Development Climate Change Policy:
Adaptation Practices of Albay to outperform MDG by 2015

Roundtable on Local Governance and Climate Change-Delivering on the Ground

Asia-Pacific Climate Change Adaptation Forum 2010
UN Conference Center, Bangkok
22 October 2010

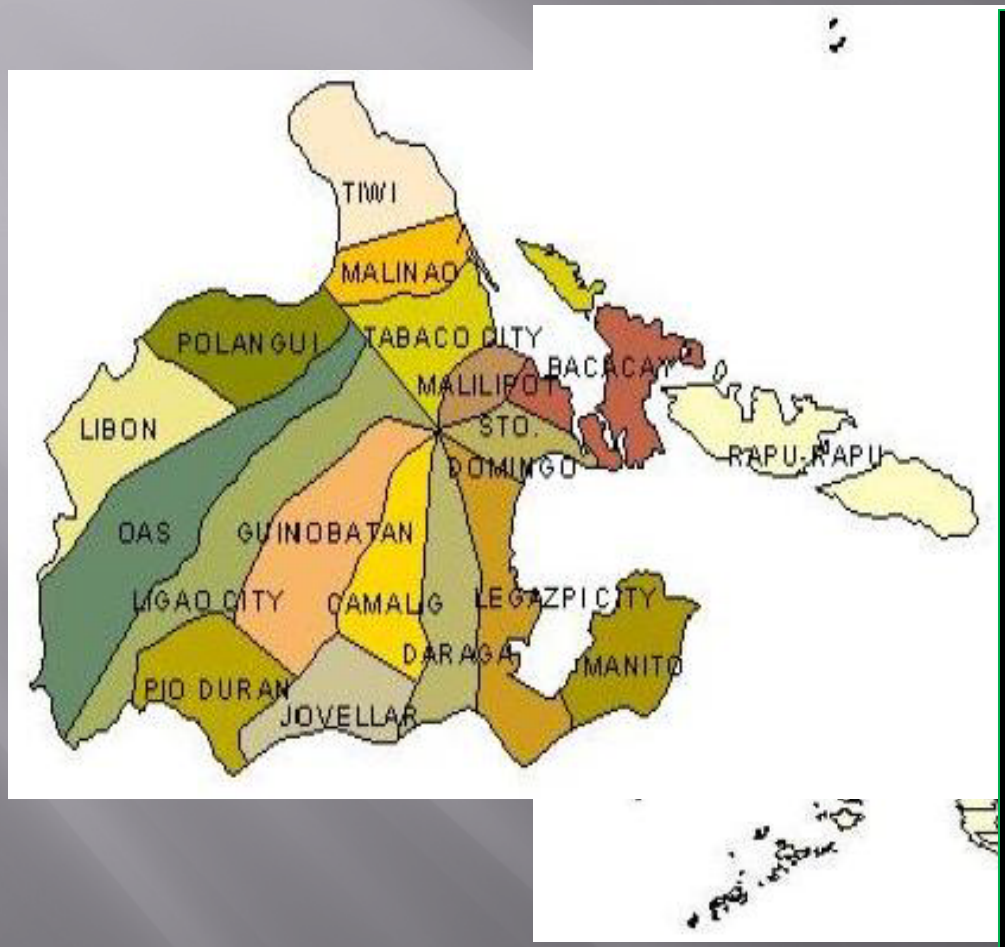
Governor Joey Sarte Salceda
Province of Albay, Philippines

EFFECTS OF TYPHOON "JUAN" (MEGI)
Cost of Assistance
As of 21 October 2010, 1:00 PM

Region/Province/Mun/City	DSWD	LGUs	NGOs/ Other GOs	TOTAL
GRAND TOTAL	**3,327,320.00**	**8,913,581.00**	**22,900.00**	**12,263,801.00**
REGION I	-	**206,970.00**	-	**206,970.00**
LA UNION		**66,210.00**		**66,210.00**
Bauang		53,000.00		53,000.00
Pugo		3,410.00		3,410.00
San Juan		9,800.00		9,800.00
PANGASINAN		**127,000.00**		**127,000.00**
Balungao		13,500.00		13,500.00
Tayug		13,500.00		13,500.00
San Jacinto		100,000.00		100,000.00
ILOCOS NORTE		**13,760.00**		**13,760.00**
Carasi		11,880.00		11,880.00
Burgos		1,880.00		1,880.00
REGION II	**3,204,020.00**	**7,913,509.00**	-	**11,117,529.00**
ISABELA	**2,936,010.00**	**7,272,573.00**	-	**10,208,583.00**
Sta. Maria	117,270.00	290,244.00		407,514.00
San Mariano	3,780.00	9,356.00		13,136.00
Dinapigue	2,340.00	5,792.00		8,132.00
Tumaini	210,480.00	520,938.00		731,418.00
Gamu	108,420.00	268,340.00		376,760.00
Palanan	648,000.00	1,603,800.00		2,251,800.00
Roxas	401,040.00	992,574.00		1,393,614.00
Ramon		2,970.00		2,970.00
Sto Tomas	88,380.00	218,741.00		307,121.00
Delfin Albano	20,010.00	49,525.00		69,535.00
Cabagan	152,910.00	378,453.00		531,363.00
Ilagan	86,130.00	213,172.00		299,302.00
Aurora	25,200.00	62,370.00		87,570.00
Naguilla	188,520.00	466,587.00		655,107.00
San Manuel	65,310.00	161,643.00		226,953.00
Alicia	54,180.00	134,096.00		188,276.00
Luna	138,630.00	343,110.00		481,740.00
Burgos	240,000.00	594,000.00		834,000.00
Cordon	7,890.00	19,528.00		27,418.00
Quirino	144,000.00	356,400.00		500,400.00
Benito Soliven	117,900.00	291,803.00		409,703.00
Reina Mercedes	108,510.00	268,563.00		377,073.00
San Isidro		2,970.00		2,970.00
San Pablo	7,110.00	17,598.00		24,708.00
CAGAYAN	**115,740.00**	**287,426.00**	-	**403,166.00**
Sta. Ana	3,570.00	8,836.00		12,406.00
Aparri	1,500.00	3,713.00		5,213.00
Gonzaga	4,320.00	10,692.00		15,012.00
Sta. Teresita	4,890.00	12,103.00		16,993.00
Sta. Praxedes		966.00		966.00
Claveria	1,770.00	4,381.00		6,151.00
Lasam	1,080.00	2,673.00		3,753.00
Tuao	7,140.00	17,672.00		24,812.00
Iguig	14,220.00	35,195.00		49,415.00

