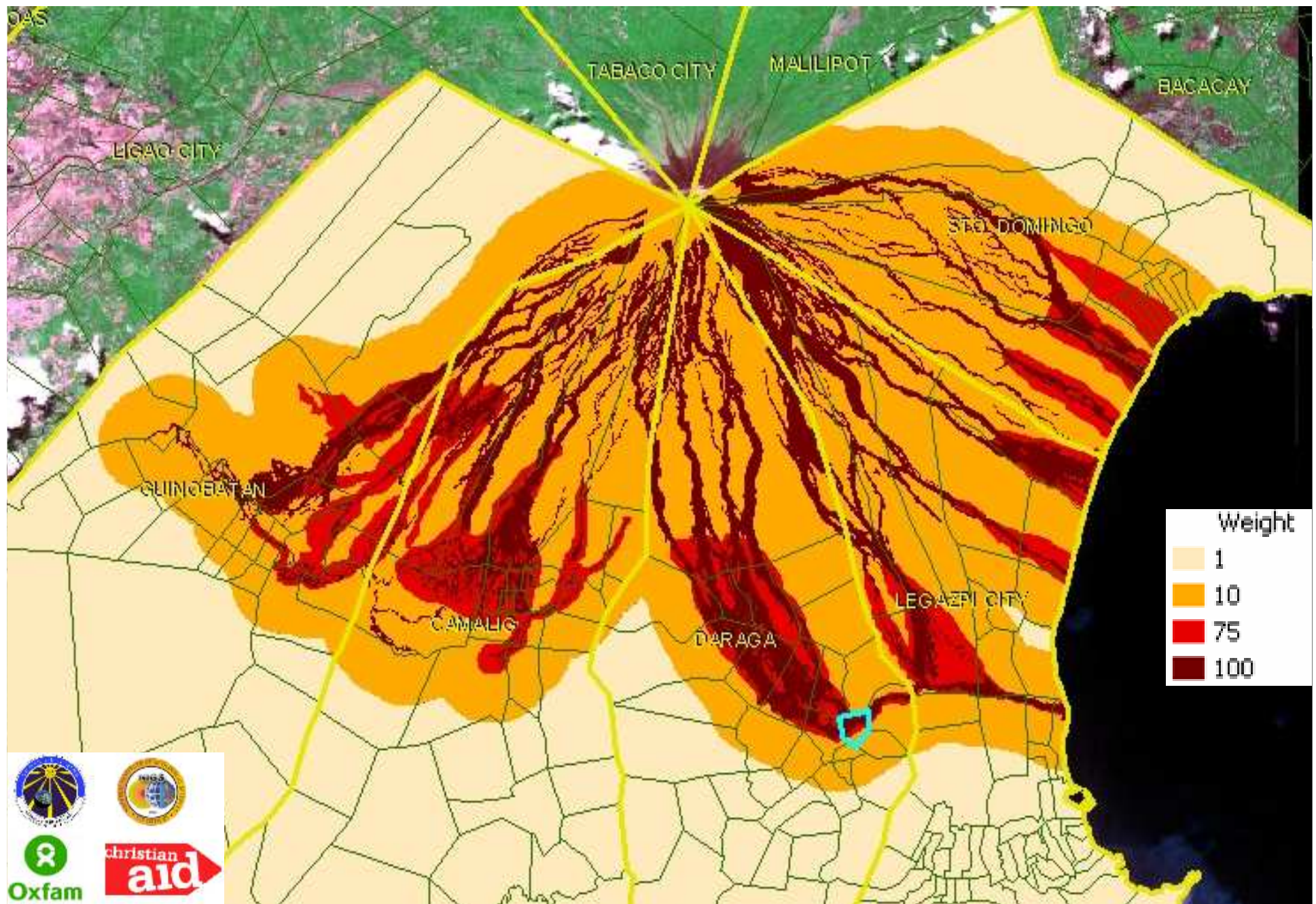
Risk Mapping



Lahar Hazard Map



Lahar Hazard Map



$$\text{HAZARD SCORE} = \Sigma(w^2 \times \text{Area})$$



$$\text{LAHAR HAZARD SCORE} = 100^2 (A1) + 75^2 (A2) + 10^2 (A3)$$

ESSENTIAL 4: Invest in and maintain **critical infrastructure that reduces risk**, such as flood drainage, adjusted where needed to cope with climate change . [\[HFA 4\]](#)



Key Questions:

1. Do land use policies and **planning regulations** for housing and critical risk reducing infrastructure (i.e. drainage, flood controls) take current and projected climate risk and disaster risk into account?
2. Are critical public facilities and **infrastructure** located in high risk areas adequately assessed for all hazard risks and safety?
3. Have adequate measures been undertaken to protect these facilities and infrastructure from damage during disasters?
4. Does your city/municipality have an **emergency** operations centre (EOC)?
5. Are alternative emergency **communications** systems available in time of loss of normal services?
6. Has a process for coordination with other **levels of Government** been established for emergency needs in the event of a disaster?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Engineering Interventions: Biggest Gap



Backup Communications System



ESSENTIAL 5: Assess the **safety of all schools and health facilities** and upgrade these as necessary. [\[HFA 4\]](#)

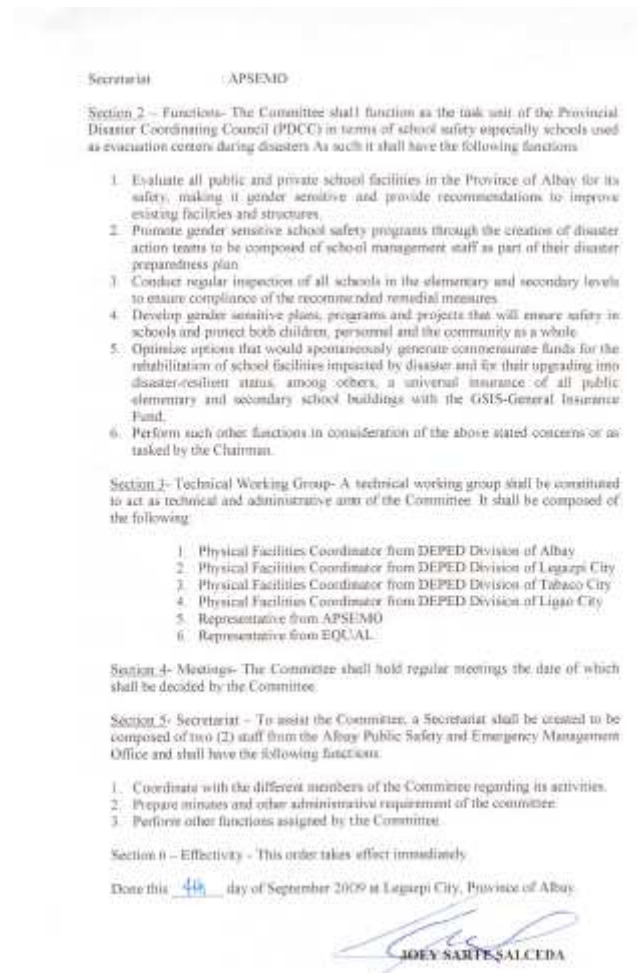
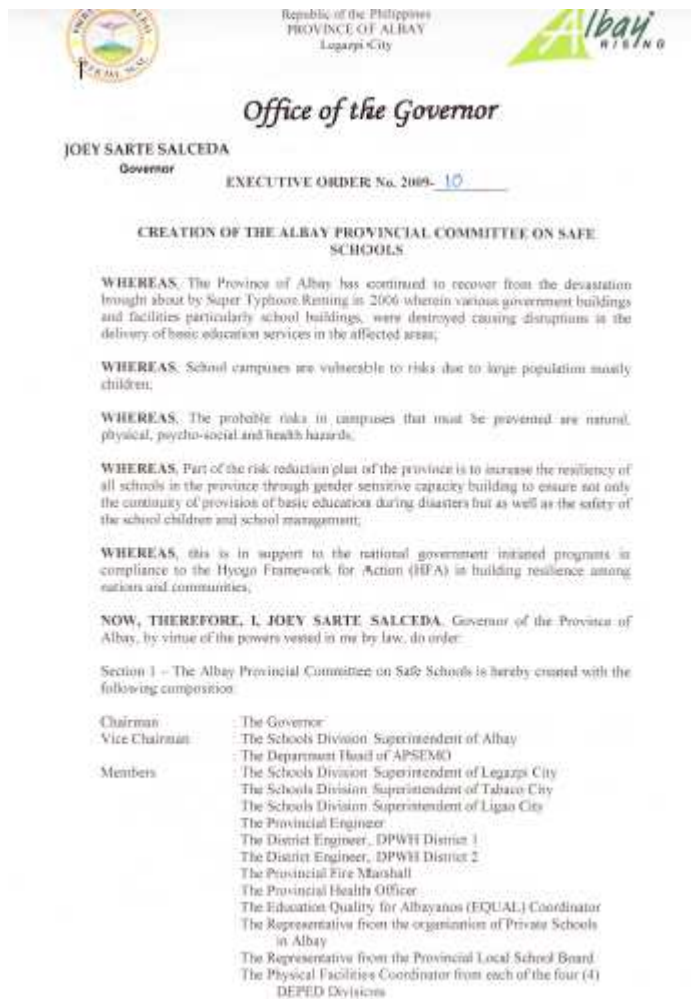


Key Questions:

1. Have local **schools and hospitals** received special attention for “all hazard” risk assessments in your city/municipality?
2. Are all main hospitals safe from disasters and **accessible** in emergencies?
3. Do hospitals have the ability to absorb disaster-related shocks and commence **business continuity** without delay?
4. Does the local government have emergency plans in place to deal with possible **mass casualty** needs?
5. Do the local government or other levels of government have special programs in place to **regularly assess** public infrastructure (especially schools & hospitals) for maintenance, seismic stability, general safety, weather related risks etc.?
6. Are schools used as post-disaster **safe havens** and relief distribution points in emergencies?
7. Are regular disaster response and preparation **drills** undertaken in schools?
8. Does local government have a close working relationship with the authorities responsible for health and education facilities?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Executive Order Creating Albay Provincial Committee on Safe School



SAFE HOSPITALS

C. GAWAD KALASAG FOR Private/Volunteer Organizations, Government Emergency Managers (GOEMs), Schools, and Hospitals

- **Best Private/Volunteer Organizations**
 1. 505 2nd Search and Rescue Auxillary Squadron – Antique Chapter
 2. Baguio-Benguet Public Information and Civic Action Group
 3. Philex Mining Corporation, Benguet
- **Best Government Emergency Managers (GOEMs)**
 1. Pasig City Search and Rescue SBMA Fire Rescue Group
 2. Bulacan Rescue 117
- **Best School**
 1. Cabasi-Sta. Rosa Elementary School, Antique
 2. Abellana National School Rescue Group, Inc. – Cebu
 3. Daraga National High School, Daraga, Albay
- **Best Hospital**
 1. Quirino Memorial Medical Center
 2. East Avenue Medical Center
 3. Bicol Regional Training and Teaching Hospital (BRTTH) – Legazpi City

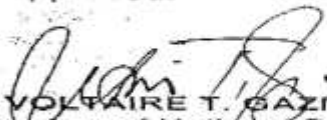
D. Heroic Act/Deed During Emergency Response and Rescue Operations

- **Individual Category (Surviving)**
Engr. Joel S. Son, Philex Mining Corp.
- **Individual Category (Posthumous)**
SN2 Honorio Q. Erna, Philippine Coast Guard (PCG)
SFO3 Siegfred B. Ngoloban
SFO3 Richard T. Balusdan
FO2 Benedict C. Tumayan } Bureau of Fire Protection (BFP-CAR)

E. Hall of Fame

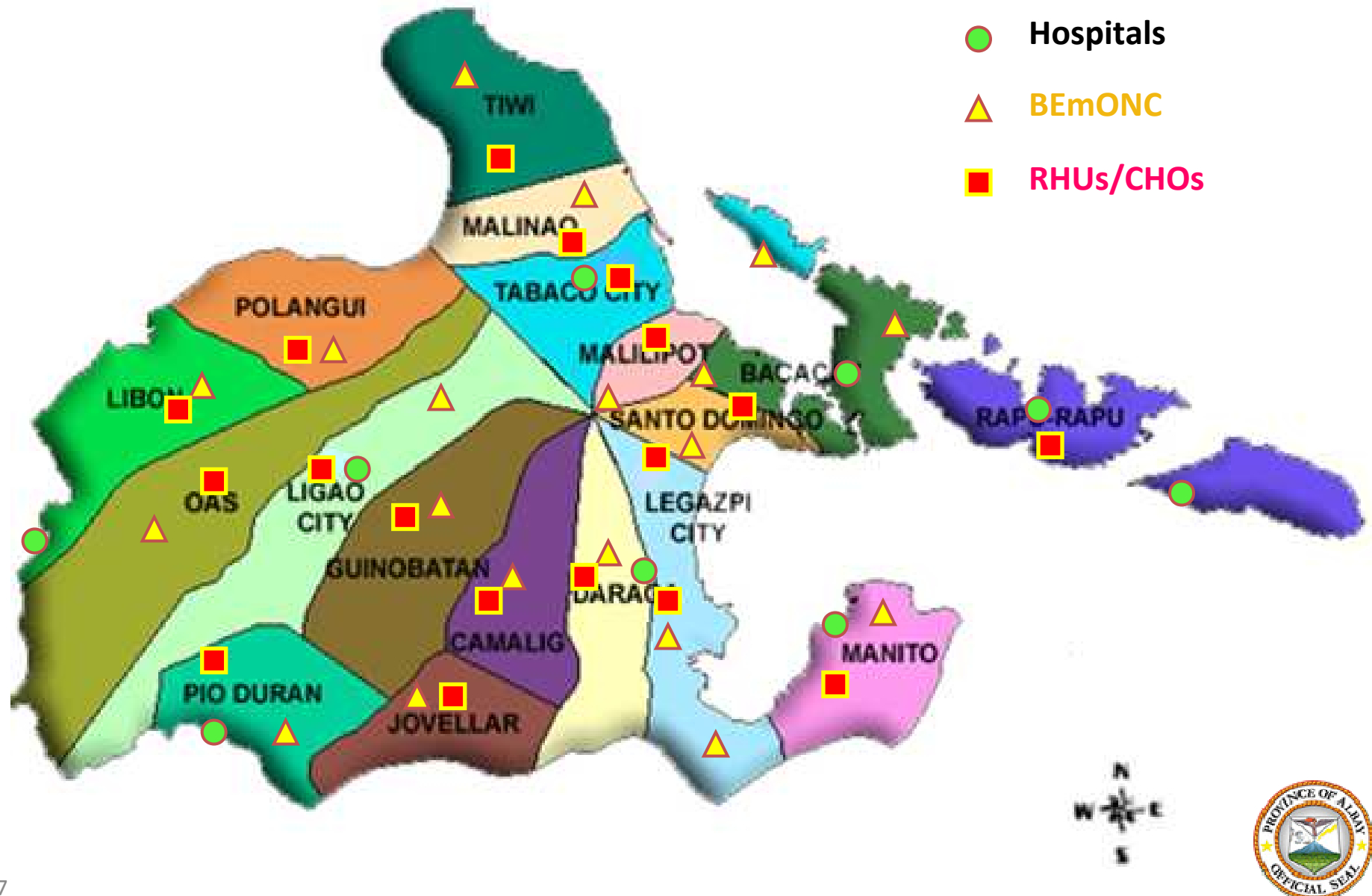
1. City of Olongapo
Best City Disaster Coordinating Council – Highly-Urbanized City Category

Approved:

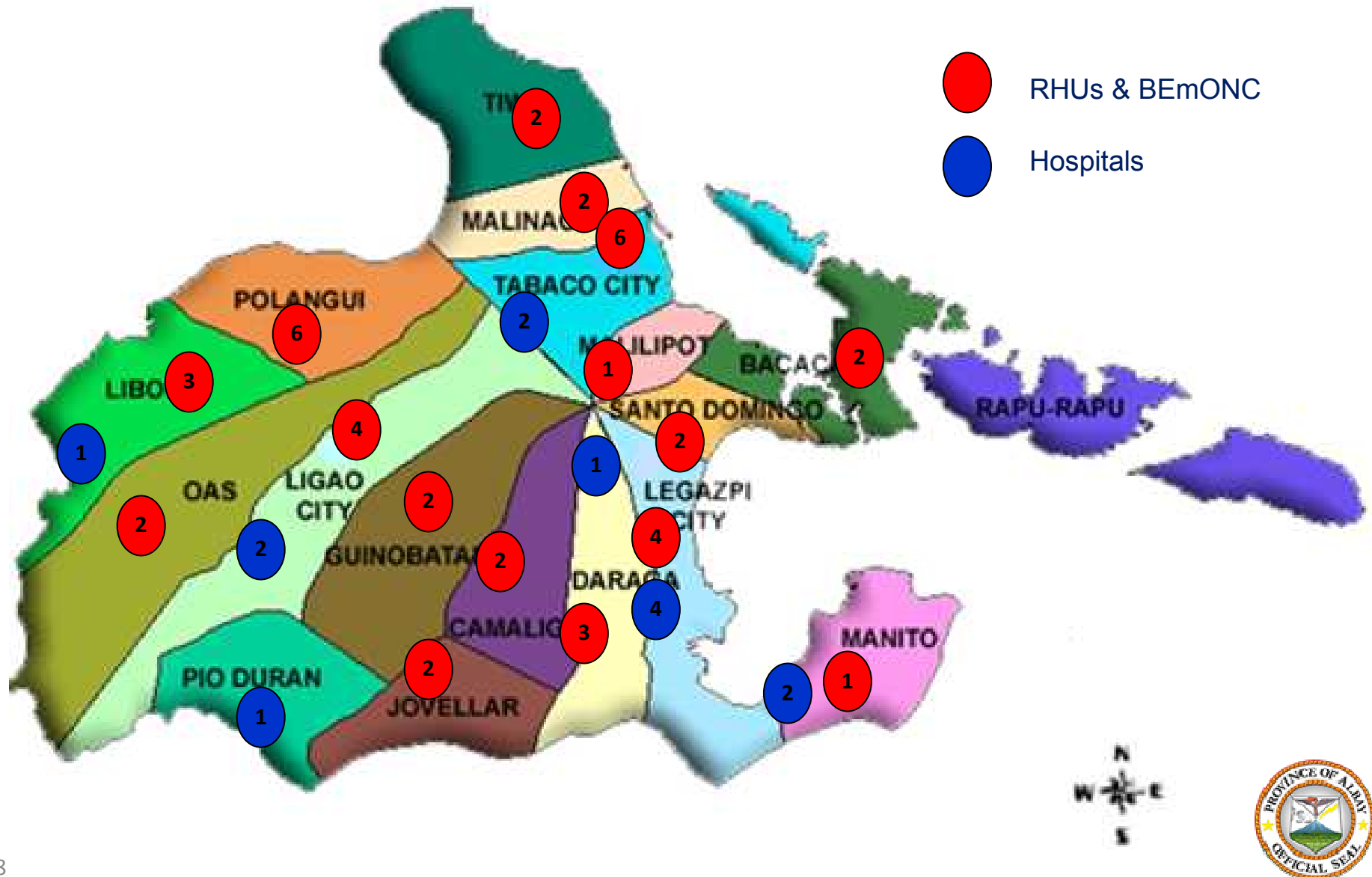

VOLTAIRE T. GAZMIN
Secretary of National Defense
and Chairman, NDCC



Health Facilities strategically spread



Ambulance Deployment



Resources for Health Emergency Management

- **Health Emergency Management**
 - **AHEM**
 - Training of 457 emergency paramedics nominated by LGUs, parishes, universities and even commercial centers
 - Creation of EPTU (Emergency Paramedic Training Unit) at Bicol University
 - Source of Funds:
 - DOH-HEMS: P4.5m
 - Provincial Government: P4.5m
 - BRTTH: trainers / opcen
 - Bicol University: training facilities
 - Oxfam GB: gender sensitivity
 - CHR: human rights sensitivity during evacuation/rescue
 - **Emergency Essential Surgical Skills (EESS) for Provincial Hospitals**
 - Hospital capacity equipment, training, equipping basic needs for emergency surgery, orthopedic, anaesthesia and obstetrics
 - Source of Funds:
 - DOH HEMS- P5m

Training of Emergency Paramedics



Safe Hospitals: Albay chosen as 3rd Best Hospital in 2010
National DRR Awards by NDCC