MEGI: 72% of action by LGUs

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

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Takeaways from Albay

- Given rising climate risks, MDGs can not be achieved without adaptation.
- Adaptation is an investment in development.
  - If climate impacts don't occur, then DRR/CCA builds local capability. *(no regrets)*
  - If climate disasters occur, adaptation reduces the need for reconstruction and results in zero or less *casualty.*
  - It reduces risks, ergo, increases business returns and emhances socio-economic welfare.
- "Adaptation begins with disaster risk management. Mitigation is integral to environment protection. All four - CCA, DRR, EP and climate mitigaiton- reduce poverty through good governance. "
- The key is local ownership of MDGs as goal and adaptation as means.
- It is a feasible platform for local governance.

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- ☑ Multi-hazards: climate and geological
- ☑ Persistent poverty

THE CHALLENGE

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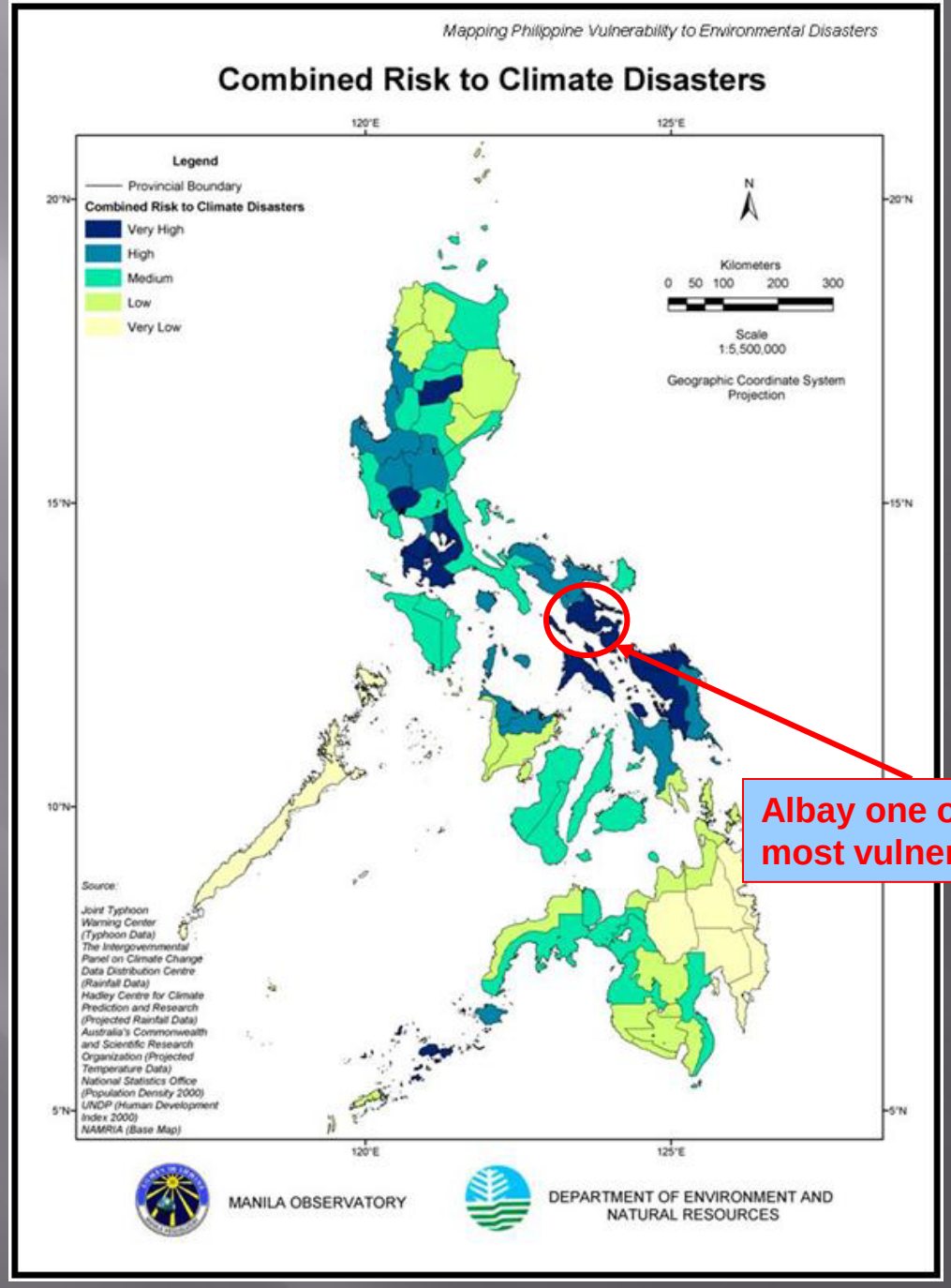
Disaster Risk and Vulnerability of Albay

- 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 peop 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.

Vatican of Disasters



Albay one of the most vulnerable

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POVERTY HEIGHTENS EXPOSURE TO DISASTER RISKS

Region/Province	Annual Per Capita Poverty Threshold (in Pesos)			Poverty Incidence Among Families (%)						Magnitude of Poor Families					
				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			,804	80,512		5.9	7.4	8.0
Sorsogon	11,146	12,452	15,687	41.4	33.7	43.5	7.3			,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

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Climate Disasters endanger MDGs

Implications of Climate Change for Certain Key Millennium Development Goals	
Millennium Development Goals	*Linkages with climate*
MDG 1 Eradicate extreme poverty and hunger	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. 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.
MDG 2 Achieve universal primary education	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.
MDG 3 Promote gender equality and empower women	Women, given their roles in the household (which involve significant interaction with the environment), will face the brunt of climate change. Agriculture, an important source of livelihood for women in rural areas, is one sector that is expected to be amongst the worst hit.
MDG 4 Reduce child mortality	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]).
MDG 7 Ensure environmental sustainability	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.
MDG 8 Develop a global partnership for development	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.