- Construction of 6 Safe Evacuation Centers used as Emergency Educational Facilities during the normal days.
 - Under AECID worth P 30M each
 - Completed - Daraga, Camalig, Guinobatan
 - Approved but for implementation – Ligao, Tabaco and Malilipot
 - Under JICA (for 2011 project implementation) worth P30M to P60M each
 - Libon, Polangui, Oas, Legazpi City, Manito and Sto. domingo

The Constructed Safe Evacuation Centers used as Educational Facilities



ESSENTIAL 6: Apply and enforce **realistic, risk - compliant building regulations and land use planning principles**. Identify safe land for low - income citizens and develop upgrading of informal settlements, wherever feasible. [\[HFA 4\]](#)



Key Questions:

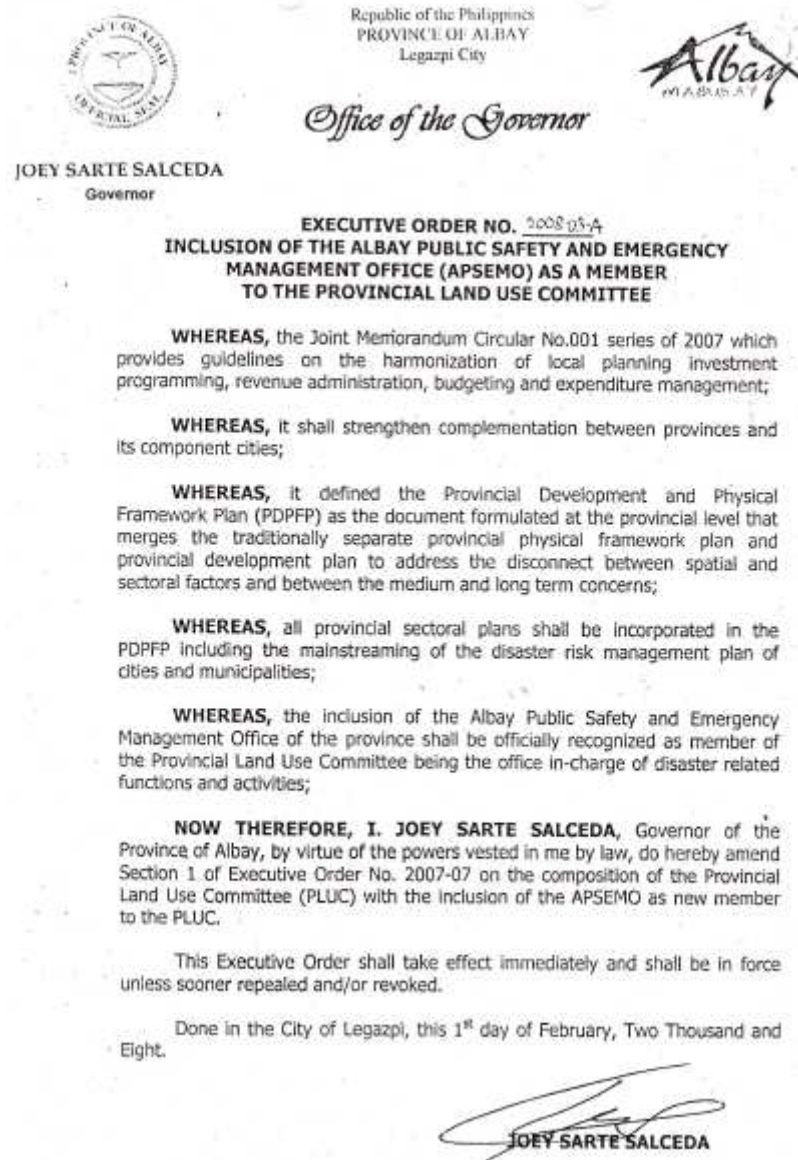
1. Are local government DRR policies, strategies and implementation plans included within existing **land-use and development plans** (including community-based disaster risk management)?
2. Does your local government have capacity to **enforce** land use regulations and building codes, health and safety codes etc. across all development zones and building types?
3. Is it affordable and feasible to **monitor** enforcement of the above?
4. Is there a **need** to build or strengthen existing regulations to support disaster risk reduction in your city / municipality ?
5. If **evacuation** plans are necessary, are they in place across the city / municipality, and are regular drills undertaken?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Risk Reduction: Land Use Plan

- **Comprehensive Land Use Plan**
 - Disaster office, volcanology office and weather bureau are members of provincial land use committee
 - Climate-proofing / disaster-proofing of CLUPs almost complete
 - First line of defense against disaster
 - Training of 18 municipalities in preparation of CLUPs and integration at provincial level
 - Integration of climate and disaster risks
 - Source of Funds: P16m from **UNDF MDGCF**
- **Regulatory Framework**
 - LGU Building Officials issue construction and occupancy permits.
 - APSEMO issues certification for safe and unsafe areas for investment protection

Designating APSEMO as a member of the PLUC



Certification for Investment Protection and Public Safety

PROVINCIAL DISASTER COORDINATING COUNCIL
Provincial Disaster Operation Center
Province of Albay

PROVINCIAL DISASTER COORDINATING COUNCIL
Provincial Disaster Operation Center
Province of Albay

CERTIFICATION

This is to certify that Lot No. 9044, located at the Upper Bongalon Daraga, Albay particularly is not affected by potential lahars from possible avulsion and flooding upstream of Mayon Volcano based on Updated Lahar Hazards Assessment for Critical Barangays of Albay Province conducted by the Philippine Institute of Volcanology and Seismology, on file at PDCC-Albay.

Issued this 28th day of September 2007 at APSEMO, PDOC Bldg., Albay District, Legazpi City, Philippines, upon the request of Mr. Joseph Cimanos of Busay, Daraga, Albay.

CEDRIC D. DAEP
Prov'l Gov't Dep't Head &
PDCC Executive Officer

CERTIFICATION

This is to certify that Barangay Baligang, Camalig, Albay is not affected by potential lahars from possible avulsion and flooding upstream of Mayon Volcano based on Updated Lahar Hazards Assessment for Critical Barangays of Albay Province conducted by the Philippine Institute of Volcanology and Seismology, on file at PDCC-Albay.

Issued this 28th day of September 2007 at APSEMO, PDOC Bldg., Albay District, Legazpi City, Philippines, upon the request of Mr. Anecito B. Lagonoy of Libod, Camalig, Albay.

CEDRIC D. DAEP
Prov'l Gov't Dep't Head &
PDCC Executive Officer

O.R. NO. _____
Date Issued: _____
Place Issued: _____
Amount: _____

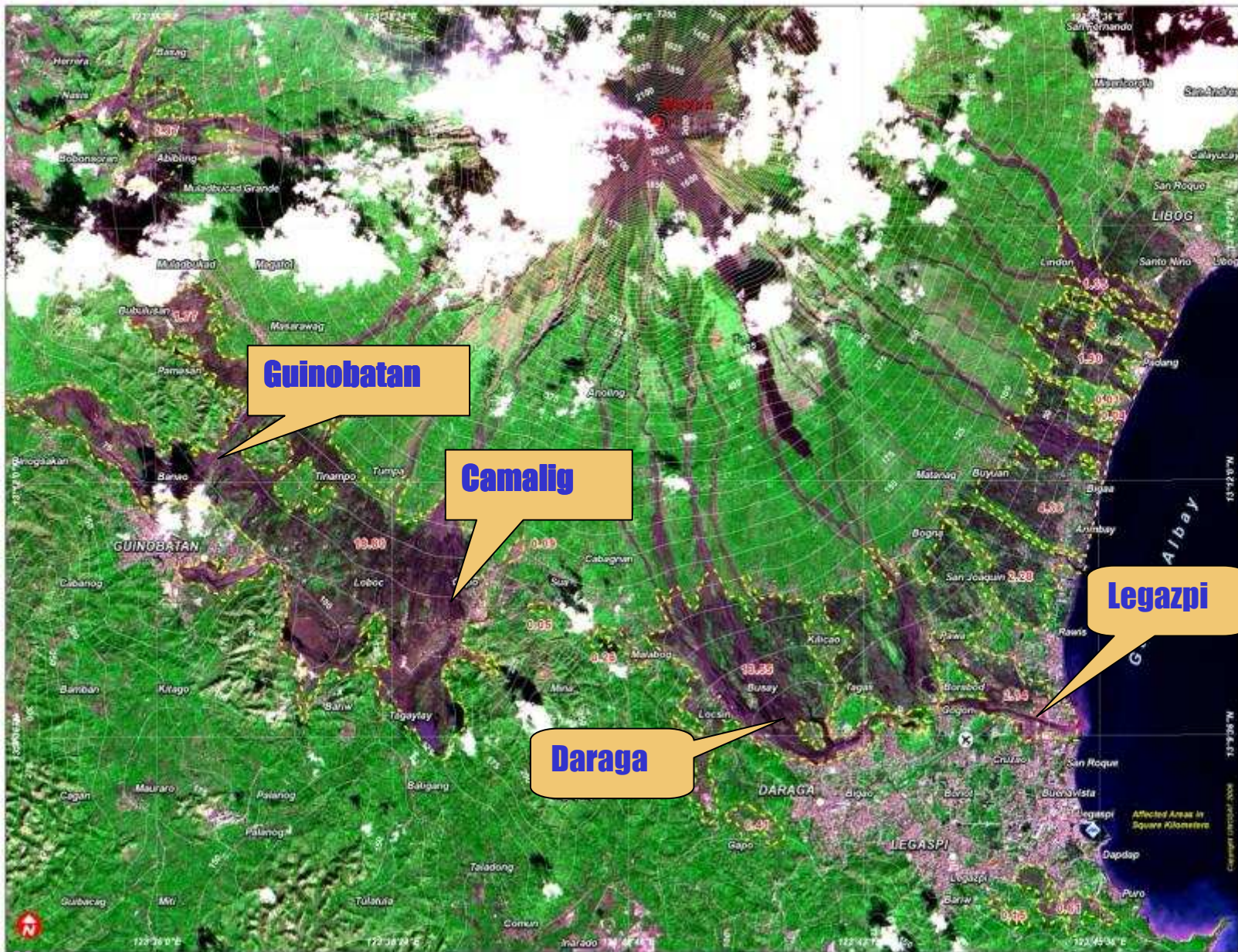
Risk Reduction: Geostategic Intervention

- **Geostategic Intervention: Guicadale Business Platform**
 - Both the flagship economic project and main DRR strategy of Albay
 - Redirection of centers of business and residential activities towards safe area
 - Components:
 - **Relocation of 10,076 households** in high-risk areas
 - Cost- P2bn for 8 resettlement sites
 - Source of Funding- NHA, province, INGOs
 - **New international airport** (ongoing)
 - Cost- P3.4bn
 - Source of Funding- DOTC national government
 - **Road networks**
 - Cost- P1.3bn
 - Source of Funding- National transfers, JICA, Multi-year from 20% economic development fund of the province/ DPWH allocations
 - **New government center**
 - Cost- P176m
 - Source of Funding- province to acquire via long term loan from Philippine Veterans Bank

Overview of Flooding & Mudslide Damage Surrounding Mt. Mayon Volcano, Albay Province, Philippines

Satellite Identified Damage from Typhoon Durian Using SPOT-5 Imagery Recorded on 12 December 2006

18 December 2006
Version 1.0
Glide No: TC-2006-000175-PHL



Guinobatan

Camalig

Daraga

Legazpi



Map Information:
This map illustrates the approximate areas of flooding and mudslide damage resulting from Typhoon Durian (Freming) surrounding Mt. Mayon Volcano, Albay Province, Philippines. Damage identification has been done using SPOT-5 satellite imagery recorded on 12 December 2006 and Landsat imagery from 2002 and has not yet been validated in the field. The affected areas in square kilometers are labeled in red. The depiction and size of boundaries, geographic names and related data shown here are not warranted to be error-free as they imply official endorsement or acceptance by the United Nations Institute for Training and Research (UNITAR) Operational Satellite Applications Programme (UNOSAT). UNOSAT provides satellite imagery and related geographic information to UN humanitarian and development agencies and their implementing partners.

Map Legend

- Capital
- Town
- Province Boundary
- Flooding & Mudslide Areas
- Urban Area
- Vegetation Cover
- Mt. Mayon Volcano
- Airfield
- Port
- Contour (25m)
- Typhoon Track
- Landslide / Road Path
- Water Body

Map Scale for A3
Prints 1:65,000

Scale: 1:65,000

Scale bar: 0 200 400 600 800 1000 Meters

Glide Number: TC-2006-000175-PHL
Satellite Image: SPOT-5 (12 Dec 2006)
Image Copyright: UNOSAT 2006
Distribution By: SPOT Image
SPOT Data: SPOT 5004-0026
Map Production: UNOSAT 16 December 2006
Projection: UTM Zone 51N WGS 1984



Risk Reduction: Relocation

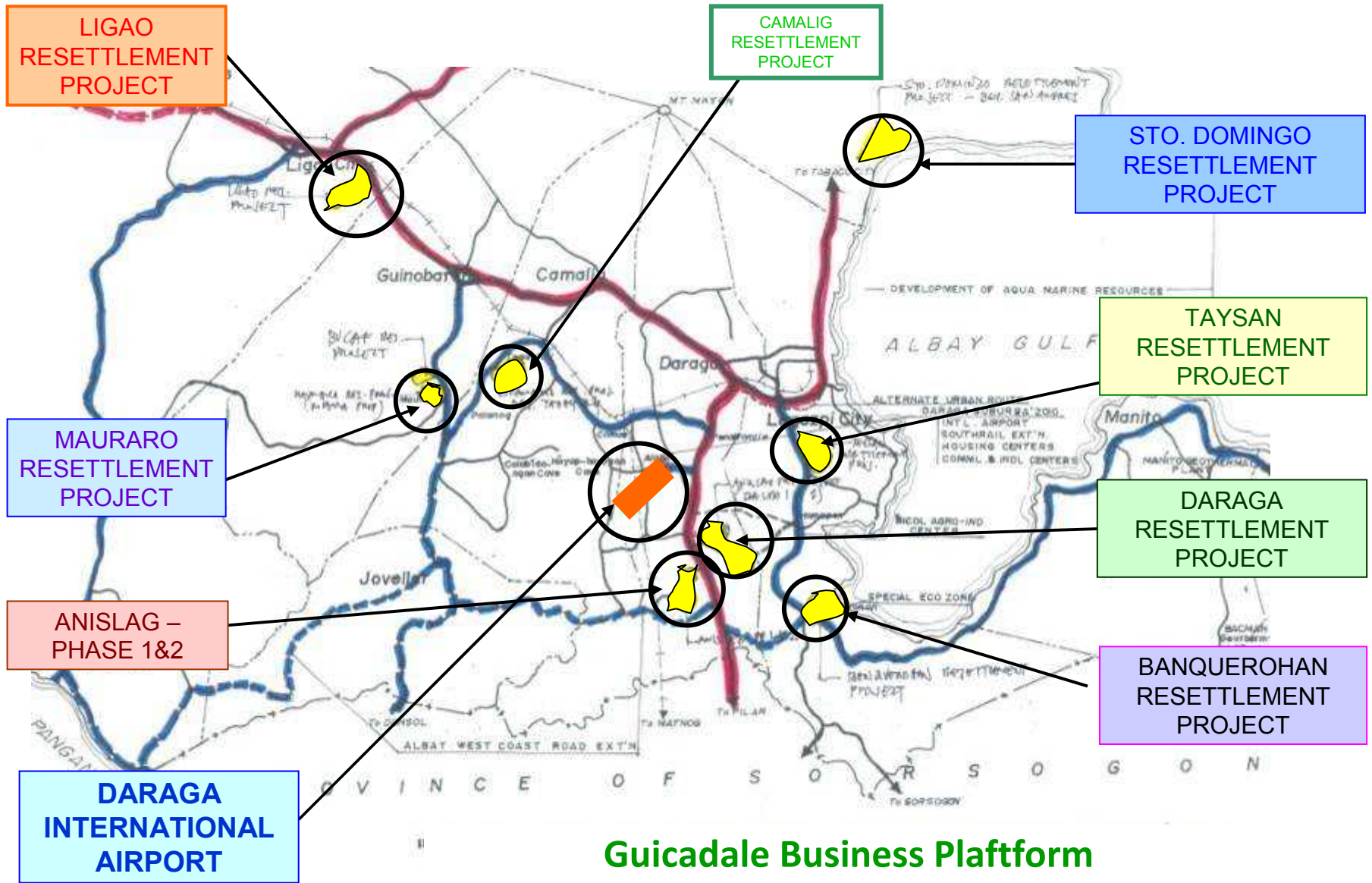
- **Relocation**
 - Program being undertaken under Albay MDG Office
 - 10,076 households in high risks areas already provided with developed lots in safer locations (around the new intl airport)
 - Lots are already sufficient
 - Shelter gap of 5,454
 - Funded by NHA, DSWD, INGOs/NGOs
 - Provincial Government provided the sites

Relocation



Resources for Risk Reduction: Relocation Sites

- Taysan (Legazpi City)
- Banquerohan (Legazpi City)
- Sta. Monica (Legazpi City)
- Anislag Phases 1, 2,3 (Daraga)
- Baldo 1 (Daraga)
- Baldo 2 (Daraga)
- Amore (Daraga)
- Bascaran (Daraga)
- Penafrancia (Daraga)
- Pandan (Daraga)
- Cullat (Daraga)
- Balinad (Daraga)
- Banadero (Daraga)
- Tagaytay (Camalig)
- Baligang (Camalig)
- St. Francis of Assisi (Camalig)
- Mauraro (Guinobatan)
- Quitago (Guinobatan)
- Minto (Guinobatan)
- Tuburan (Ligao)
- Lanigay (Polangui)
- San Andres phases 1 & 2 (Sto. Domingo)



ESSENTIAL 7: Ensure **education programmes and training** on disaster risk reduction are in place in schools and/or local communities. [\[HFA 3\]](#)



Key Questions:

1. Does the local government regularly conduct **awareness-building** or education programs on DRR and disaster preparedness?
2. Does the local government provide in-depth **training** in risk reduction for local officials and community leaders?
3. Do local schools and colleges provide courses, education or training in disaster and climate risk reduction as part of the education **curriculum**?
4. Are **citizens** aware of evacuation plans or drills for evacuations when necessary?
5. Are a range of general and specific resources and **publications** accessible for citizens for DRR and disaster preparedness information?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Resources for Social Preparations

- **Continuous Training and Education**

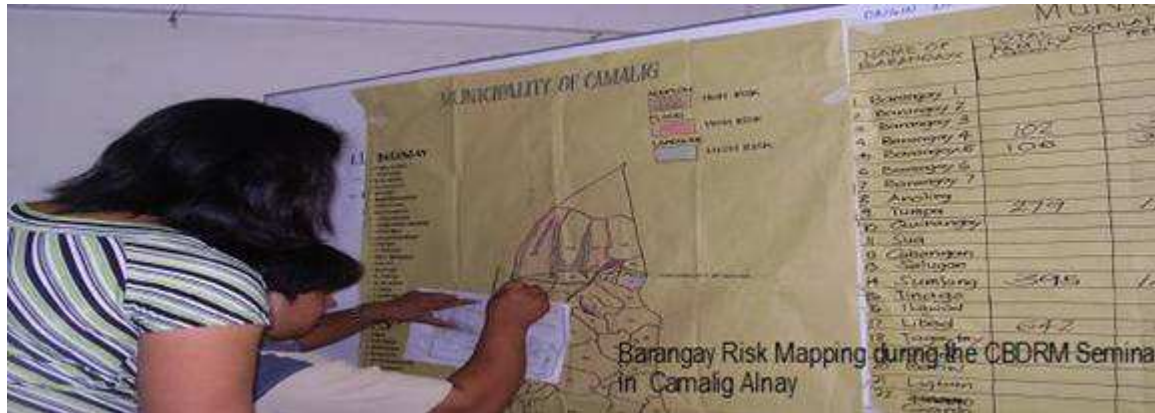
- **Components**

- Integration of climate adaption into basic education curriculum from Grade 4 elementary to 4th Year High School
 - Household preparedness
 - 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
 - Mountain Survival and compass reading
 - 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
 - Continuous and Periodic Education and Training of Disaster Personnel