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

- ☑ 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

THE OUTCOMES

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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
7. Typhoon Reming	Nov. 30, 2006	Destructive	604 dead 419 missing	3.7 B
8. Typhoon Mina, Lando and Nonoy	Nov. 2007	Destructive	ZERO	
9. TECF, Monsoon Rains	Feb. 2008	Destructive	ZERO	127 M
10. Typhoon Dante	April 2009	Destructive	ZERO	
11. Typhoon Ondoy	Sep. 2009	Destructive	ZERO	
12. Typhoon Peping	Oct. 2009	Destructive	ZERO	
13. Mayon Eruption	Dec. 14, 2009 – Jan. 2, 2010	Explosive	ZERO	

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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**	

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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

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MDGs are achieved ahead of 2015 exc. MDG 2 and 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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Two National Laws

- Two national laws on DRR and CCA were based on Albay model
  - RA 10121 or **"The Philippine Disaster Risk Reduction and Management Act of 2010" that mandates to institutionalize a Disaster Risk Reduction and Management Office aside from the Council.**
  - RA 9729 or "The Climate Change Commission Law of 2009"

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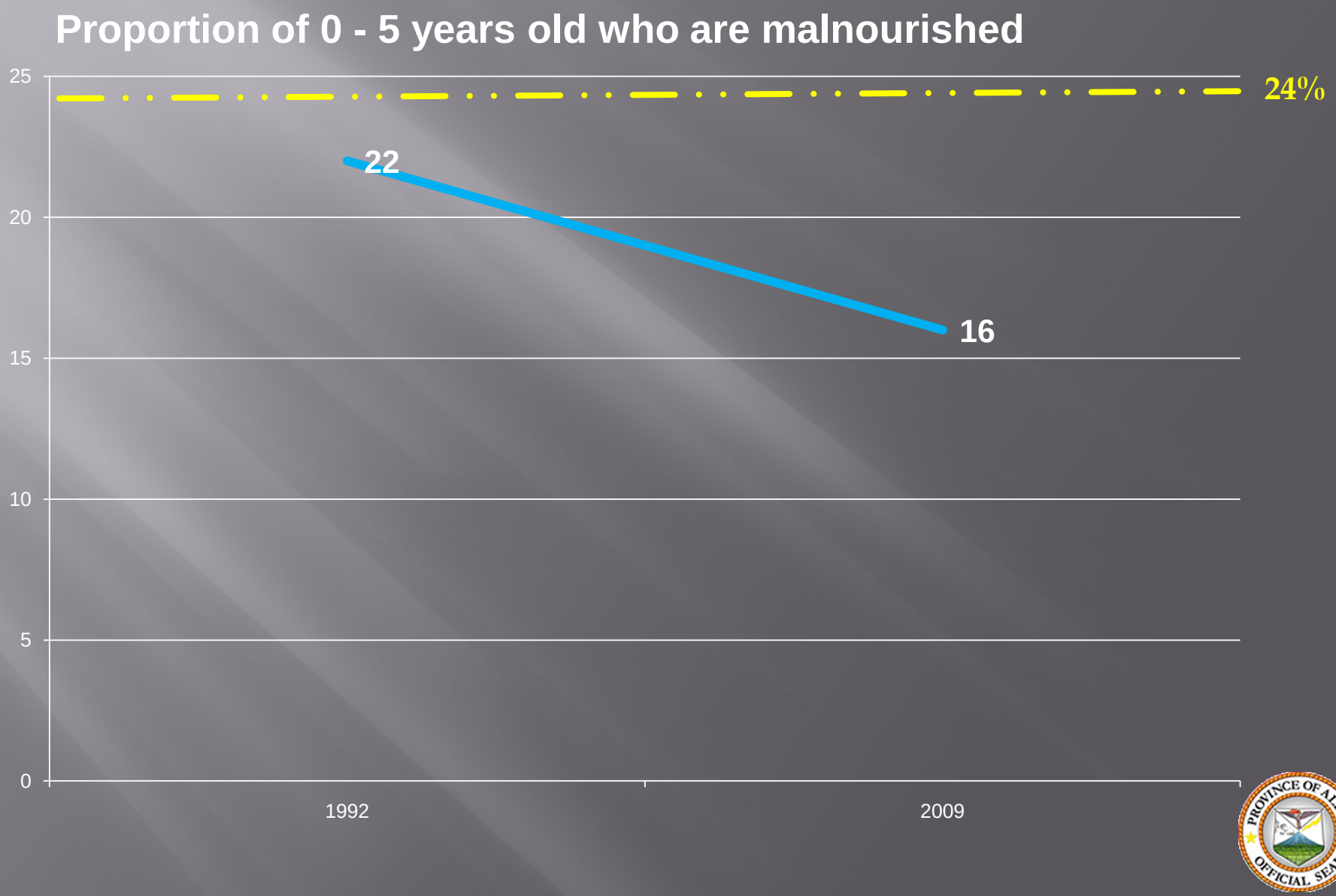
Achievements on MDG, 2009



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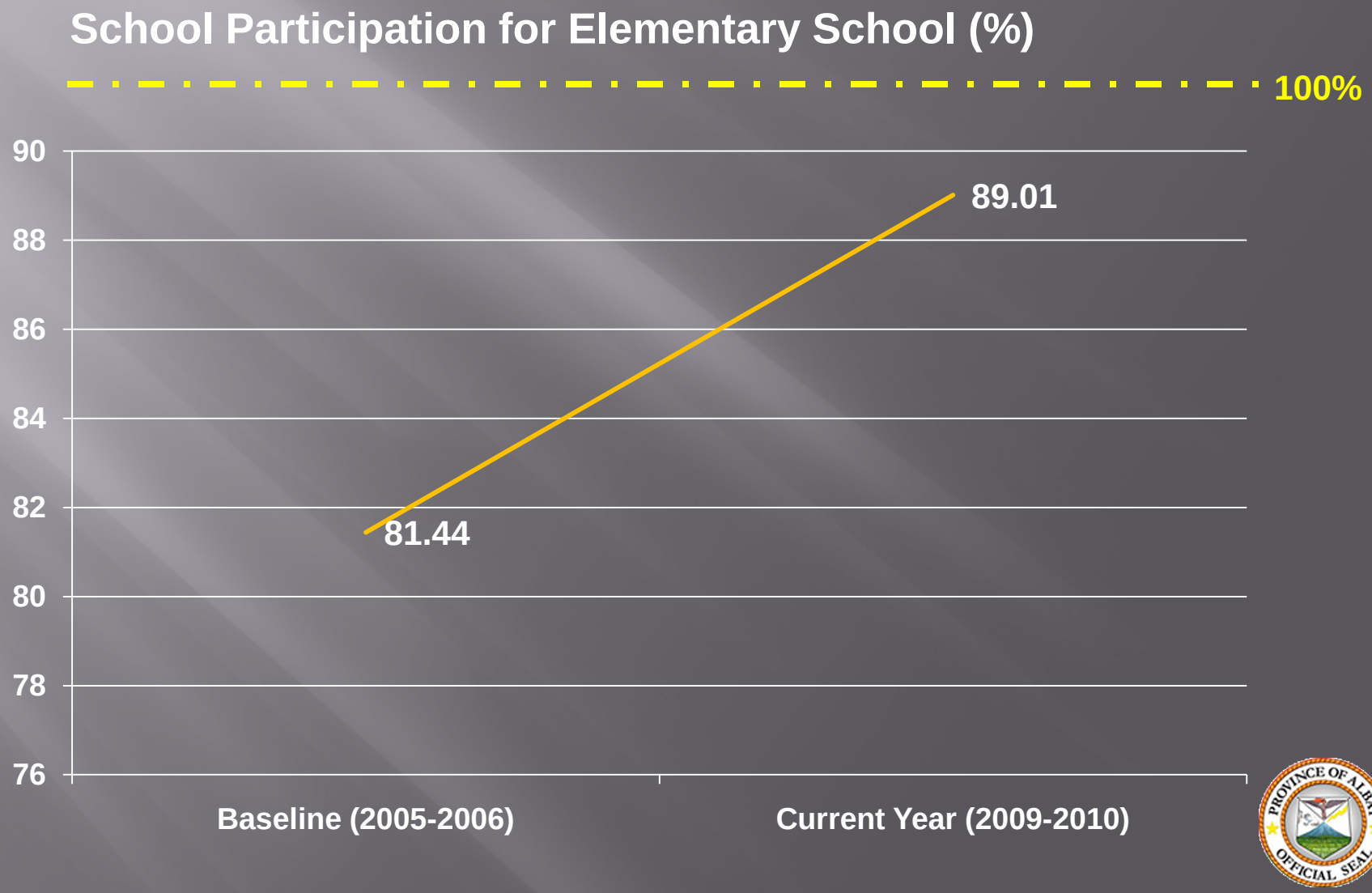

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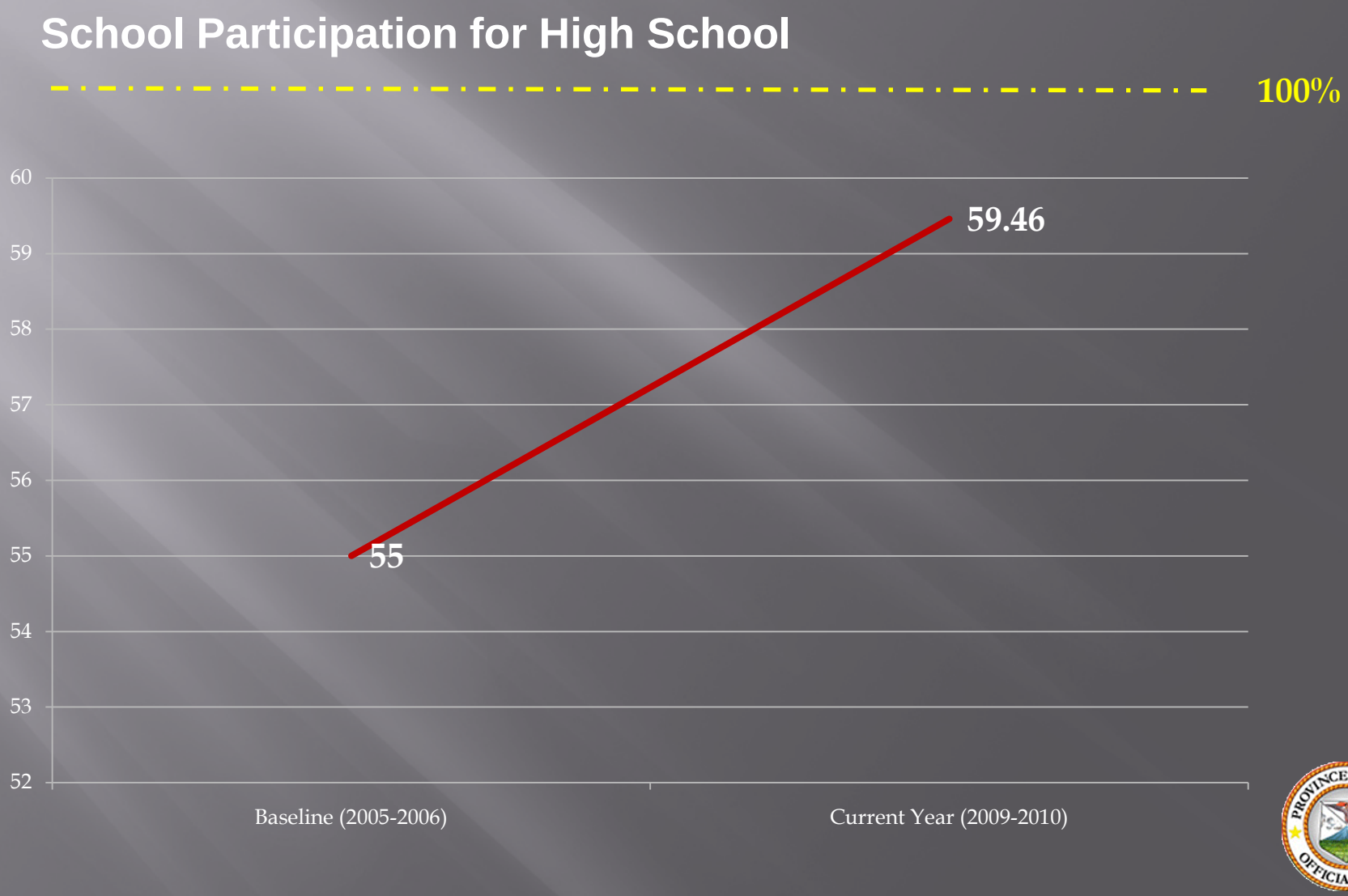