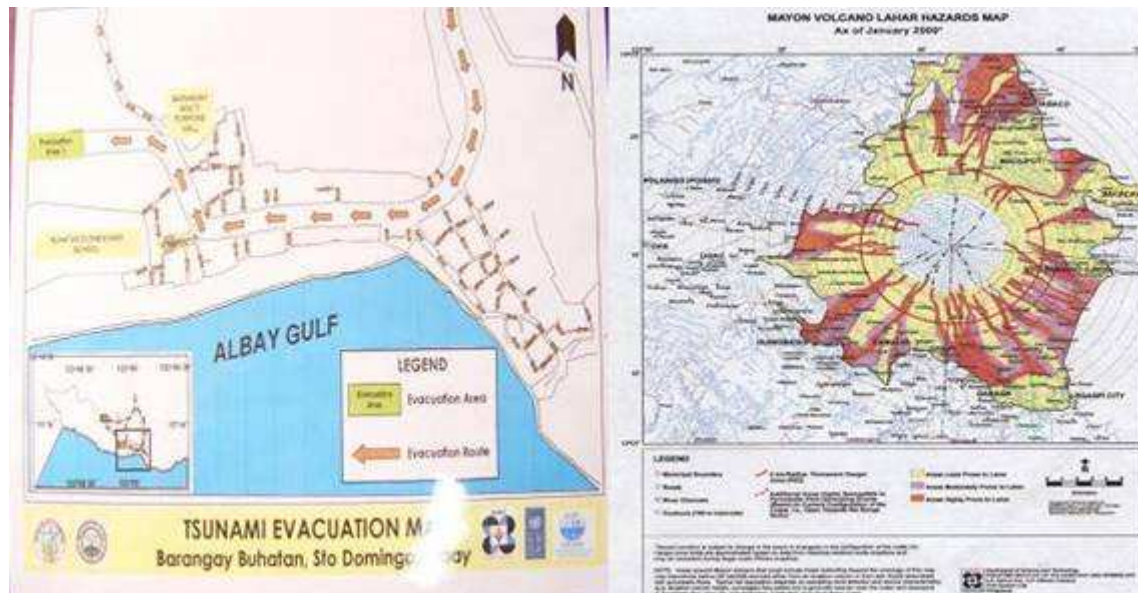
- **Source of Funds**

- Regular annual provincial budget
 - Curriculum integration funded by AECID UNDP MDG F

Social Preparations



Barangay Risk Mapping during the CBDRM Seminar in Camalig Alnay



Community Training and Seminar



TAGAS
VULNERABILITY / CAPABILITY ASSESSMENT

VULNERABILITY	CAPABILITY
1. FLOOD PRONE AREA - YAWA RIVER	1. MOST RESIDENTS HAVE CELLPHONES AND OTHER MEANS OF COMMUNICATION
2. MORE OR LESS 30 DISABLED RESIDENTS	2. MOST RESIDENTS WERE ABOVE AVERAGE IN INCOME LEVELS
3. PRONE TO TRAFFIC ACCIDENTS DUE TO LACK OF TRAFFIC LIGHTS	3. PRESENCE OF VARIOUS BUS ESTABLISHMENTS
4. LACK OF STREET LIGHTS	4. NEAR THE TOWN PROPER
5. INADEQUATE DRAINAGE SYSTEM	5. CENTER OF HEALTH SERVES RESIDENTS PHYSICIAN AND 1 HEALTH WORKERS
6. LACK OF WATER FACILITIES FOR DRINKING & WASHING PURPOSES	6. CENTER OF RELIGIOUS IS NEAR TO THE AIRPORT
7. TRACES OF AIRBORNE AND WATER POLLUTION	8. WITH 2 STOREY BARS
8. AIRBORNE POLLUTION	9. HAS MOBILE PHONES
9. WITH LACK OF MAINTENANCE	10. SUFFICIENT IN BREAD
10. SOME PARTS WITH INADEQUATE AND SYSTEM	

School Drills: Quarterly Synchronized EQ drills



Starting them early



Children DRR through Games



Children DRR through Magic



Training of Rescue Team



ESSENTIAL 8: Protect ecosystems and natural buffer zones to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to climate change by building on good risk reduction practices. [\[HFA 4\]](#)



Key Questions:

1. Does the local government support the restoration, protection and sustainable management of **ecosystems services** (e.g. forests, coastal zones, wetlands, water resources, livestock, fisheries, river-basins) to reduce local vulnerability and protection against floods, drought, landslides or seismic hazards?
2. Have there been significant disaster risk reduction **successes** in particular ecosystems in your local area?
3. Is there an adequate **coordination** between the relevant different levels of government for protecting ecosystems and natural buffer zones?
4. Do **civil society** organizations and citizens support the restoration, protection and sustainable management of ecosystems services (as above)?
5. Is the **private sector** a contributor and supporter of environmental and ecosystems management in your city /municipality?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Resources for Institutionalized Climate Office

- **Program office: CIRCA**

- created by ordinance in 2007 with regular provincial budget
- Implement MDG-F JP
 - Localized climate scenario
 - climate-proof CLUP
 - Integration of climate change into curriculum (Gr 4 to 4th year)
- Advocacy and knowledge management
 - National Conference on Climate Change Adaptation (2007, 2009)
 - Principal proponent / advocate of Climate Change Commission – enacted into law
 - LGU Summit (2010)
 - Climate Change Academy
 - Disaster City
 - Climate sciences center at Bicol University

- **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

CIRCA



GO-Environment and Eco-Cultural Tourism/CIRCA Working Staff



Albay Provincial Capitol Annex 2 Legazpi City, Philippines



Nong C. Rangasa and Jojo Elvira Green Economist Governor's Staff



GO-Environment and Eco-Cultural Tourism/CIRCA Office wallpaper

Resources for Institutionalized MDG Office

- **Program office: AMDGO**
 - created by ordinance in 2009 with regular provincial budget
 - Oversight to MDG performance and secretariat to MDG Supercom
 - Management MDG projects
 - Manages relocation program
 - Social assets programs esp livelihood like SEA-K, ETODA
 - CRABS or coastal and marine resources management
 - AIDS Council – HIV/AIDS advocacy
- **Sources of Funds**
 - Regular allocation from the annual provincial budget (IRA)
 - Intermittent but steady flow of technical and logistical assistance from NG agencies, UNDP and other UN offices, INGOs, NGOs for capacity building and skills training

Protect ecosystems & natural buffers to mitigate hazards, adapt to climate change.

- Planting of mangroves in suitable coastal areas in joint venture with corporations, cooperatives and NGOs
- Reforestation of degraded forest along Mayon river systems
- Clean up operation of the river system
- Segregation of wastes and garbages.
- Sanitary landfill projects in safer locations in Legazpi City, etc.
- Use of drought-resistant / submergence-resistant varieties in agriculture

ADAPTATION ACTION

In partnership with PNOC-EDC

Poliqui Bay, Manito, Albay – 90 Hectare Mangrove Plantation



ADAPTATION ACTION

In partnership with PNOC-EDC

Poliqui Bay, Manito, Albay – 90 Hectare Mangrove Plantation



ADAPTATION ACTION

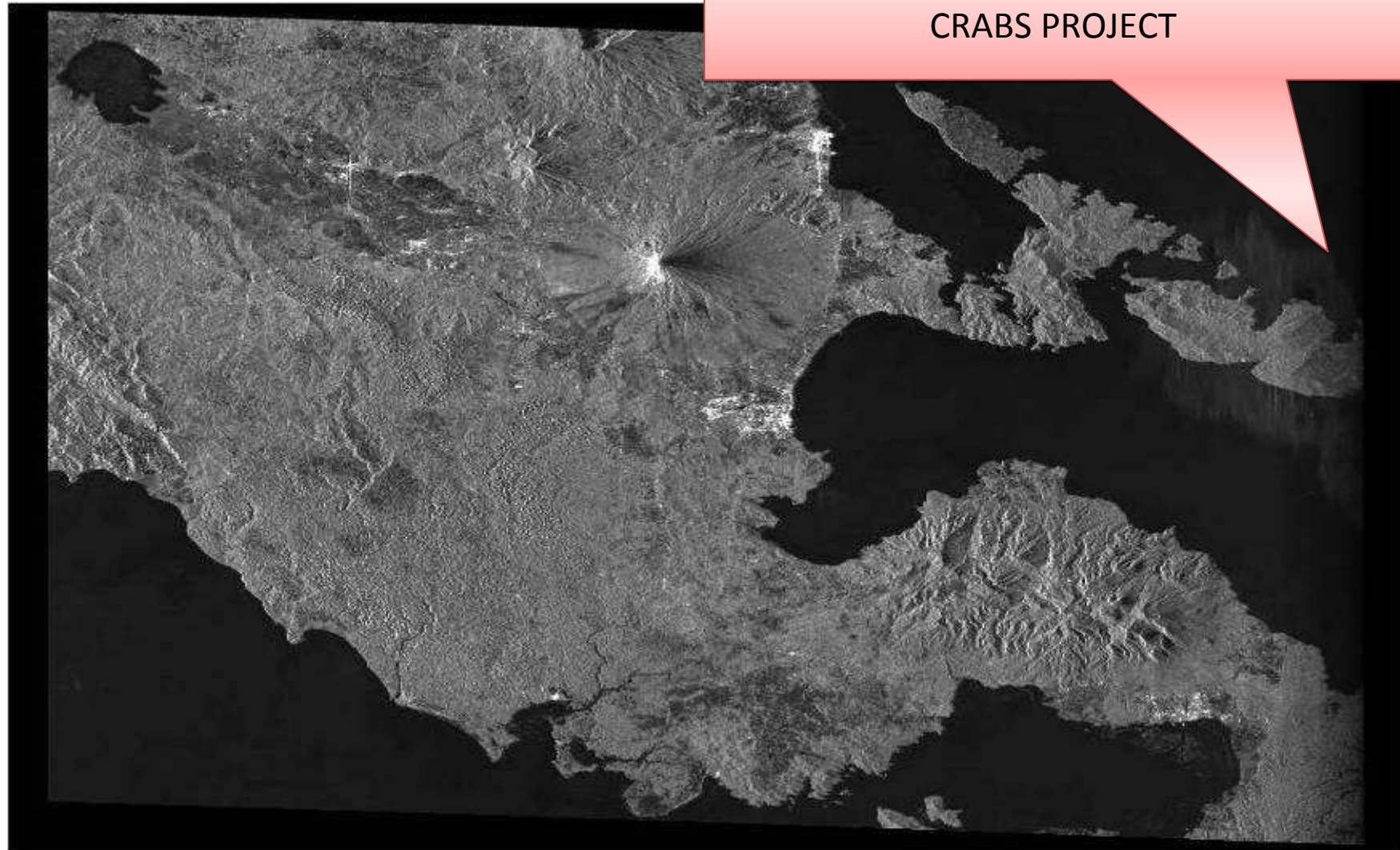
In partnership with PNOC-EDC

Poliqui Bay, Manito, Albay – 90 Hectare Mangrove Plantation





Coastal Marine Resource Management (CRABS)



MITIGATION



CAGRARAY ISLAND

**WINDFARM with
SUECO**

ESSENTIAL 9: Install **early warning systems and emergency management** capacities in your city and hold regular public preparedness drills. [\[HFA 5\]](#)



Key Questions:

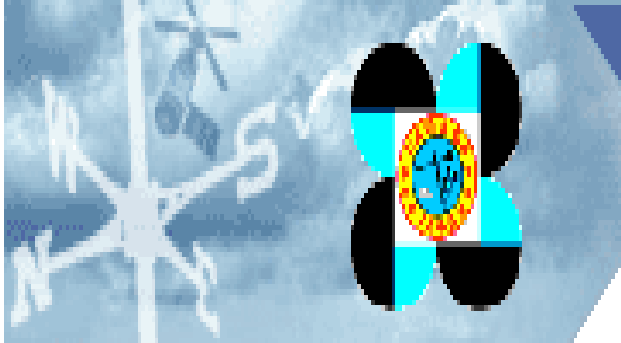
1. Are **warning centres** established, adequately staffed (or on-call personnel) and well resourced (power back ups, equipment redundancy etc.) at all times?
2. Are regular **training drills** and rehearsal carried out with the participation of relevant government, non-governmental, local leaders and volunteers?
3. Are there community-based **early warning systems** in place, which take local, national and regional knowledge of risks into account and are able to reach the most vulnerable (high-risk) communities?
4. Are sufficient amounts of **emergency supplies** (stockpiles of relief supplies) available at all times?
5. Are **emergency shelters** available?
6. Are safe **evacuation routes** identified, mapped and maintained and well communicated to the community?
7. Does a **contingency plan** or a community disaster preparedness plan exist for all major hazards? Are these plans tested regularly through community **drills** or simulation exercises?
8. Is the **media** and the general public aware of and informed about disaster risks and how to deal with them?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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Resources for Preparedness

- **Close coordination with warning agencies**
 - Pagasa is sole authority
 - Establishment of Regional Weather Bureau in Legazpi
 - Upper air balloon to improve detection
 - JICA Reming assistance: Doppler radar in Virac
- **Community-based warning system**
 - Rainfall monitoring at village level
 - Continuous training
 - Source of Funds: Provincial Government budget
- **Warning communications protocol**
 - **Infoboard**
 - Assigned 15,750 SIM cards to village officials
 - Source of Funds: CSR of Smart

Community-Based Early Warning



**Warning
Agencies**



APSEMO



**Communities
LGUS**



Doppler Radar



Albay Preemptive Evacuation Decision Rules

P/G	80kph	120 kph	More than 120 kph
Direct hit	Rainfall (activation of EOC)	Evacuation at TS2	Evacuation at TS1
15% (based on PAGASA tracking)	Rainfall (activation of EOC)	Evacuation at TS3	Evacuation at TS2
Within radius	Rainfall (activation of EOC)	Evacuation at TS3	Evacuation at TS3

Flood Warning and Decision Rule

Warning Level	Criteria	Interpretation	Required Actions
0	No Rain	Normal	Normal Community Activities
1	Rain at 1–2.5 mm per hour	Alert Stage	Monitoring of river condition and rainfall
2	Rain at 2.5–4mm per hour	Preparedness Stage	BDCC and Community are preparing for evacuation
3	Rain at 4–5.5mm per hour	Evacuation Stage	Evacuation Movement

Mudflow Warning and Decision Rule

Warning Level	Criteria	Interpretation	Required Actions
0	No Rain	Normal	Normal Community Activities
1	Rain at 10-15 mm per hour	Alert Stage	Monitoring of river condition and rainfall
2	Rain at 25-30 mm per hour	Preparedness Stage	BDCC and Community are preparing for evacuation
3	Rain at 35-40 mm per hour	Evacuation Stage	Evacuation Movement

Landslide Warning Plan

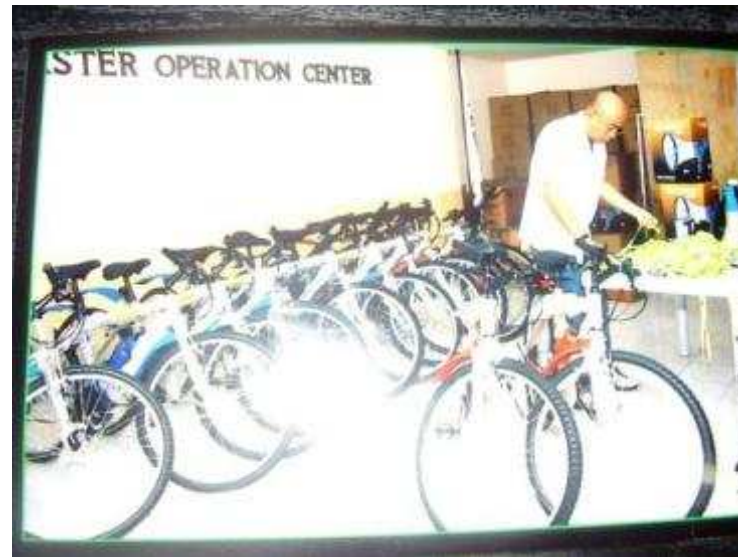
Warning Level	Criteria	Interpretation	Required Actions
0	No Rain	Normal	Normal Community Activities
1	Antecedent Rain of 100mm	Alert Stage	Monitoring of rainfall
2	Antecedent Rain 150 mm	Preparedness Stage	BDCC and Community are preparing for evacuation
3	Antecedent Rain of 180 to 200mm	Evacuation Stage	Evacuation Movement

Community Disaster Preparedness and Response Activities

(Organizing, Education and Trainings)



Community-based Warning Communications





SMART SIM PACK
for the EARLY WARNING
MONITORING SYSTEM

10% DISCOUNT

- LCC Malls (supermarket & department stores)
- Max's Restaurant (Pacific Mall)
- McDonalds Restaurant (Pacific Mall)



Physical Capacity-Building: Mobility Assets could evacuate 160,000 persons/day

	LGU Provincial	Nat'l Agencies	Private
Ambulance	59	4	7
Rubber boats	18	8	
Passenger Trucks	3	54	300+
Helicopter		4	1
Firetrucks		26	8
Water Purifying Machine	1 (32t li/hr) from AECID		
Water Tank Lorry	1 worth P3m		
Com Vehicle	1 worth P14m		

Capacity Buildup: Mobility and Communications



Resources for Preemptive Evacuation

- **Safe Evacuation Centers**

- Construction of Emergency Evacuation Centers.
 - In times of no disaster, they will operate as classrooms or in the case of Daraga as municipal activity centers
 - Cost: P250m
 - Source of Funding: **AECID**, Deped, LGUs
- Emergency Educational Preparedness Program for Mayon Volcano Disaster Areas
 - In times of no disaster, they will operate as schools
 - Cost: P780m
 - Source of Funding: **JICA**

Physical Capacity-Building: Evacuation Centers up to 320,000 persons

Permanent Evacuation Centers (Provincial Government)	3 constructed by Provincial Government funded by AECID 3 being procured funded by AECID 5 are planned, funded by JICA Total Capacity: 10,200
School Camps (National Government)	5,128 classrooms of the Dept of Education evaluated and identified as safe evacuation centers Total Capacity: 320,000

Permanent Evacuation Centers

6 Emergency Evacuation Center from AECID:

- Daraga – Completed as of December 2008
- Guinobatan – Completed
- Camalig – Completed
- Malilipot- For Construction
- Tabaco City- For Construction
- Ligao City- For Construction



Permanent Relocation Centers



AECID Emergency Evacuation Centers



Costing P30M each the EEC consist of:

- 10 classrooms (100 Families or 600 Persons)
- 4 office spaces
- 1 community kitchen
- Gender-sensitive WASH: 2 separate bath for 15Male and 15Female
- 2 separate Toilets for 15Male and 15Female (with 1 dedicated for Differently Abled Persons)
- 1 Power House
- 1 Water Pump
- 4 Overhead Water Tanks
- 1 Supply Room for Relief Commodities

Resources for Preemptive Evacuation

JICA Emergency Evacuation Centers (For Construction in 2010)

6 EEC in the following areas:

1. Sto Domingo (Mayon Eruption, Lahar)
2. Legazpi City (Mayon Eruption, Lahar)
3. Manito (Flooding, Landslide)
4. Libon (Flooding)
5. Polangui (Flooding)
6. Oas (Flooding)

Resources for Preemptive Evacuation

JICA EEC Facilities: (Cost P50M each)

- Two Storey Building
- 20 classrooms (200 Families or 1,200 Persons)
- 4 office spaces
- 1 community kitchen
- 2 separate bath for Male and Female
- 2 separate Toilets for Male and Female
(with 2 dedicated for Differently Abled Persons)
- 1 Power House
- 1 Water Pump
- 4 Overhead Water Tanks
- 1 Supply Room for Relief Commodities

ESSENTIAL 10: After any disaster, ensure that the **needs of the survivors are placed at the centre of reconstruction** with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods. [\[HFA 4\]](#)



Key Questions:

1. Does the city / municipality have access to resources and expertise to assist victims of **psycho-social** (psychological, emotional) impacts of disasters?
2. Are emergency housing and essential emergency food and water provisions available to support effective disaster response and early recovery, especially those most **vulnerable**?
3. Are disaster risk reduction measures integrated into post-disaster **recovery and rehabilitation** activities (i.e. build back better, livelihoods rehabilitation)?
4. Does the **Contingency Plan** (or similar plan) include an outline strategy for post disaster recovery needs including assessment tools, immediate livelihoods rehabilitation etc.?
5. Is there a '**state of emergency**' protocol in your city /municipality?
6. Is the overall disaster preparedness of your city / municipality sufficient to cope with a major **catastrophic event**?

LEVELS	Comprehensive Achievements	Substantial Achievements	Institutional Commitments	Incomplete Achievements	Minor Achievements
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A nighttime photograph of a volcano with a red lava flow. The volcano is the central focus, with a bright red lava flow cascading down its slope. The sky is dark blue, and the foreground shows some trees and buildings with lights.

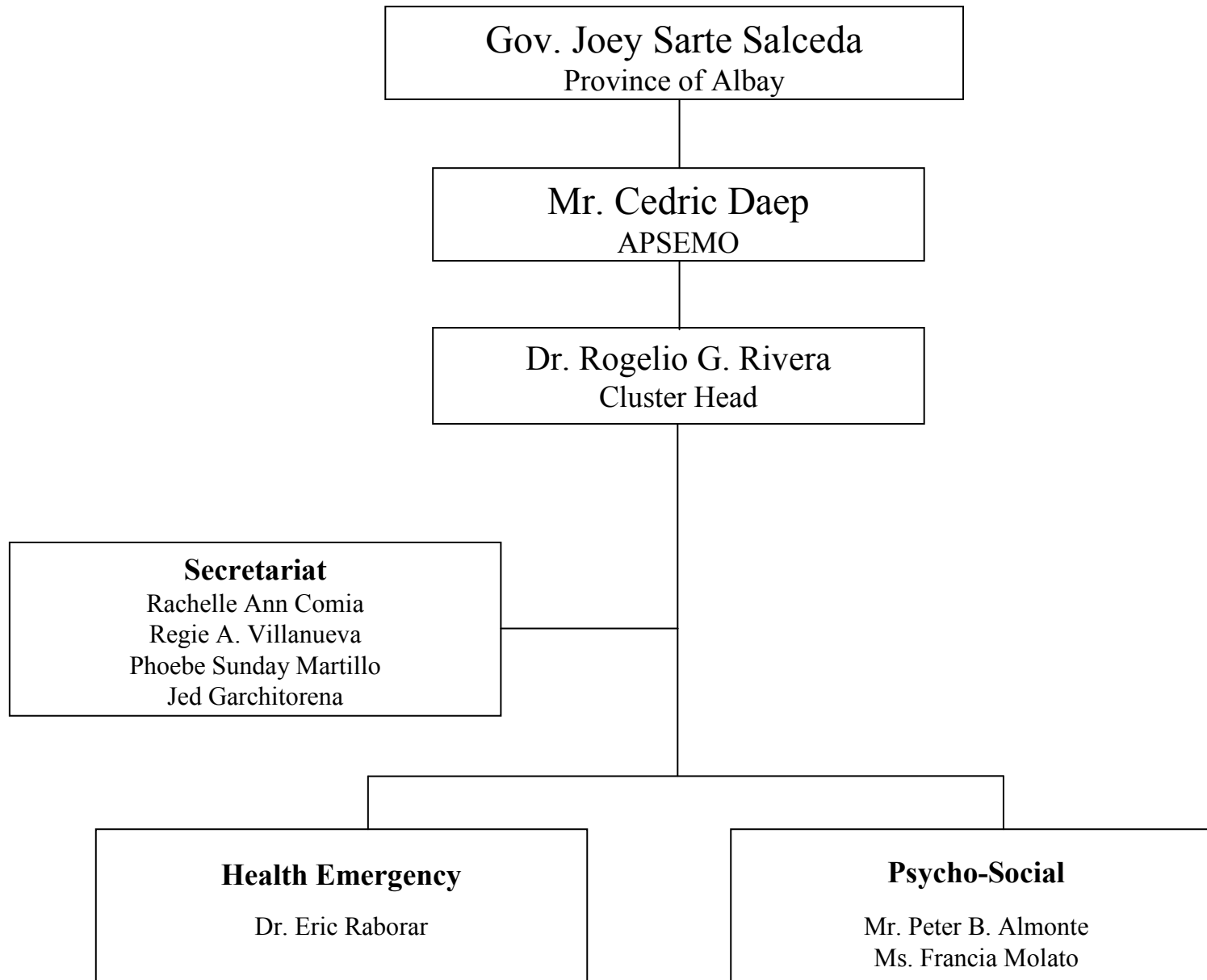
**Health Emergency and Psycho Social Program
Provincial Government of Albay**

ACCOMPLISHMENT REPORT

From December 21-28, 2009

**Dr. Rogelio G. Rivera, MHA, CEO VI
Chief of Hospital III
Bicol Regional Training and Teaching Hospital**

HEALTH EMERGENCY and PSYCHO-SOCIAL ORGANIZATIONAL STRUCTURE (HEPS)



PSYCHO-SOCIAL TASK FORCE - ALBAY

STRATEGY	POINT PERSON / AGENCY
Education Information	Ms. Bebian Alparce BU Guidance Center/College of Nursing 821-79-39 Ms. Leilani Pavilando BU Extension Service 481-16-21
Physical Sports	Captain Razaleigh Bansawan OCD 5 bansawanrazaleighg@yahoo.com 437-81-73
Livelihood	Mr. Jojo Elvira Agri Rehab PGA 481-1297 Ms. Rosalyn Perida TESDA 482-21-01

Entertainment

Ms. Rose Olarte-Orbita
Media

roseolarte@yahoo.com

435-03-32

Dr. Eric N.. Raborar

BRTTH HEMS Coordinator

437-8055

Life Coaching

Marissa Paeste

DSWD

fo5@dswd.gov.ph

480-5346/0929-962-0950

Maja Fransisco

AUL

0916-424-0134

Rose Rivero

PNRC

0915-284-4616

Dra. Evy Sarmiento

CHD 5 / DOH

0908-895-4020

Cristita C. Triunfante

MIDAS

435-3269

PSYCHO-SOCIAL TASK FORCE MEMBER AGENCIES

Bicol Regional Training and Teaching Hospital

Center for Health Development/DOH

TESDA

Office of the Civil Defense

-Philippine National Police

-Philippine Army

-Philippine Navy

-Armed Forces of the Philippines

-Philippine Air Force

-Albay PPO

Department of Social Welfare and Development

ACADEME

Bicol University

Aquinas University

Bicol College

AMA Computer Learning Center

Amando Cope College

NON GOVERNMENT

PNRC National Head Quarter

PNRC Albay Chapter

Save the Children

MIDAS

ACTS/Seventh day Adventists Group

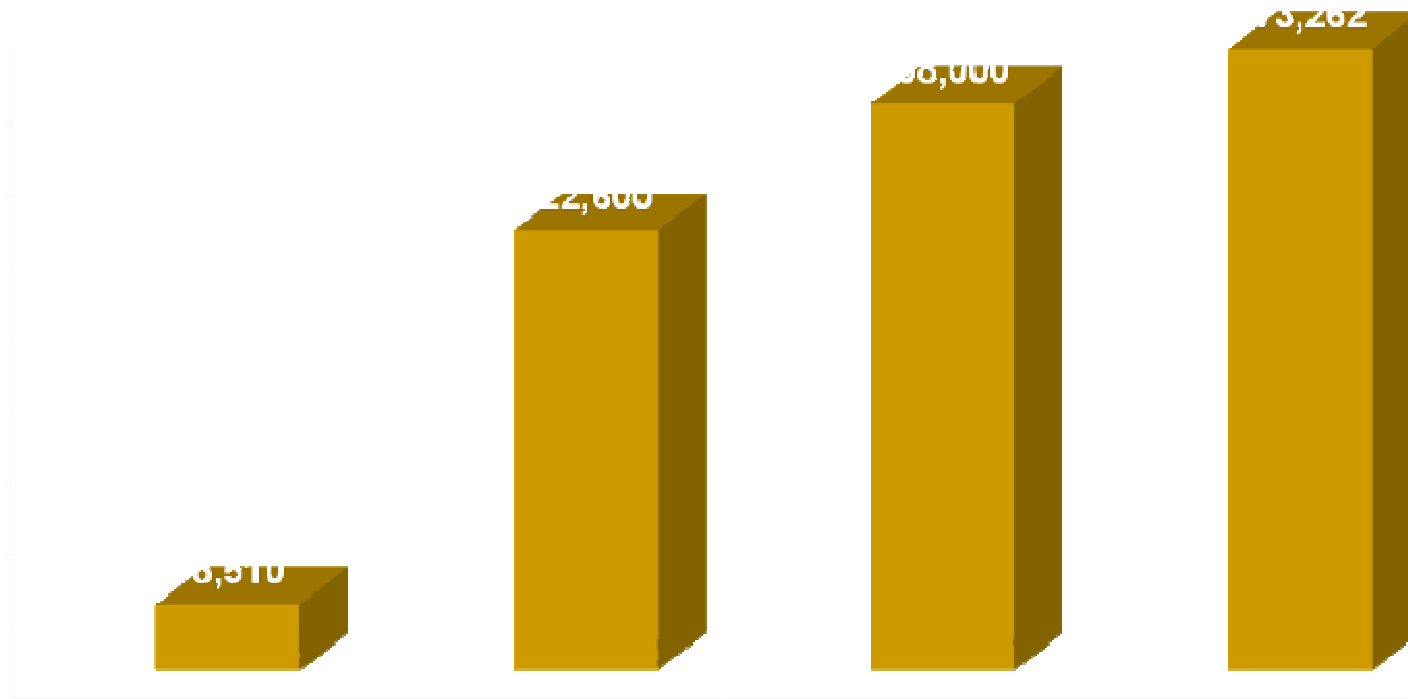
Blue Haze Advertising (Barangay Led Van)

All Media Outlet

BENGX Print

Number of Families INSURED

Universal Health Insurance Coverage: 2007-2010



Cluster Approach to Early Recovery

- **Cluster Approach has proven to be the most workable mechanism for public-private partnership in disaster recovery as the Albay experience demonstrated during the Typhoon Dorian reconstruction.**
 - **Albay MDG Office** as coordinator/secretariat.
 - Logistics – **OCD/APSEMO**
 - Shelter, Housing and Relocation – **PSWDO, NHA. Habitat, Social Action Center**
 - Water Health Sanitation and Nutrition (WASHN) – **PHO, Unicef. Oxfam**
 - Evacuation and Transit Camp Management - **PSWDO**
 - Education and Children – **DepEd**
 - Resource mobilization
 - **Donors' Forum**

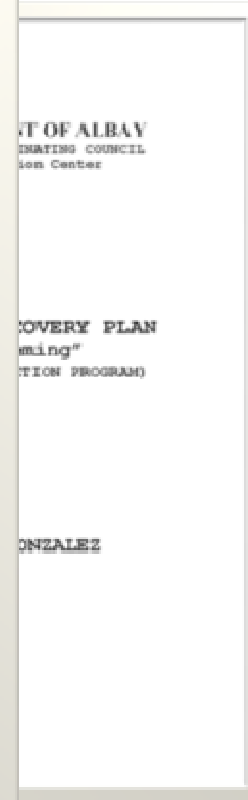
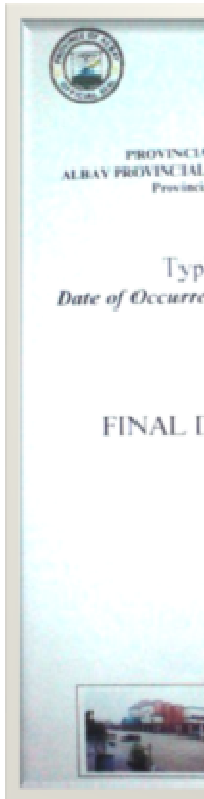


PROVINCIAL GOVERNMENT OF ALBAY
ALBAY PROVINCIAL DISASTER COORDINATING COUNCIL
Provincial Disaster Operation Center

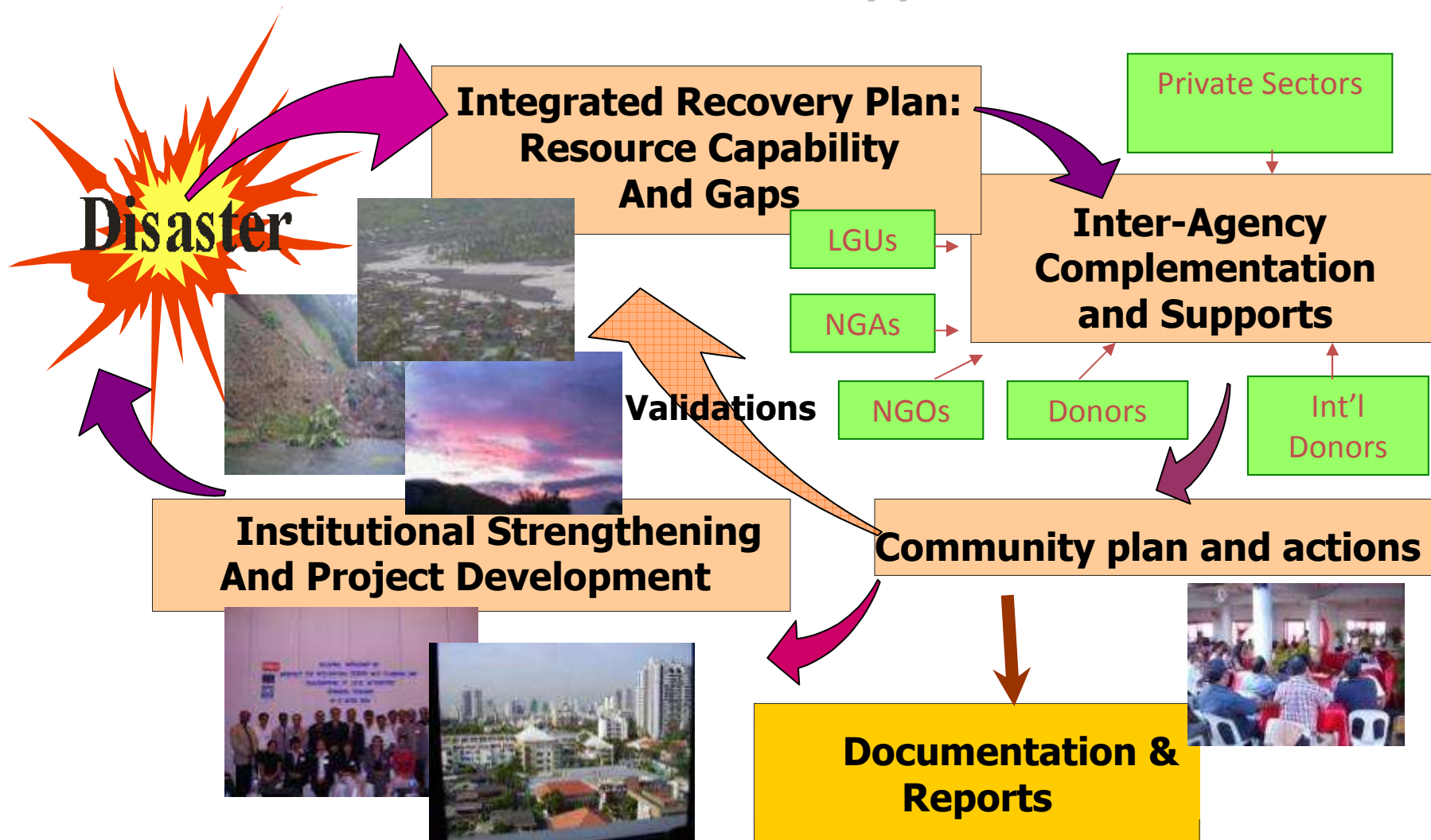
PROPOSED DISASTER RECOVERY PLAN
Super Typhoon "Reming"
(REHABILITATION & RECONSTRUCTION PROGRAM)

HON. FERNANDO V. GONZALEZ
Governor

FEBRUARY, 2007



Resource Mechanism for Recovery: AMDGO Cluster Approach



Resources for Recovery

- **Integrated Recovery Plan**

- Basic Principles:

- Rights-based (entitlement education)
- Beneficiary-led procurement

- Planning office takes over while DMO provides inputs

- Uses results of damage assessment mechanism

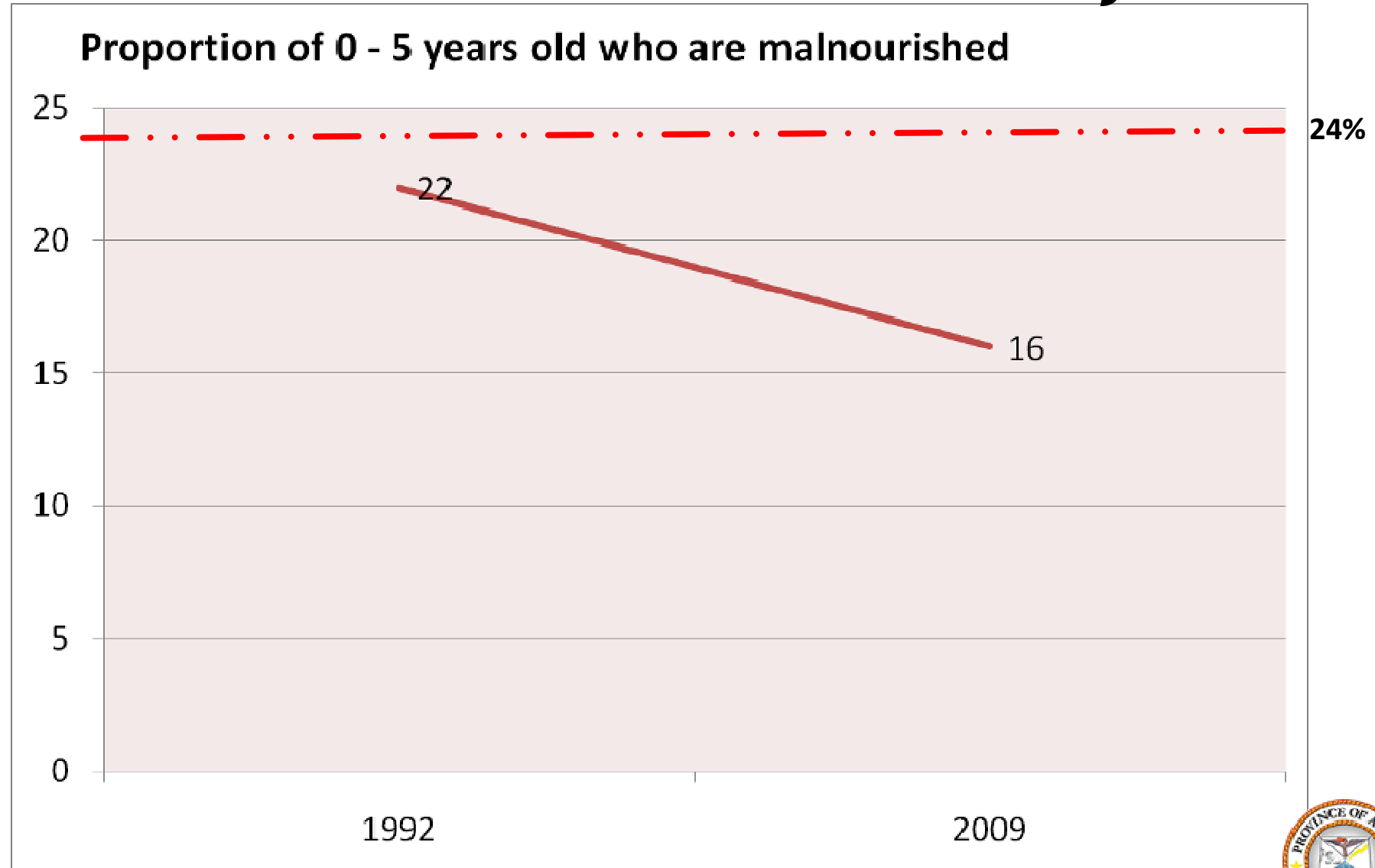
- Correlated with development plan



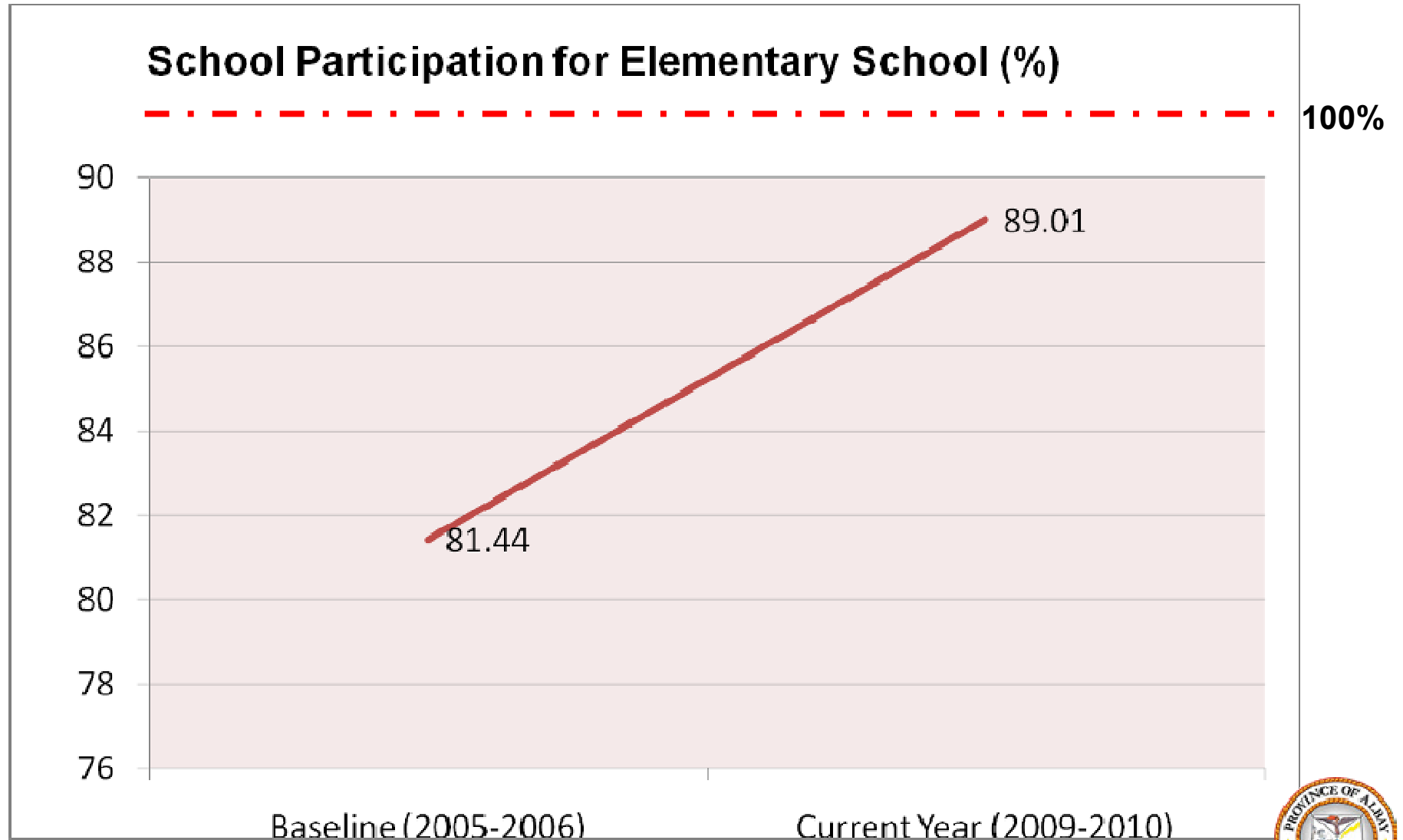
**20th ICLEI ANNIVERSARY
CONGRESS**

Thank You

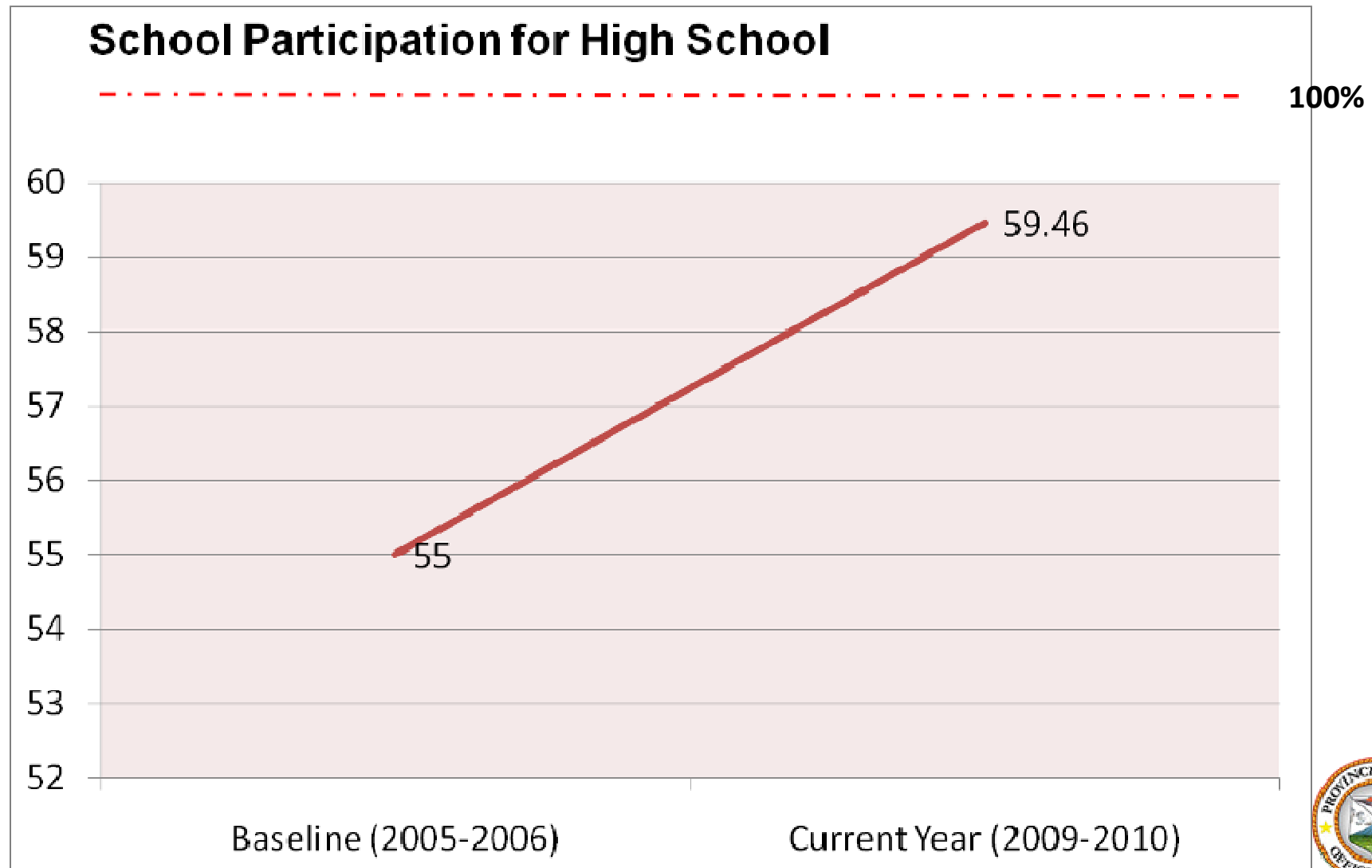
Achievements on MDG, 2009



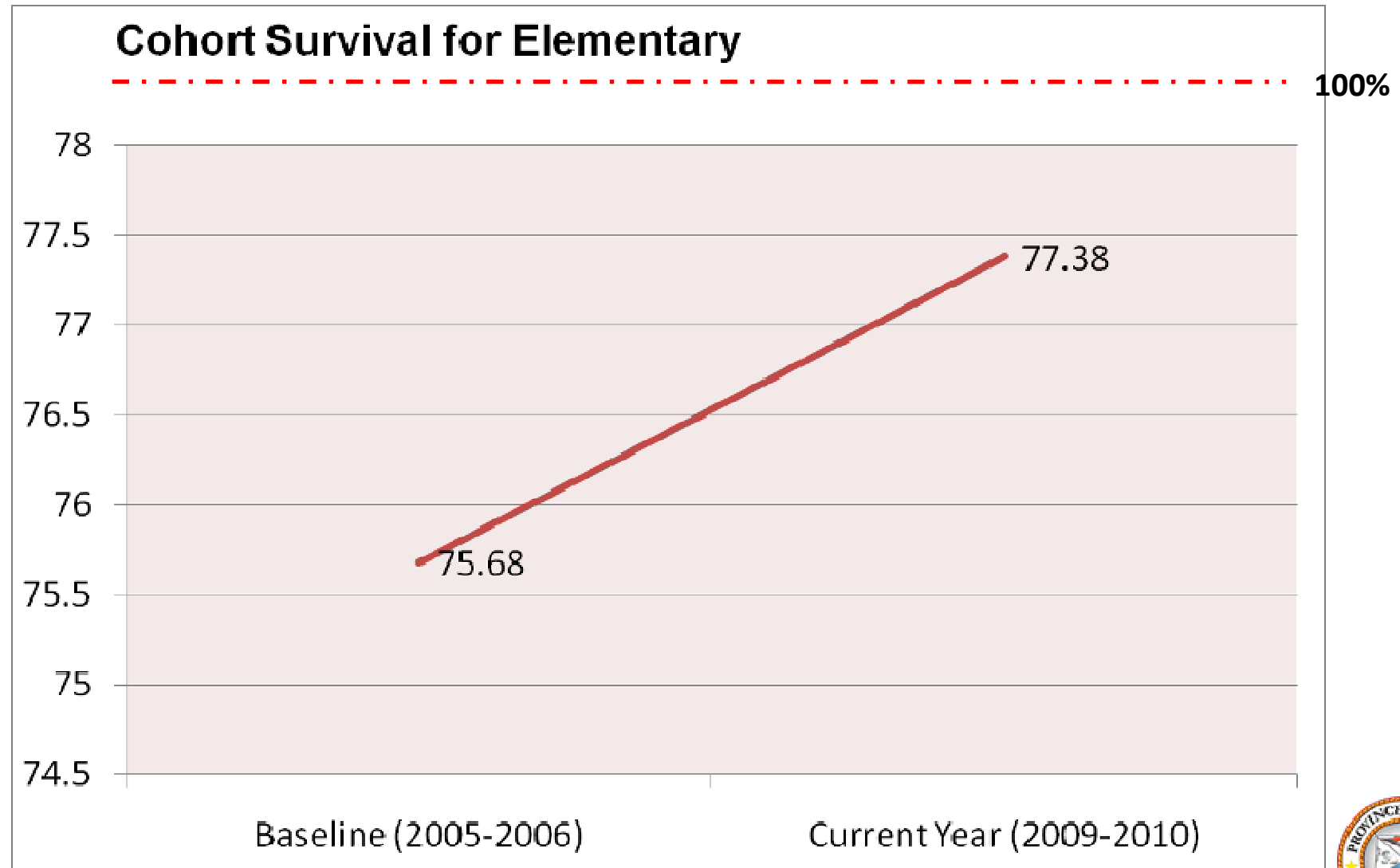
Achievements on MDG, 2009



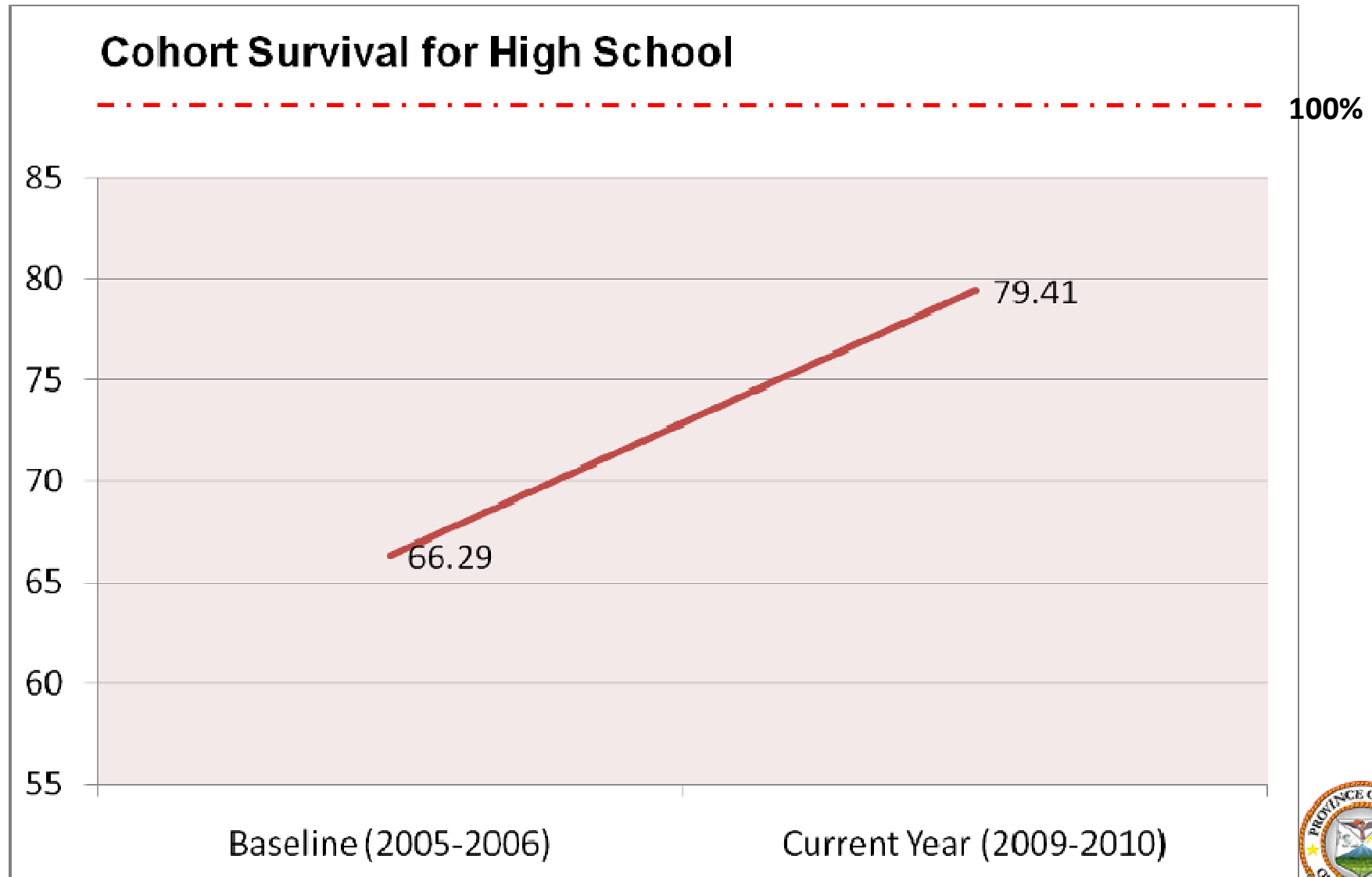
Achievements on MDG, 2009



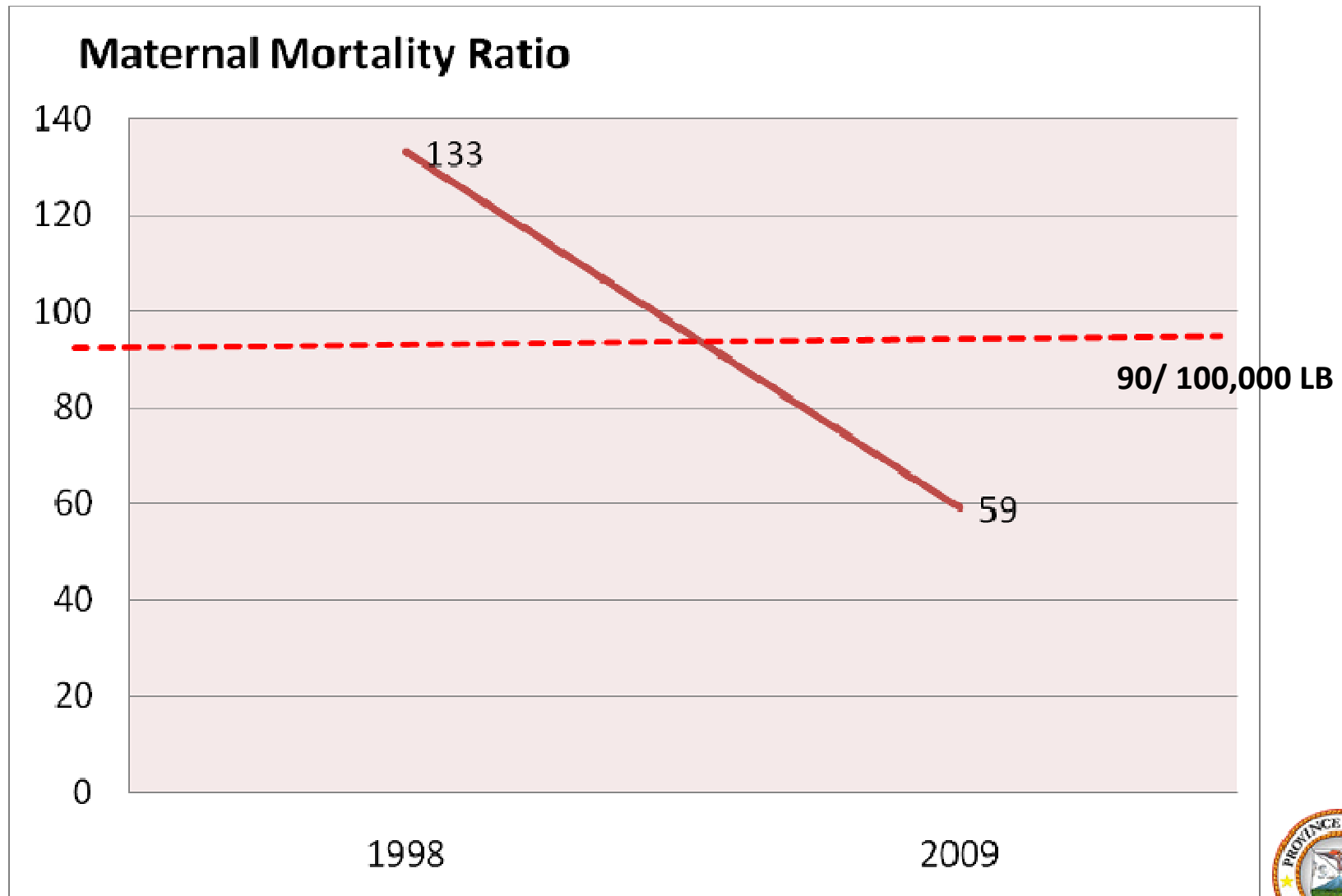