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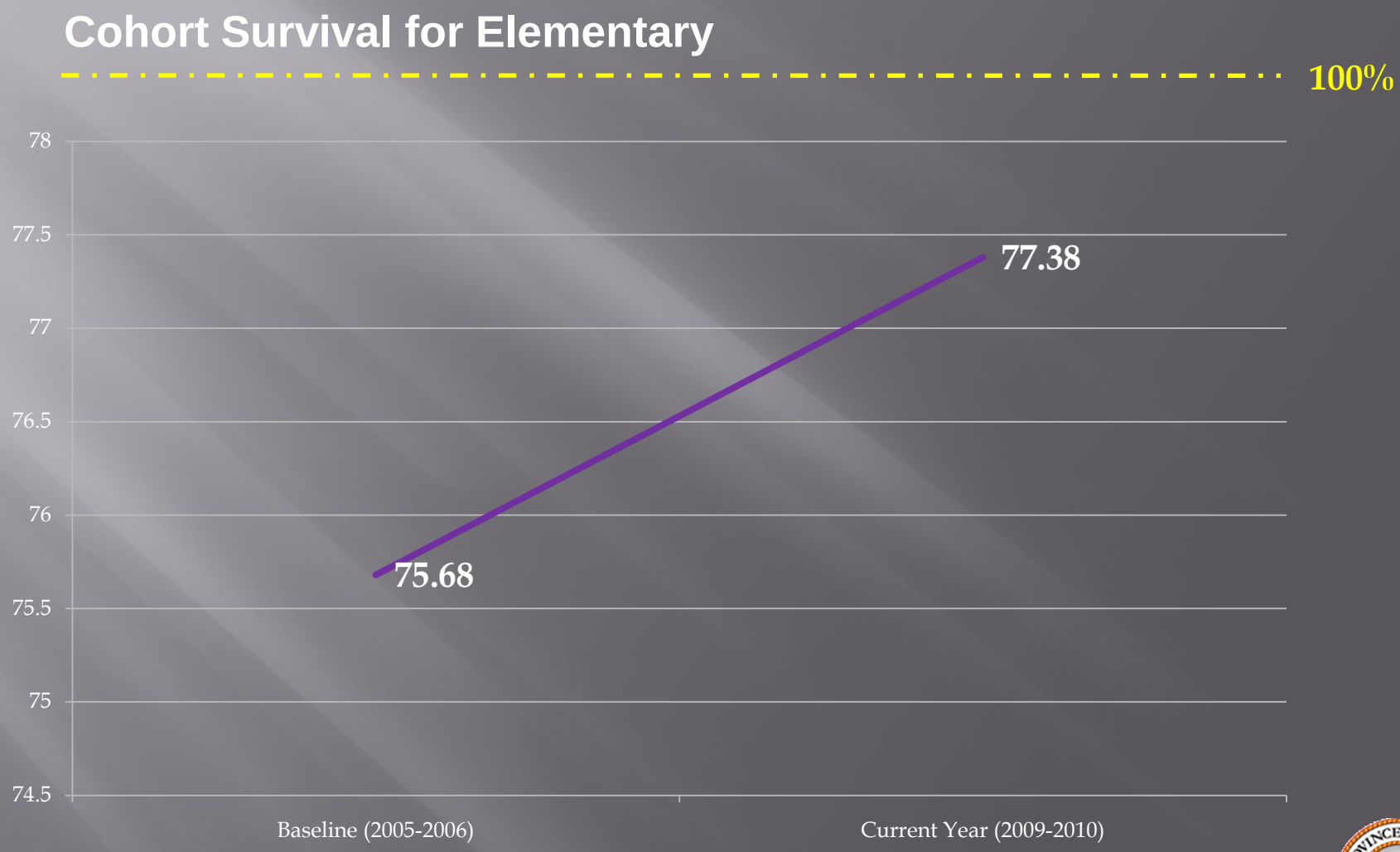