Achievements on MDG, 2009



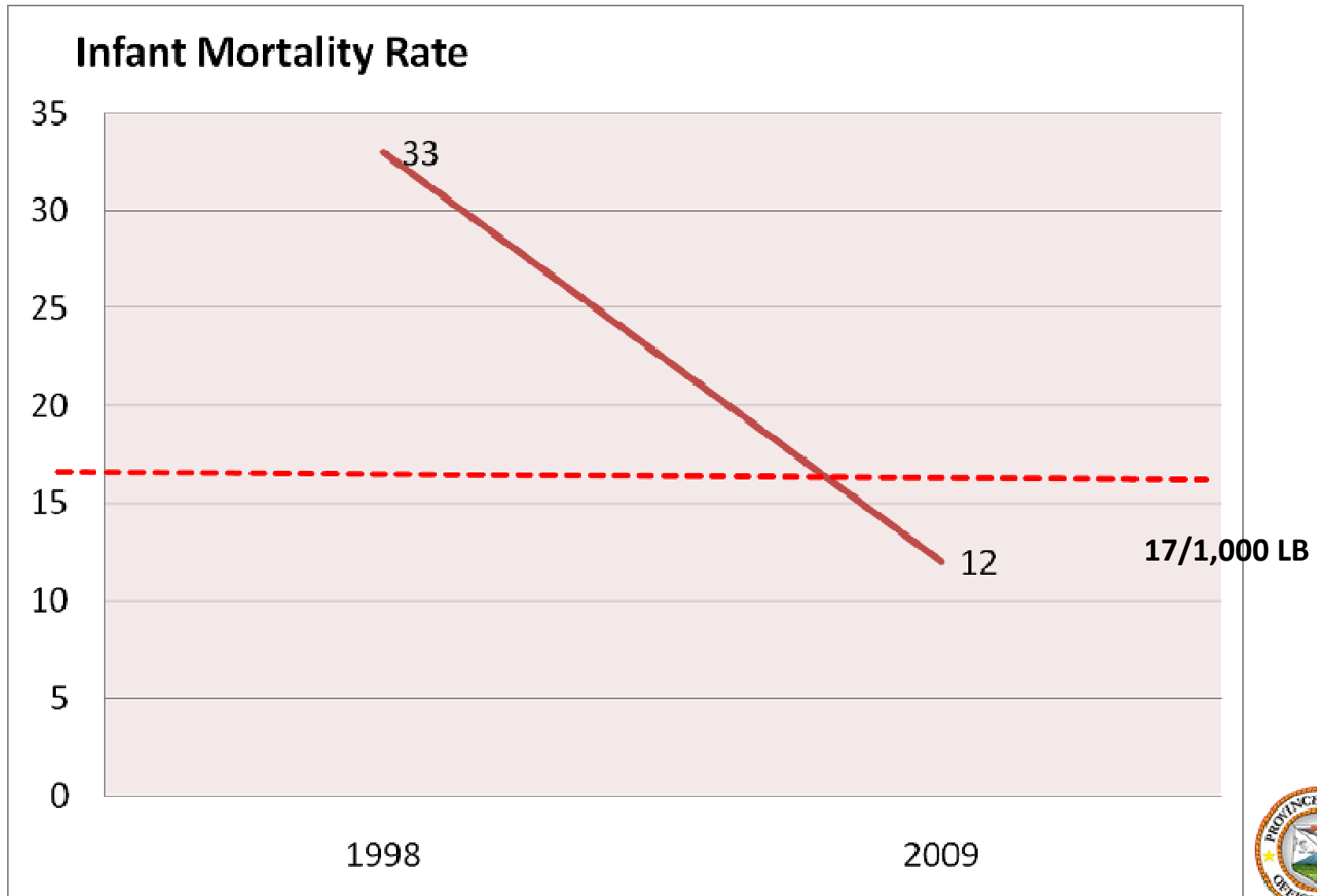
Achievements on MDG, 2009



Achievements on MDG, 2009

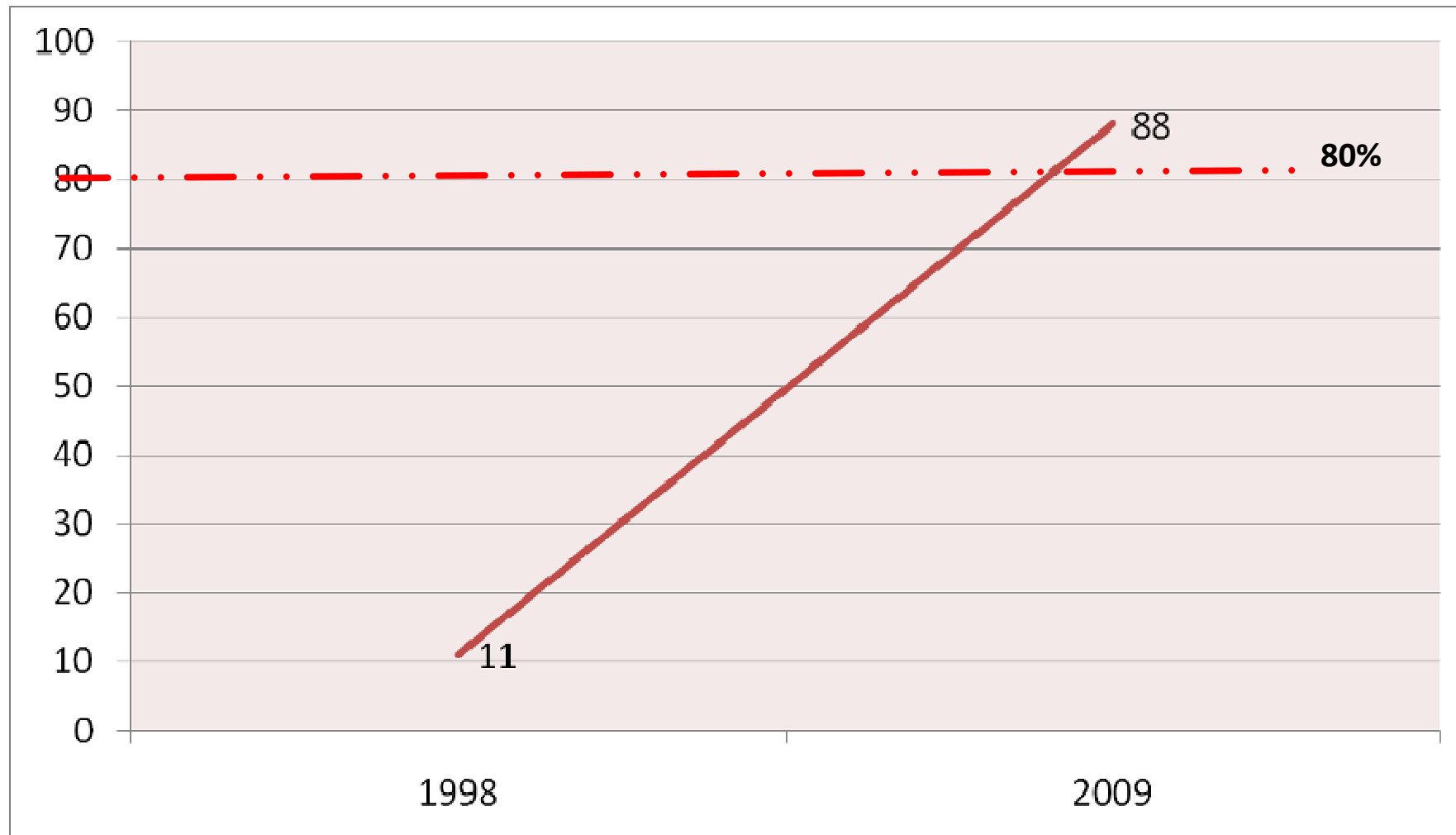


Achievements on MDG, 2009



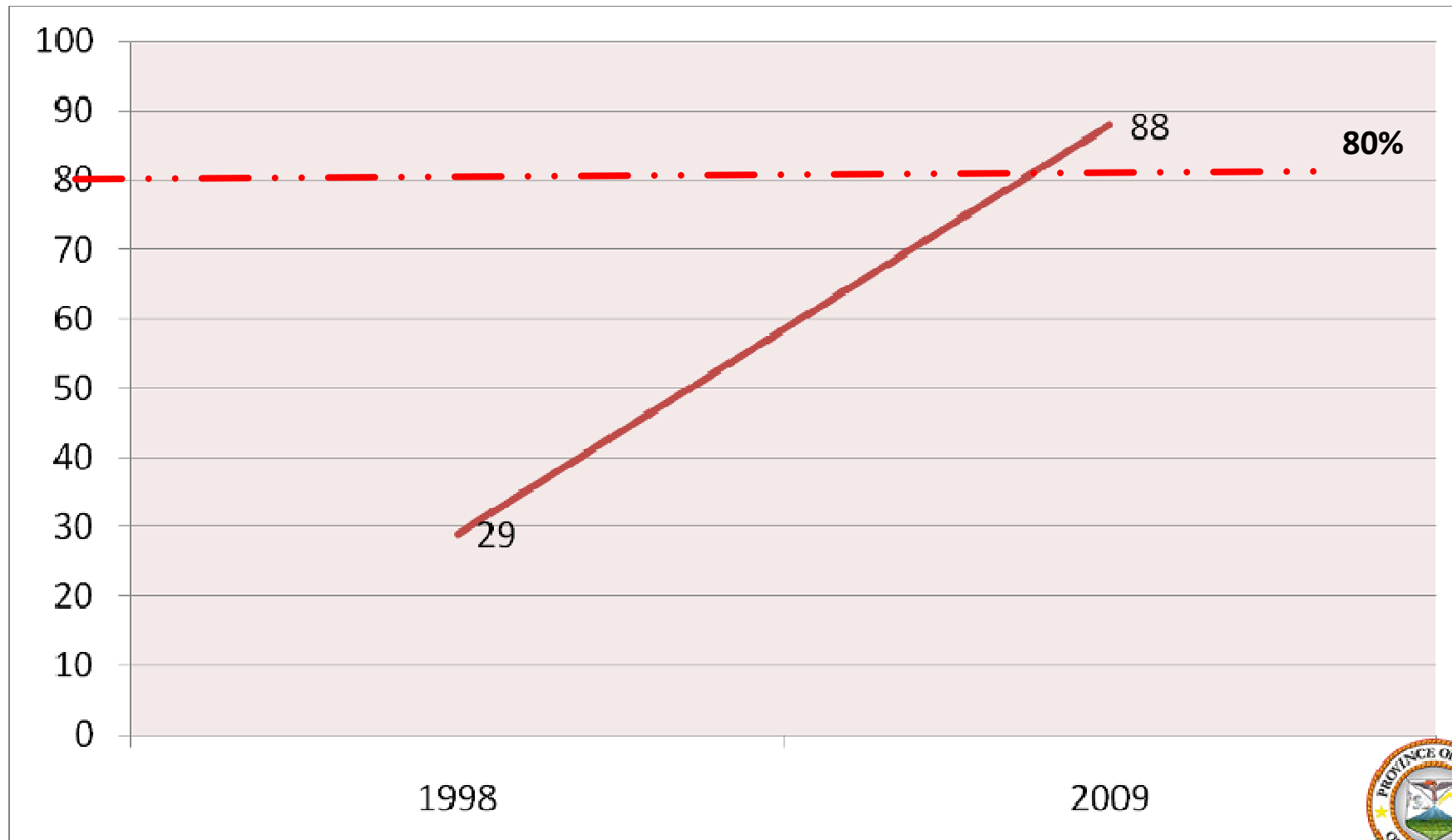
Achievements on MDG, 2009

Proportion of facility-based deliveries



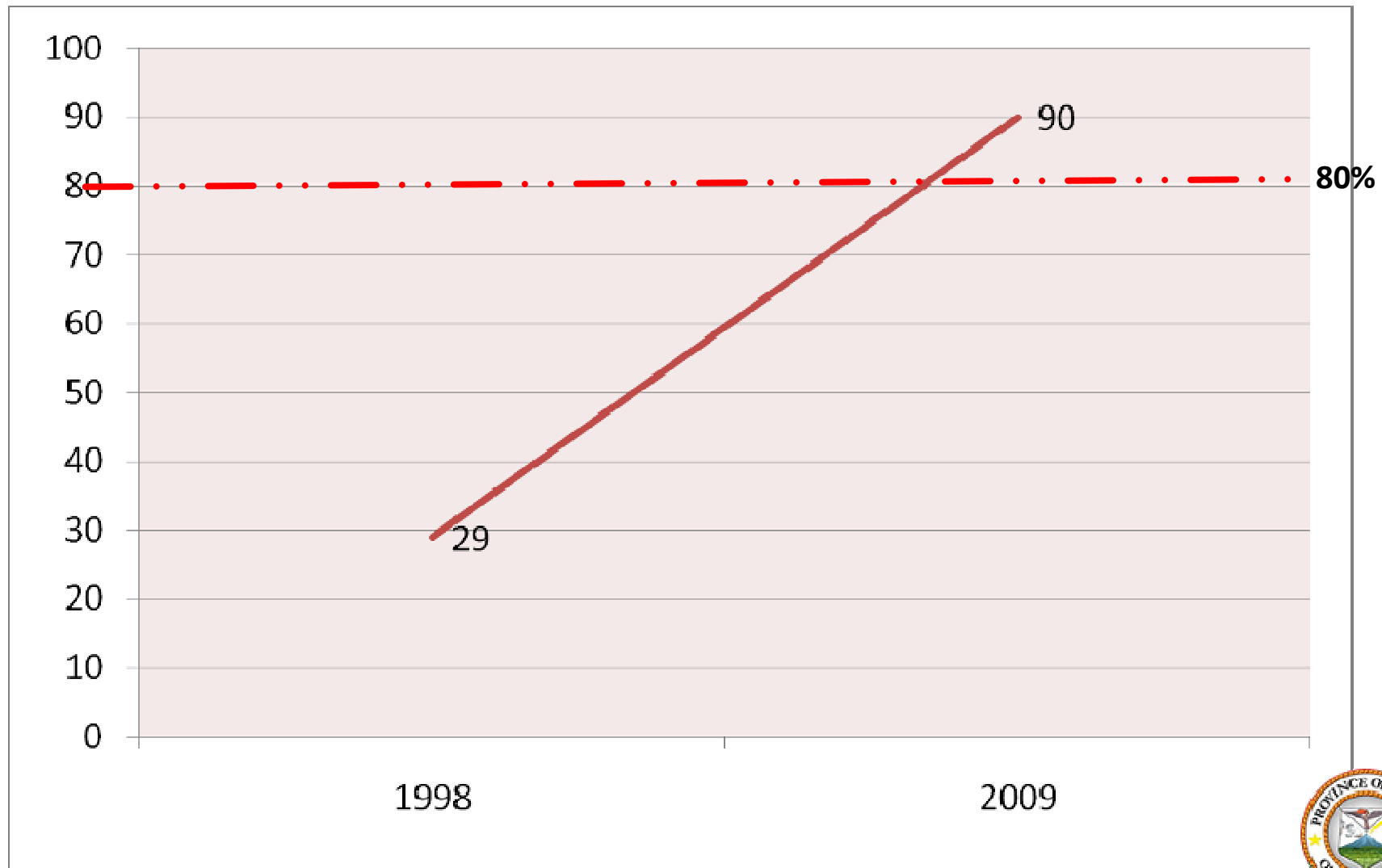
Achievements on MDG, 2009

Proportion of births attended by skilled health personnel

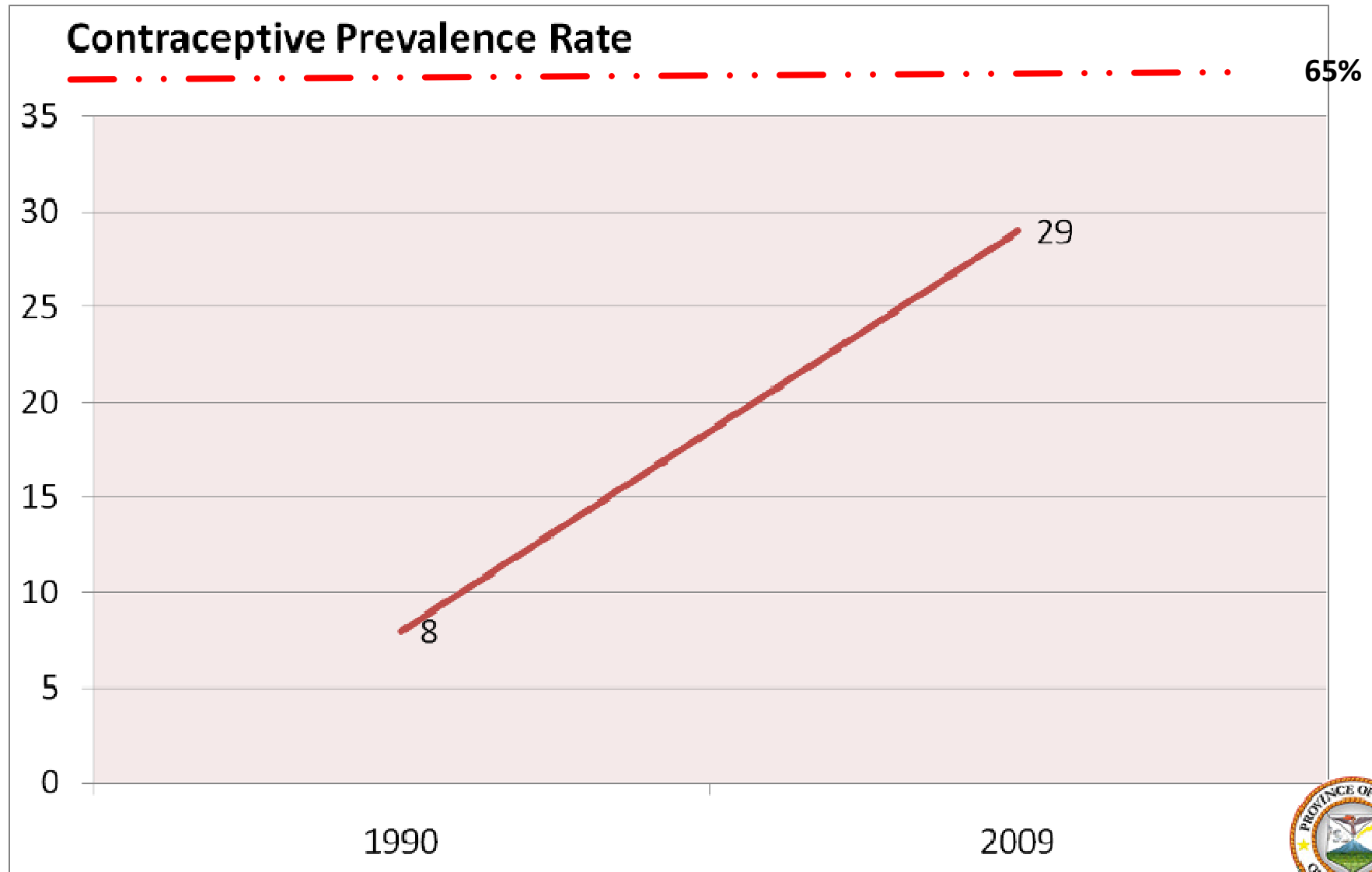


Achievements on MDG, 2009

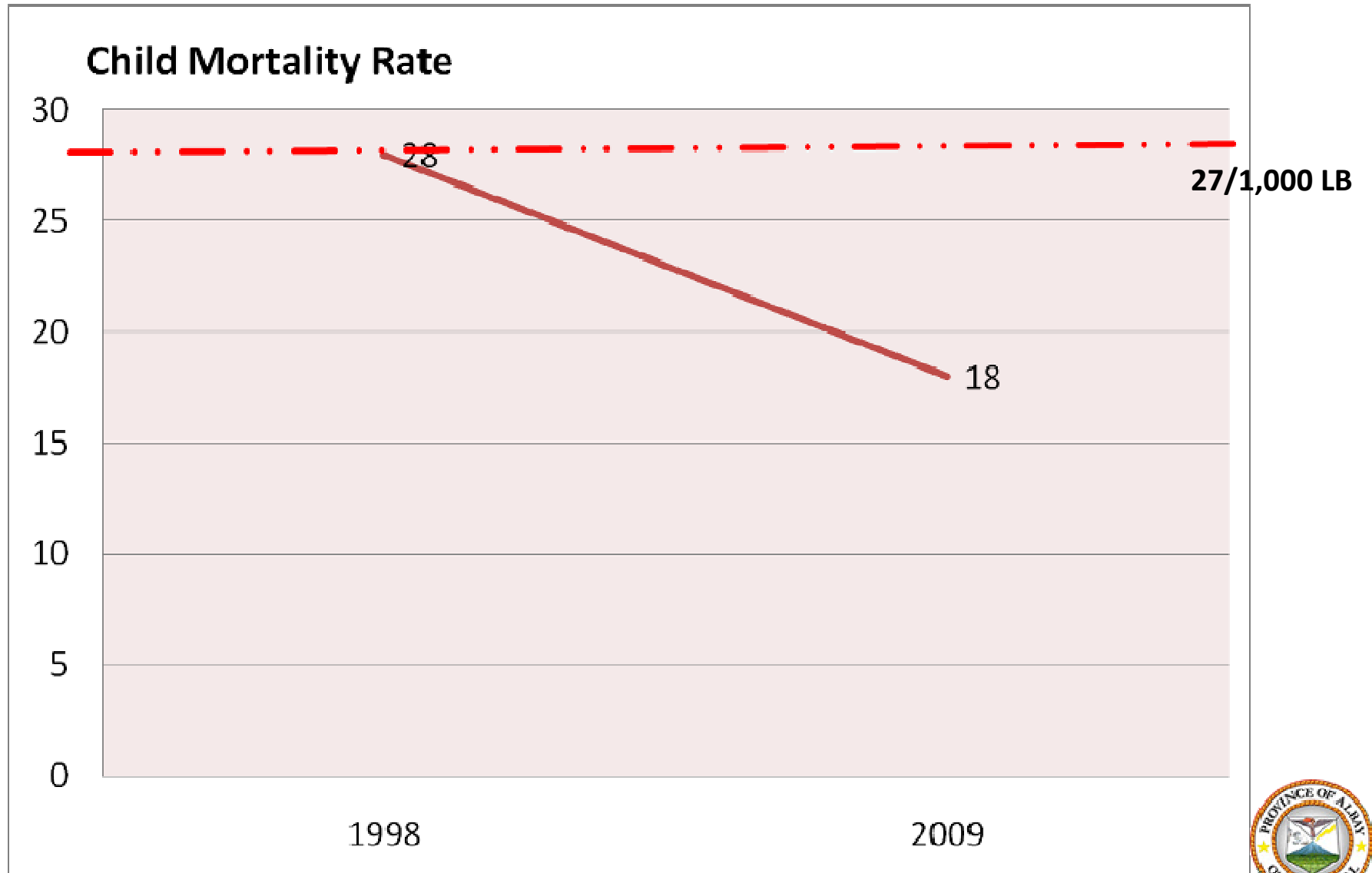
Proportion of births attended by skilled health personnel



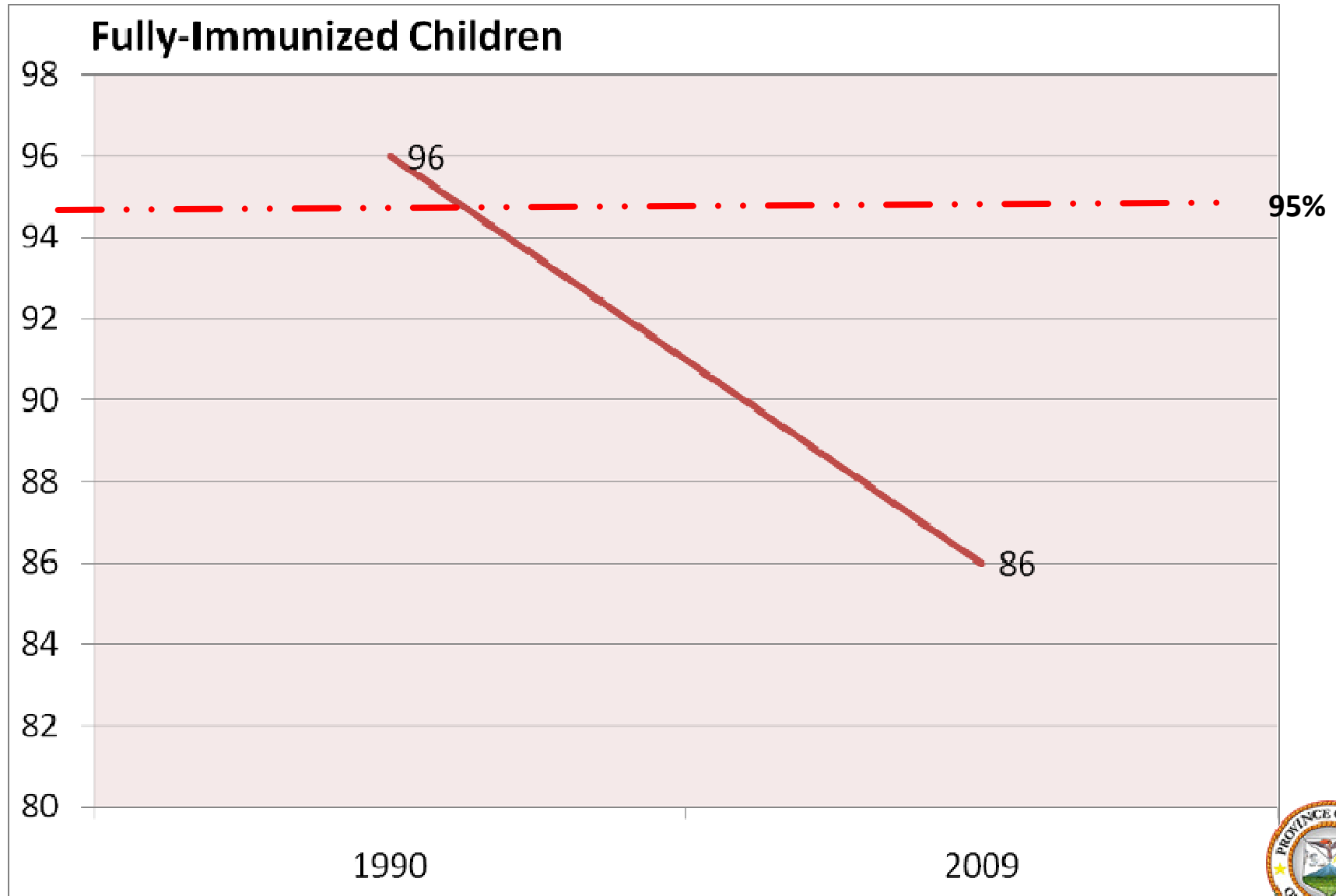
Achievements on MDG, 2009



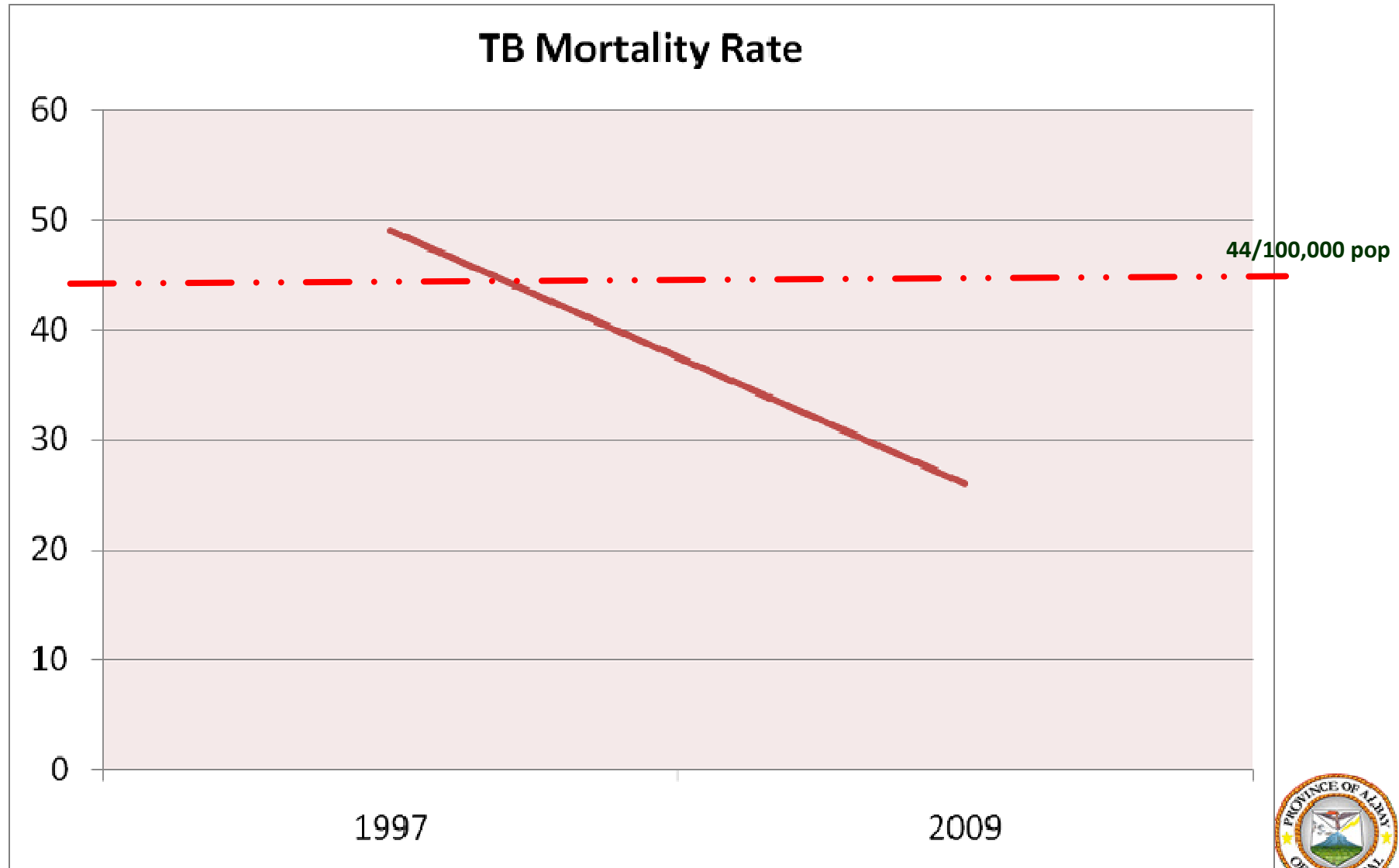
Achievements on MDG, 2009



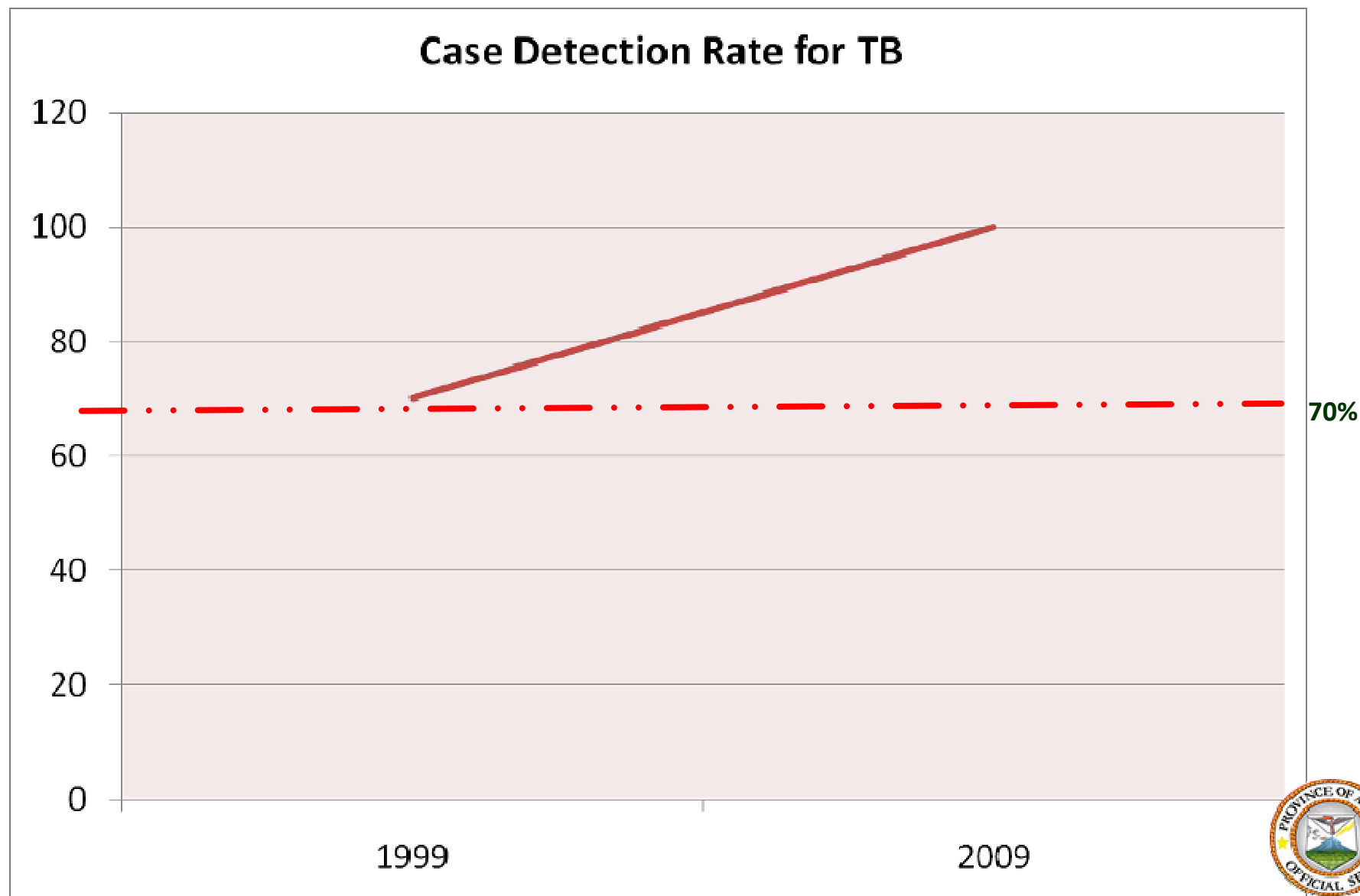
Achievements on MDG, 2009



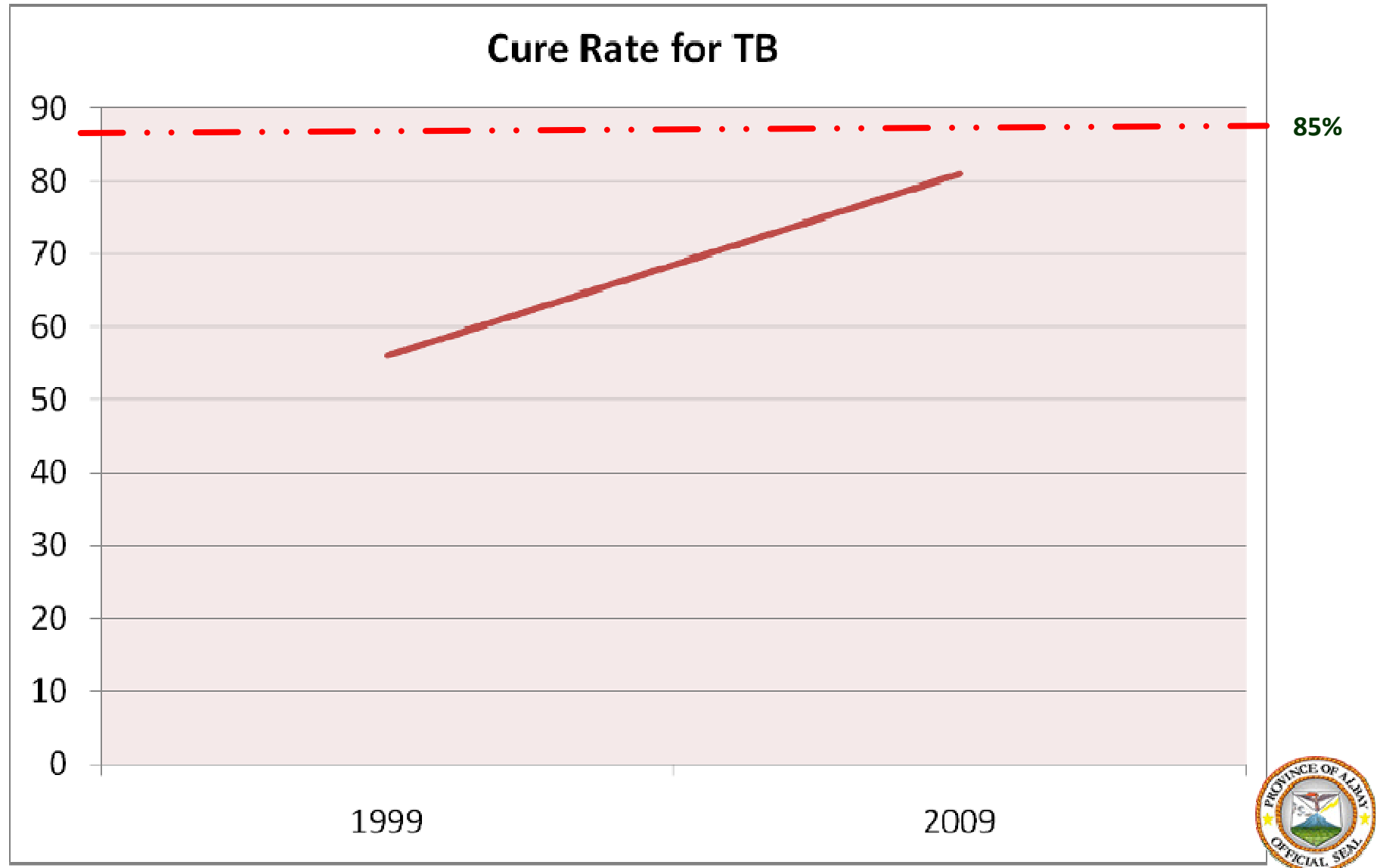
Achievements on MDG



Achievements on MDG



Achievements on MDG

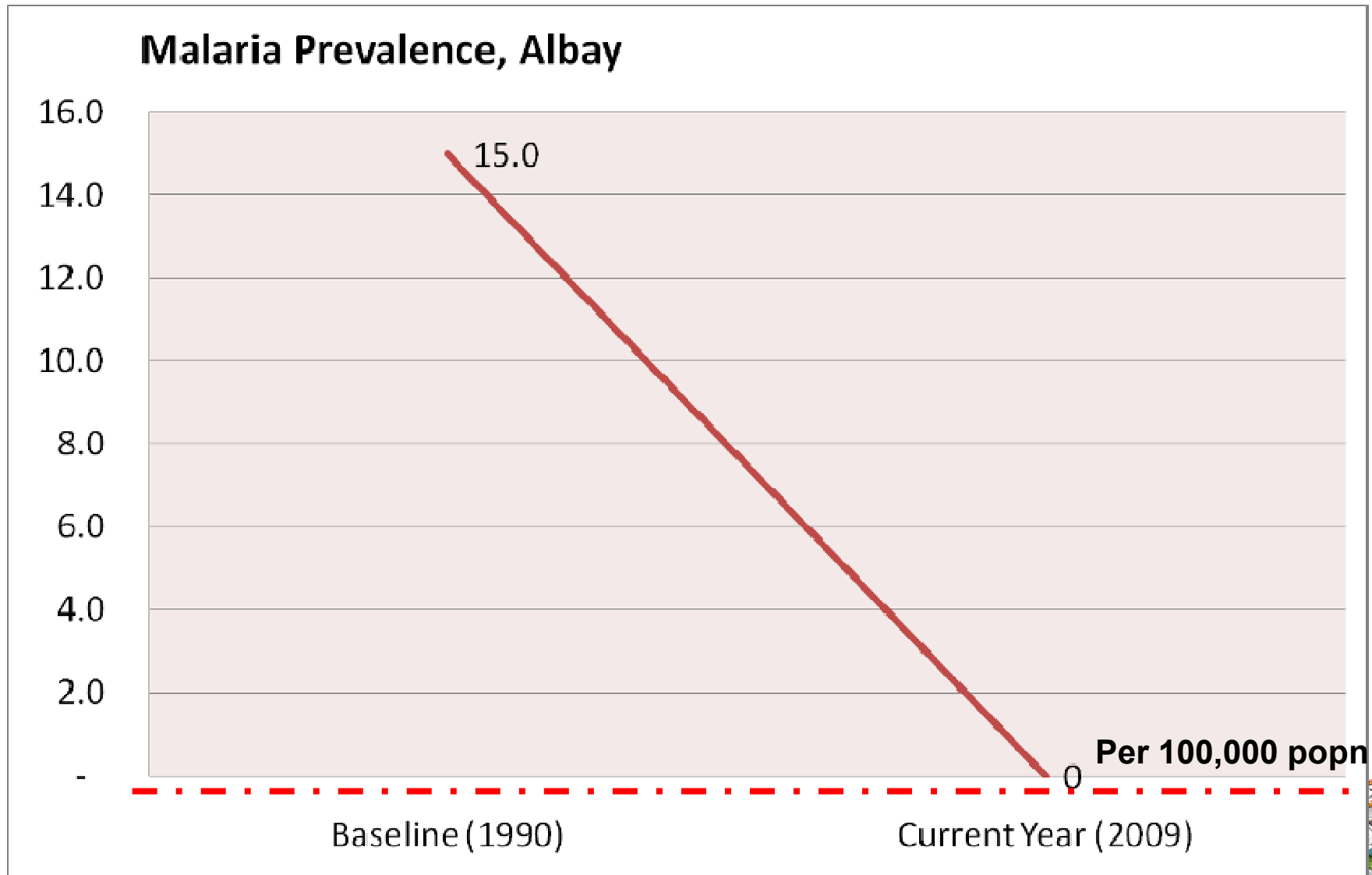


Health Outcomes

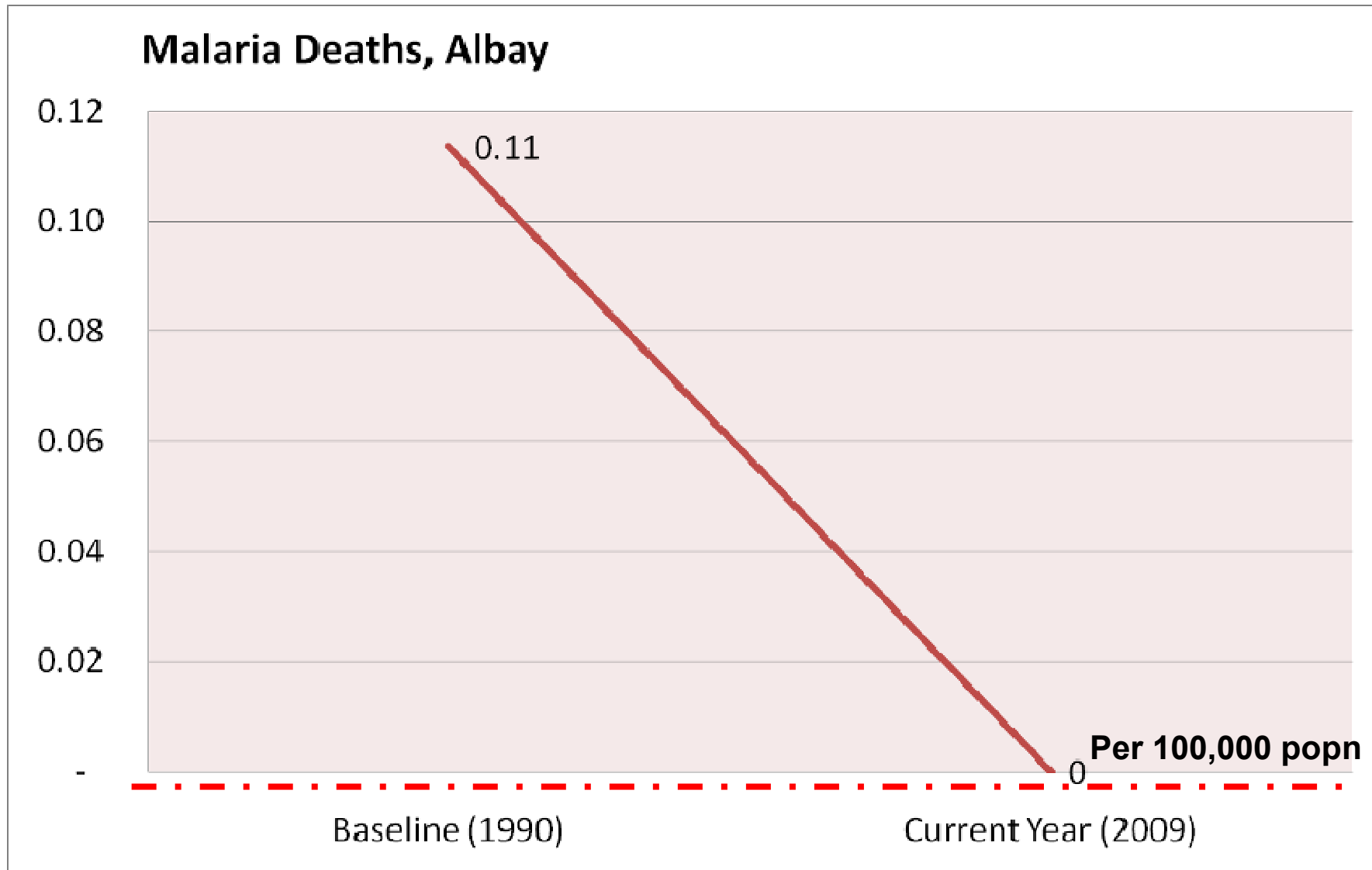
Indicators	National Average (2006)	National Target (2010)	Performance ALBAY (2009)	Gaps/ Gains
Intensified Disease Prevention and Control: TB				
Mortality (per 100,000 pop)	28,000	44	26	(18)
TB Case Detection Rate, % (NTP Register)	72	70	100	30
TB Cure Rate, %	81	85	81	(4)