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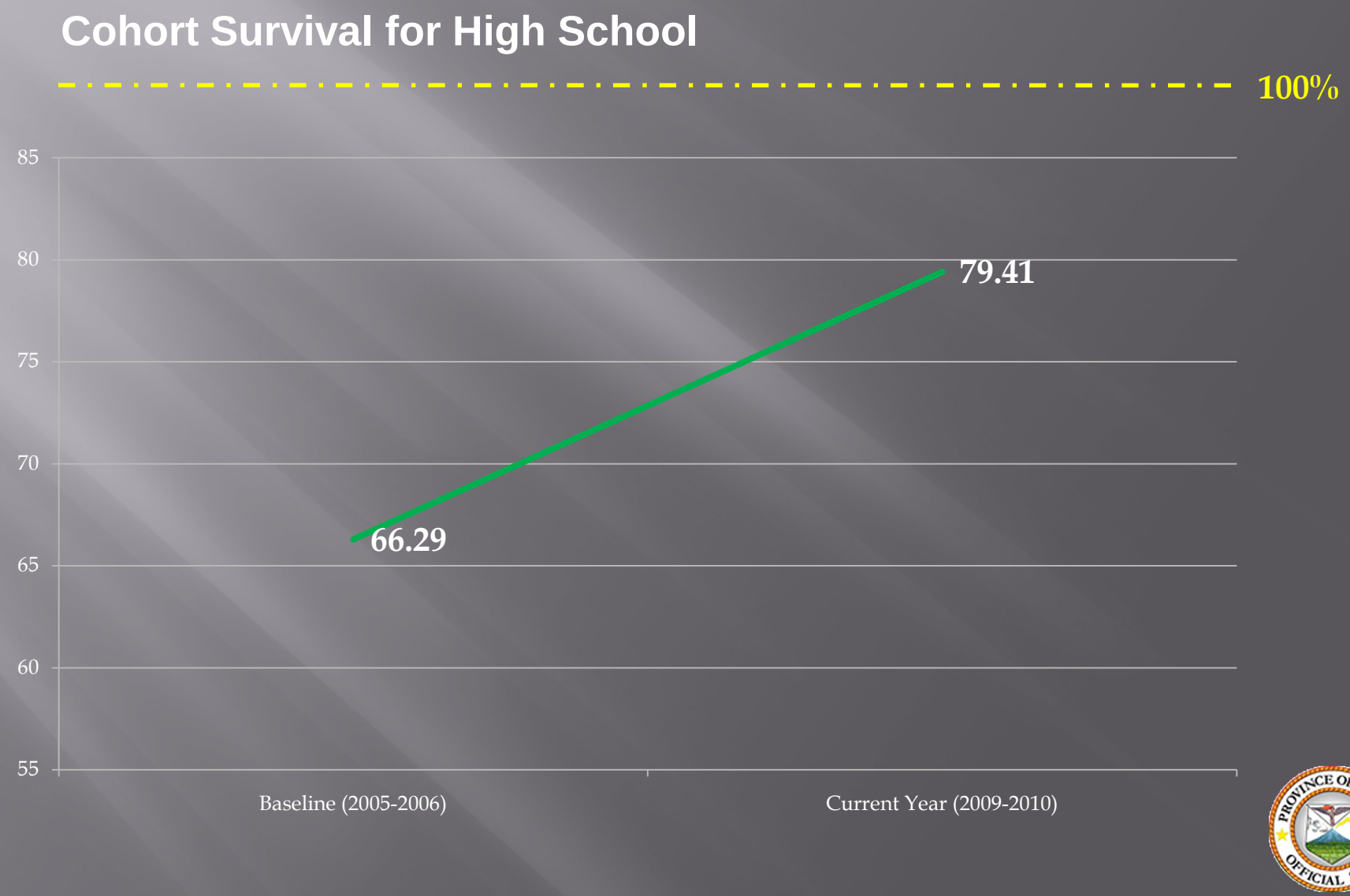