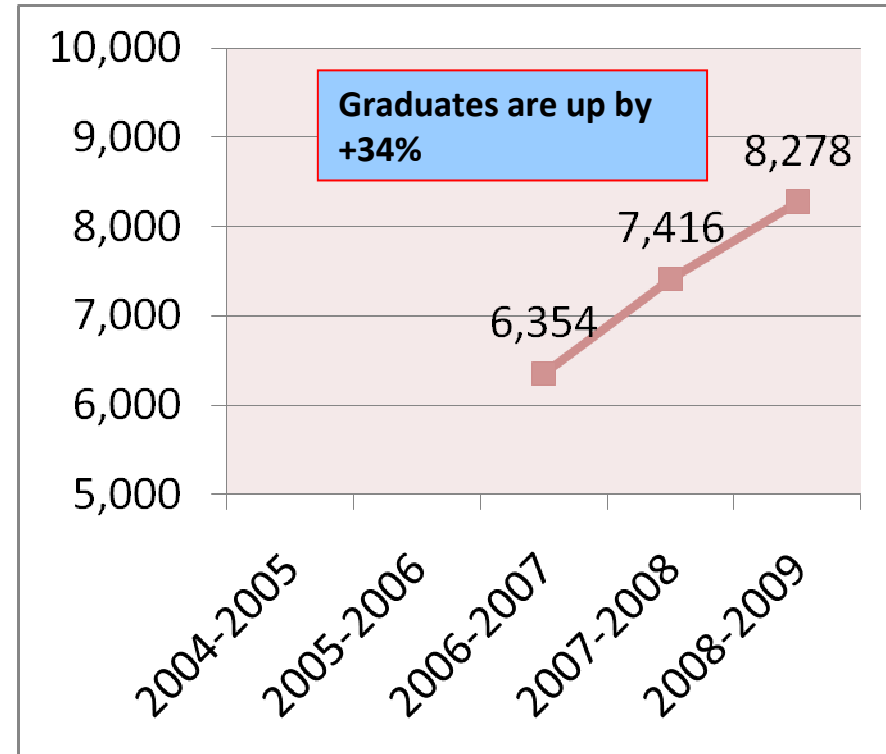
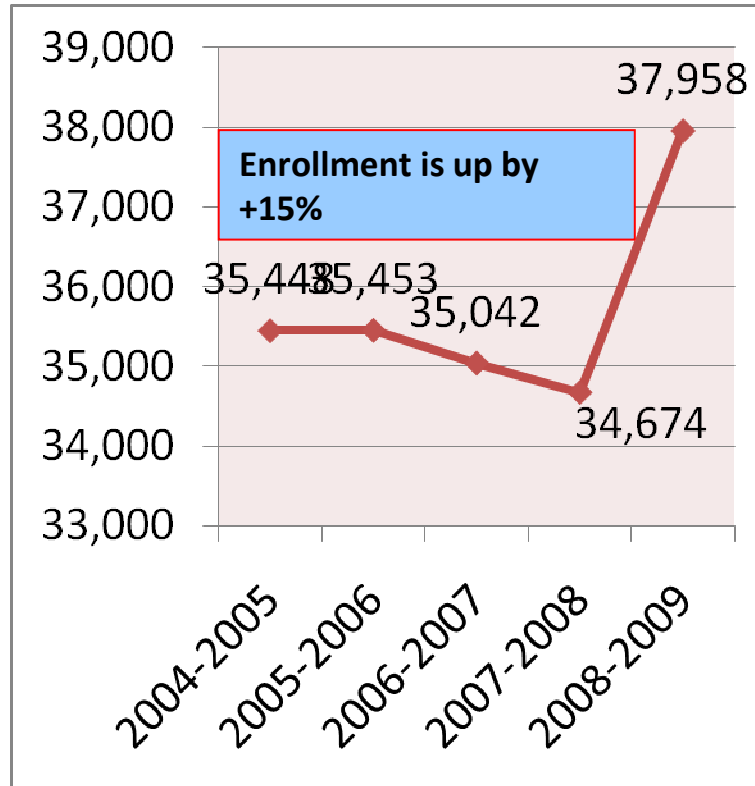
Achievements on MDG, 2009



Achievements on MDG, 2009



More kids in school, more finish school



Source: CHED 5

Albay in Figures: Highest Grade Completed

Highest Grade Completed	Private Household Population				
	1975 ¹	1980 ¹	1990 ¹	1995 ²	2000 ²
Albay	492,886	545,334	622,379	736,960	809,046
<i>Legazpi City (Lgzpi)</i>	<i>69,821</i>	<i>79,252</i>	<i>97,805</i>	<i>122,035</i>	<i>137,245</i>
No Grade Completed	49,709	44,944	25,845	53,671	41,529
<i>Lgzpi</i>	<i>5,723</i>	<i>5,059</i>	<i>2,516</i>	<i>6,965</i>	<i>5,426</i>
Pre-School	-	-	8,637	29,708	19,801
<i>Lgzpi</i>	-	-	<i>1,291</i>	<i>5,049</i>	<i>2,906</i>
Elementary	348,781	367,115	386,279	390,693	410,581
<i>Lgzpi</i>	<i>42,353</i>	<i>45,200</i>	<i>50,304</i>	<i>51,770</i>	<i>56,046</i>
1st-4th Grade	169,308	166,593	163,866	156,276	161,263
<i>Lgzpi</i>	<i>20,447</i>	<i>20,455</i>	<i>21,450</i>	<i>21,015</i>	<i>23,139</i>
5th-7th Grade	179,473	200,522	222,413	234,417	249,318
<i>Lgzpi</i>	<i>21,906</i>	<i>24,745</i>	<i>28,854</i>	<i>30,755</i>	<i>32,907</i>
High School	66,170	93,093	136,924	175,901	212,307
<i>Lgzpi</i>	<i>13,171</i>	<i>16,969</i>	<i>23,211</i>	<i>30,853</i>	<i>36,120</i>
Undergraduate	44,835	62,986	81,402	102,267	124,792
<i>Lgzpi</i>	<i>8,535</i>	<i>10,821</i>	<i>13,372</i>	<i>17,130</i>	<i>21,603</i>
Graduate	21,335	30,107	55,522	73,634	87,515
<i>Lgzpi</i>	<i>4,636</i>	<i>6,148</i>	<i>9,839</i>	<i>13,723</i>	<i>14,517</i>
Post Secondary	-	-	7,571	12,368	21,816
<i>Lgzpi</i>	-	-	<i>2,221</i>	<i>2,396</i>	<i>7,044</i>
Undergraduate	-	-	1,962	2,333	7,678
<i>Lgzpi</i>	-	-	<i>816</i>	<i>313</i>	<i>1,484</i>
Graduate	-	-	5,609	10,035	14,138
<i>Lgzpi</i>	-	-	<i>1,405</i>	<i>2,083</i>	<i>5,560</i>
College Undergraduate	14,211	23,291	30,789	33,047	58,846
<i>Lgzpi</i>	<i>4,292</i>	<i>6,270</i>	<i>8,705</i>	<i>9,655</i>	<i>15,013</i>
Academic Degree Holder	9,305	14,912	25,485	35,304	23,883
<i>Lgzpi</i>	<i>3,175</i>	<i>5,483</i>	<i>9,455</i>	<i>13,924</i>	<i>10,430</i>
Post-Baccalaureate	-	-	-	1,562	2,044
<i>Lgzpi</i>	-	-	-	<i>691</i>	<i>607</i>
Not Stated	4,710	1,979	849	4,706	18,239
<i>Lgzpi</i>	<i>1,107</i>	<i>271</i>	<i>102</i>	<i>732</i>	<i>3,653</i>

Only 24T graduates or 2.95% of population for Albay?

Only 10T graduates or 7.6% of population for Legazpi City!

For the whole province, 34T graduates or 3.63% of Albay population in 2000 = 39.6T in 2007 census

1 Private Household Population 7 Years Old and Over
 2 Private Household Population 5 Years Old and Over

Albay: #175 out of 202 in 2007 NAT

DIVISION	No. of Examinees	General Scholastics		Technical Vocational		Entrepreneurial Skills		Average	Rank
		Mean	Rank	Mean	Rank	Mean	Rank		
Naga City	3,931	52.68	22	80.60	9.5	80.90	17.5	71.39	14
Legazpi City	2,813	48.07	70	75.80	57.5	78.50	44.5	67.46	58
Sorsogon City	2,520	47.61	74	75.70	60	78.60	40.5	67.30	60.5
Catanduanes	4,272	46.64	89	73.40	98.5	76.40	95	65.47	94
Iriga City	2,177	45.75	101	73.50	95	76.00	105	65.08	102
Tabaco City	2,484	45.46	106	72.50	109	76.00	105	64.65	109.5
Camarines Norte	7,413	43.06	143	71.40	121.5	75.80	111.5	63.42	127
Masbate City	1,465	44.70	120	70.40	125	74.00	135.5	63.33	130.5
Sorsogon	9,154	42.03	159	68.10	135	74.00	152	61.34	163
Ligao City	1,685	41.42	167	68.20	154.5	74.40	142.5	61.34	163
Camarines Sur	20,638	39.87	184	67.60	165	72.90	168	60.12	170
Albay	12,712	40.02	183	66.40	172	73.00	166	59.81	175
Masbate	8,150	41.40	168	64.30	180	71.90	177	59.20	179

#175 in average
#183 in scholastics

From 175th in 2007 to 106th in 2009

DIVISION		2009 MPS	Rank	DIVISION		2009 MPS	Rank	DIVISION		2009 MPS	Rank	DIVISION		2009 MPS	Rank
K02	Digos City	83.74	1	J04	Gingoog City	71.35	52	K04	Davao Oriental	65.02	103	E06	Legaspi City	58.61	154
C02	Bataan	81.87	2	C16	Muñoz Science City	71.34	53	C01	Angeles City	64.92	104	E10	Sorsogon City	58.59	155
H03	Eastern Samar	80.67	3	L01	Cotabato City	70.89	54	F13	San Carlos City	64.75	105	B07	Cauayan City	58.54	156
R01	Agusan Del Norte	80.58	4	E04	Catanduanes	70.79	55	E01	ALBAY	64.70	106	J02	Cagayan de Oro City	58.43	157
H08	Southern Leyte	80.23	5	I03	Dipolog City	70.69	56	M09	Pasig City	64.63	107	M07	Muntinlupa City	58.37	158
H06	Ormoc City	80.14	6	G16	Guihulngan	70.68	57	G08	Siquijor	64.61	108	F10	La Carlota City	58.37	159
H11	Catbalogan City	79.44	7	A04	Laoag City	70.54	58	G15	Bais City	64.36	109	L07	Kidapawan City	58.27	160
D15	Romblon	79.06	8	K03	Davao Del Norte	70.51	59	K08	Compostela Valley	64.12	110	A10	Candon City	58.09	161
D02	Batangas	78.95	9	C14	Gapan City	70.41	60	G01	Bohol	63.91	111	A09	Urdaneta City	58.08	162
D11	Oriental Mindoro	78.58	10	C06	Olongapo City	70.14	61	G18	Carcar City	63.87	112	D01	Antipolo City	58.05	163
F09	Iloilo	78.46	11	C05	Nueva Ecija	69.94	62	F08	Iloilo City	63.57	113	E03	Camarines Sur	58.02	164
H13	Baybay City	78.09	12	M08	Parañaque City	69.89	63	D13	Quezon	63.53	114	E11	Tabaco City	57.89	165
H02	Calbayog City	78.03	13	A01	Dagupan City	69.41	64	G06	Mandaue City	63.48	115	G02	Cebu	57.88	166
R09	Dinagat Island	77.92	14	J10	Tangub City	69.39	65	F03	Bacolod City	63.29	116	B05	Quirino	57.88	167
H07	Samar (Western)	77.80	15	F06	Capiz	69.25	66	A12	San Fernando City - R1	63.23	117	A13	Vigan City	57.79	168
R07	Surigao Del Sur	76.89	16	G03	Cebu City	68.86	67	A03	Ilocos Sur	63.22	118	K01	Davao City	56.99	169
H01	Biliran	76.56	17	M05	Makati City	68.77	68	J01	Bukidnon	63.21	119	B01	Batanes	56.69	170
D18	Calapan City	76.46	18	K06	Panabo City	68.69	69	D03	Batangas City	62.97	120	G14	Bayawan City	56.65	171
H12	Borongan City	76.27	19	C03	Bulacan	68.49	70	D10	Occidental Mindoro	62.96	121	I01	Isabela City	56.64	172
D04	Cavite	76.25	20	A06	Pangasinan I	68.08	71	F02	Antique	62.85	122	M15	San Juan City	56.44	173
H10	Maasin City	76.09	21	B04	Nueva Vizcaya	68.06	72	I08	Zamboanga Sibugay	62.57	123	P07	Marawi City	56.43	174
H09	Tacloban City	76.02	22	I06	Zamboanga Del Norte	67.95	73	P10	Lamitan	62.57	124	C12	San Fernando City - R3	56.06	175
H04	Leyte	75.77	23	K05	Davao Del Sur	67.80	74	D12	Palawan	62.49	125	F16	Kabankalan City	55.61	176
G17	Bogo City	75.66	24	D17	Puerto Princesa City	67.72	75	F05	Cadiz City	62.35	126	P11	Lanao Del Sur I-B	55.29	177
R04	Siargao	75.46	25	B06	Tuguegarao City	67.65	76	J12	Valencia City	62.23	127	M02	Manila	55.07	178
K09	Island Garden City of Samal	75.40	26	C04	Cabanatuan City	67.55	77	N01	Abra	62.13	128	B03	Isabela	54.85	179
E05	Iriga City	75.38	27	G07	Negros Oriental	67.31	78	C11	San Jose Del Monte City	62.10	129	F14	Silay City	54.71	180
D07	Lipa City	75.35	28	M13	Marikina City	67.06	79	F01	Aklan	62.07	130	P04	Lanao Del Sur II-A	54.51	181
R06	Surigao Del Norte	75.21	29	I05	Zamboanga City	67.05	80	K07	Tagum City	62.00	131	P03	Lanao Del Sur I-A	54.33	182
F07	Guimaras	75.18	30	G10	Tanjay City	66.97	81	F17	Passi City	61.85	132	F11	Negros Occidental	54.06	183
C17	Malolos City	75.07	31	M12	Las Piñas City	66.93	82	J05	Misamis Occidental	61.67	133	K10	Mati City	54.01	184
H05	Northern Samar	74.97	32	A11	Alaminos City	66.84	83	G04	Dumaguete City	61.60	134	F12	Roxas City	53.88	185
R08	Bislig City	74.75	33	A08	San Carlos City	66.73	84	C10	Aurora	61.55	135	G05	Lapu-Lapu City	53.58	186
C15	Balanga City	74.67	34	E02	Camarines Norte	66.50	85	C13	Tarlac City	61.46	136	E08	Naga City - R5	53.14	187
I02	Dapitan City	74.18	35	E07	Masbate	66.31	86	L03	Sarangani	61.40	137	N02	Baguio City	52.88	188
C08	Tarlac	73.97	36	L02	General Santos City	65.94	87	N06	Mountain Province	61.27	138	B08	Santiago City	52.72	189
G13	Danao City	73.58	37	C09	Zambales	65.90	88	N03	Benguet	61.25	139	D19	Calamba City	52.29	190
A02	Ilocos Norte	73.42	38	I07	Zamboanga Del Sur	65.89	89	M11	Taguig / Pateros	61.23	140	D06	Laguna	52.05	191
R03	Butuan City	73.36	39	I04	Pagadian City	65.88	90	E13	Masbate City	61.04	141	M01	Caloocan City	51.06	192
R02	Agusan Del Sur	73.19	40	M14	Valenzuela City	65.80	91	M03	Pasay City	60.93	142	F04	Bago City	50.78	193
A07	Pangasinan II	73.07	41	N07	Apayao	65.72	92	G11	Tagbilaran City	60.84	143	G12	Talisay City	50.31	194
D09	Marinduque	72.97	42	G09	Toledo City	65.63	93	C07	Pampanga	60.54	144	P06	Basilan	50.12	195
A05	La Union	72.96	43	M06	Mandaluyong City	65.62	94	E12	Ligao City	60.46	145	J09	Iligan City	49.94	196
R05	Surigao City	72.87	44	L04	Koronadal City	65.61	95	E09	Sorsogon	60.45	146	F15	Sagay City	49.00	197
J06	Misamis Oriental	72.84	45	D08	Lucena City	65.49	96	D05	Cavite City	60.25	147	G19	Naga City - R7	47.71	198
D20	Tanauan City	72.79	46	D14	Rizal	65.45	97	D21	Sta. Rosa City	60.17	148	P09	Shariff Kabunsuan	47.09	199
M04	Quezon City	72.54	47	J08	Lanao Del Norte	65.43	98	L06	Sultan Kudarat	60.13	149	P05	Maguindanao	44.70	200
L05	North Cotabato	72.38	48	B02	Cagayan	65.42	99	M10	Malabon / Navotas	59.11	150	P08	Sulu II	42.28	201
J07	Ozamis City	72.09	49	N04	Ifugao	65.33	100	D16	San Pablo City	59.09	151	P12	Lanao Del Sur II-B	40.68	202
L09	Tacurong City	71.70	50	L08	South Cotabato	65.29	101	A14	Batac City	58.71	152	P01	Sulu I	39.76	203
J03	Camiguin	71.46	51	J11	Oroquieta City	65.14	102	N05	Kalinga	58.67	153	P02	Tawi-Tawi	39.08	204

Notes on color:

- Cluster 1: **Large** Size Divisions (includes representative samples of private schools)
- Cluster 2: **Medium** Size Divisions (includes representative samples of private schools)
- Cluster 3: **Small** Size Divisions (includes representative samples of private schools)