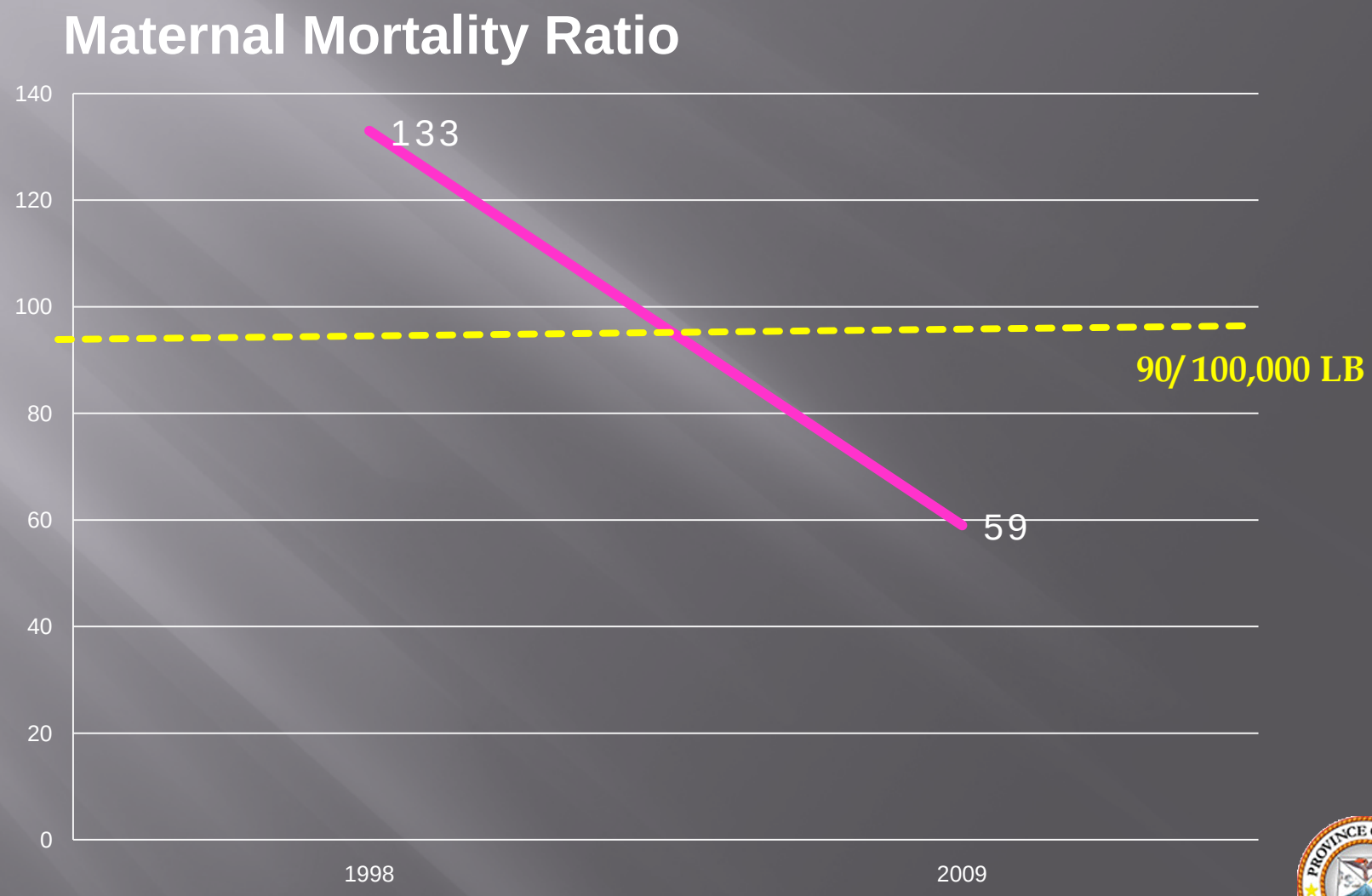
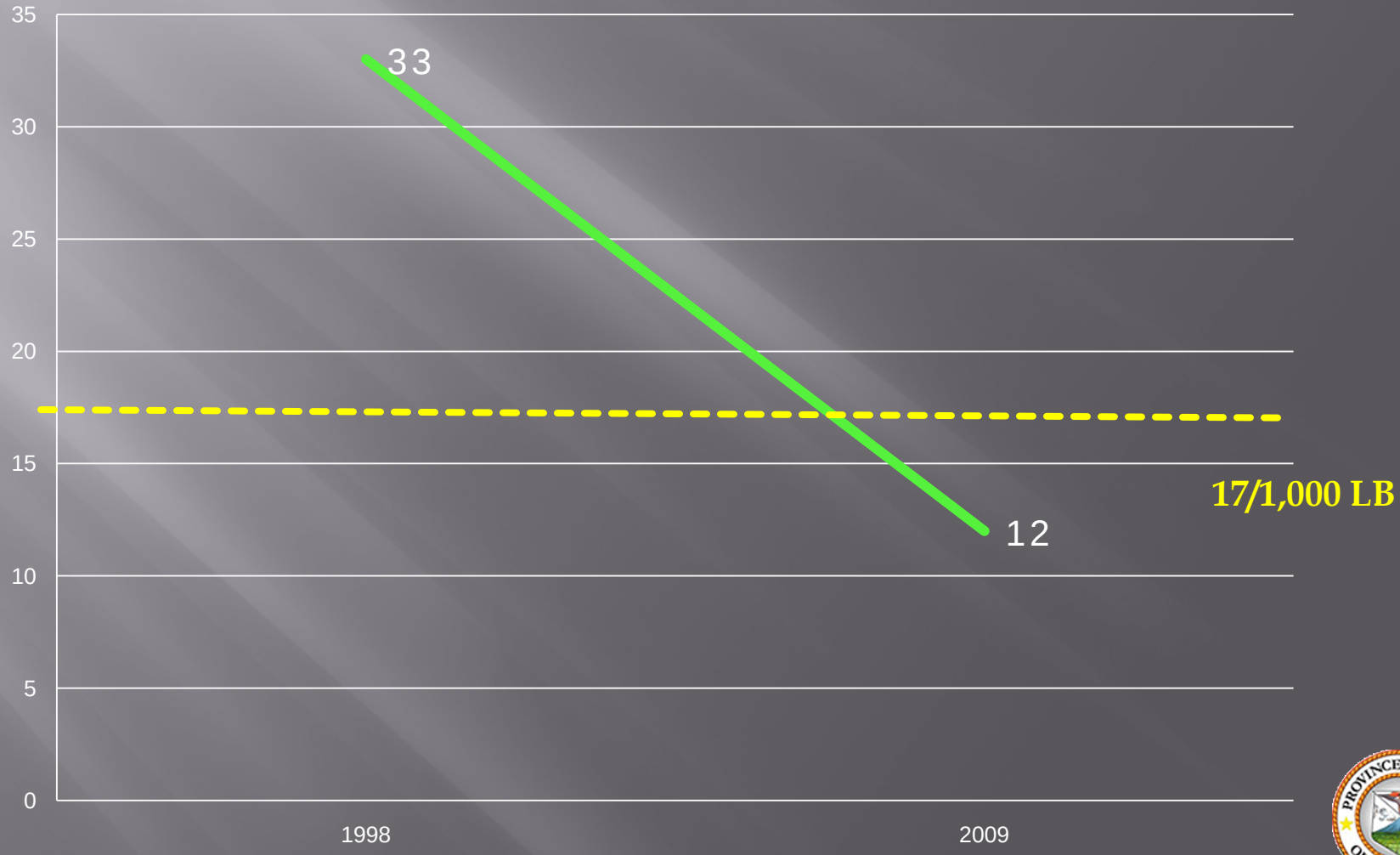


ACHIEVEMENTS ON MDG, 2009



ACHIEVEMENTS ON MDG, 2009

Infant Mortality Rate



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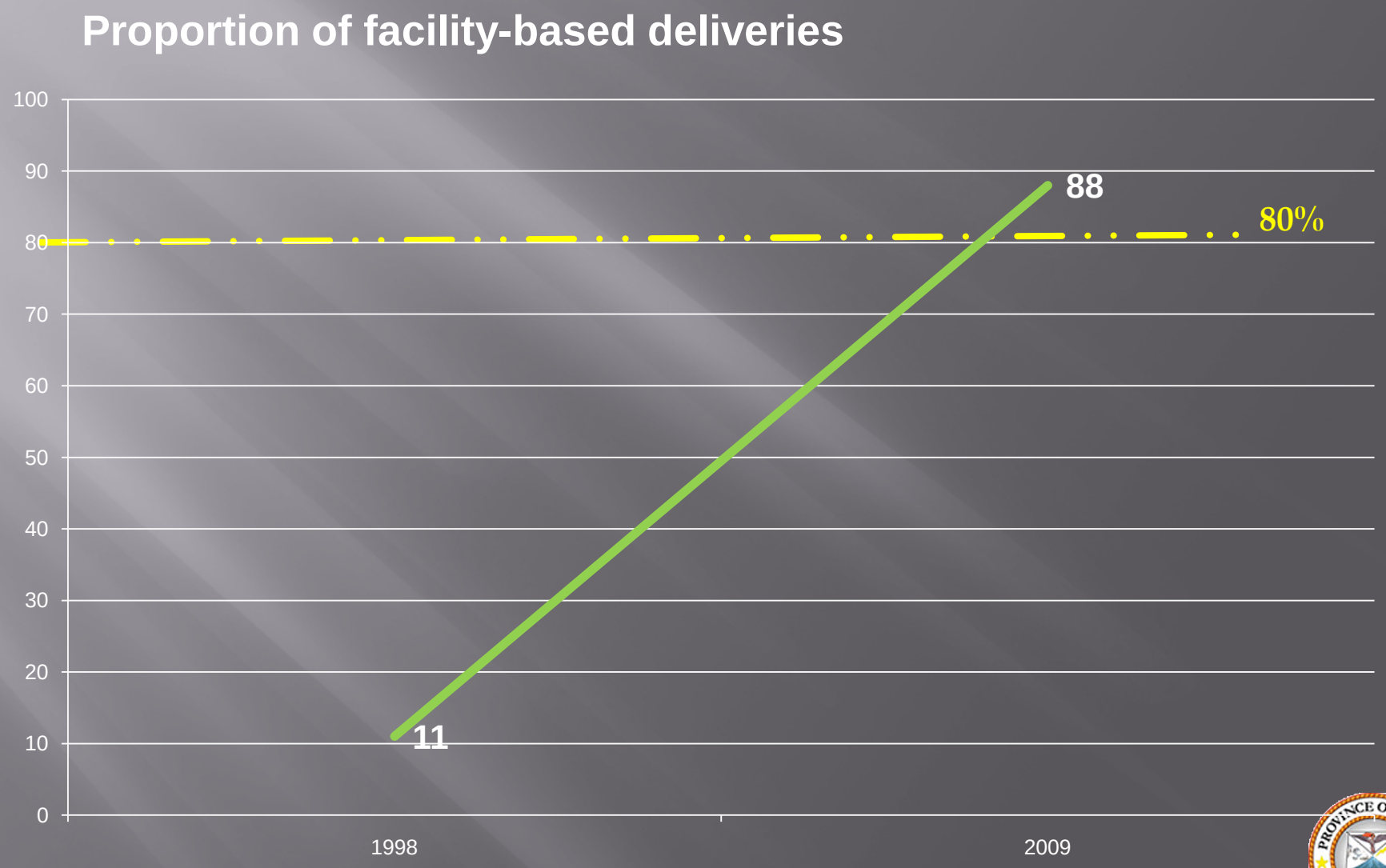
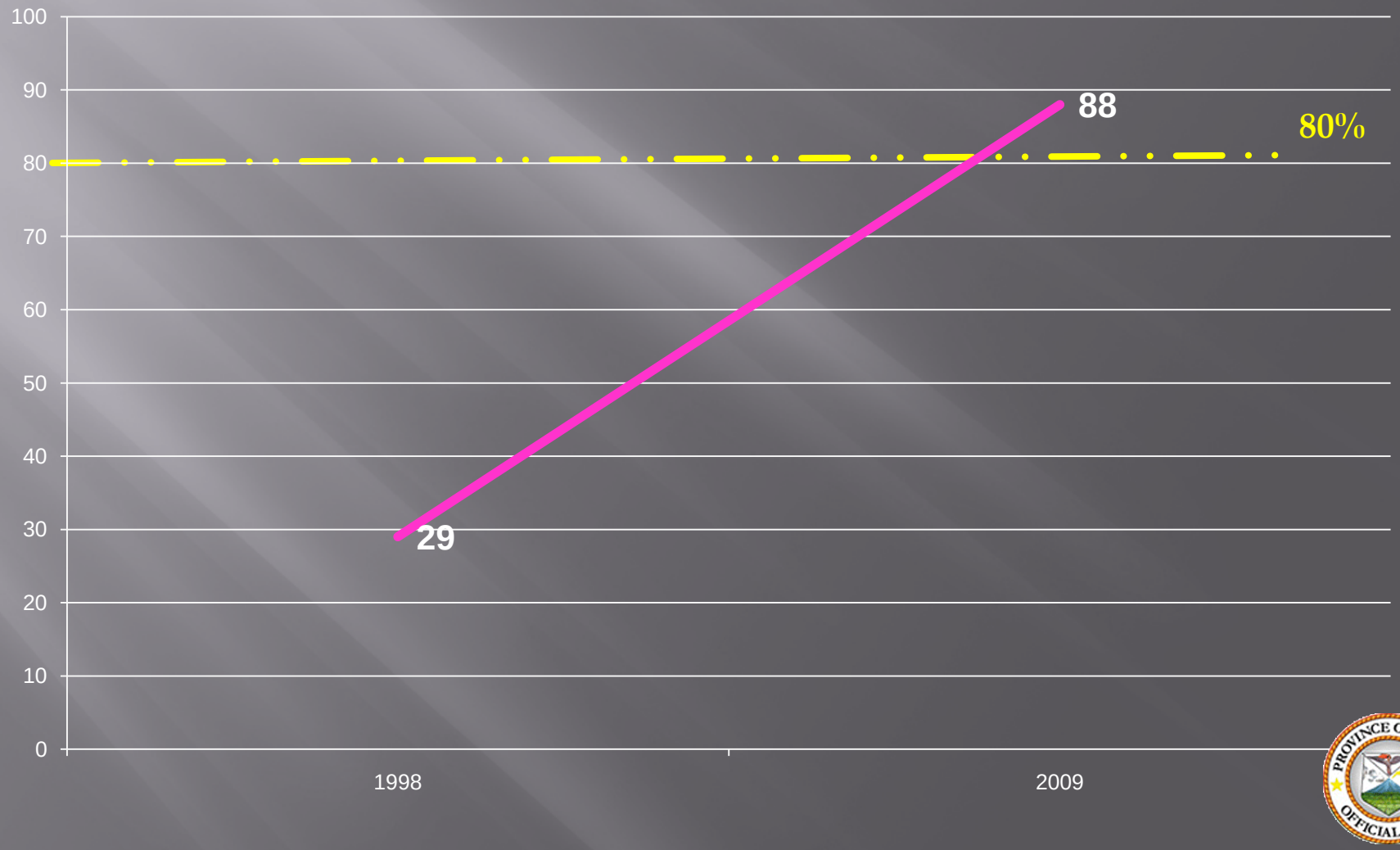


Achievements on MDG, 2009

Proportion of births attended by skilled health personnel



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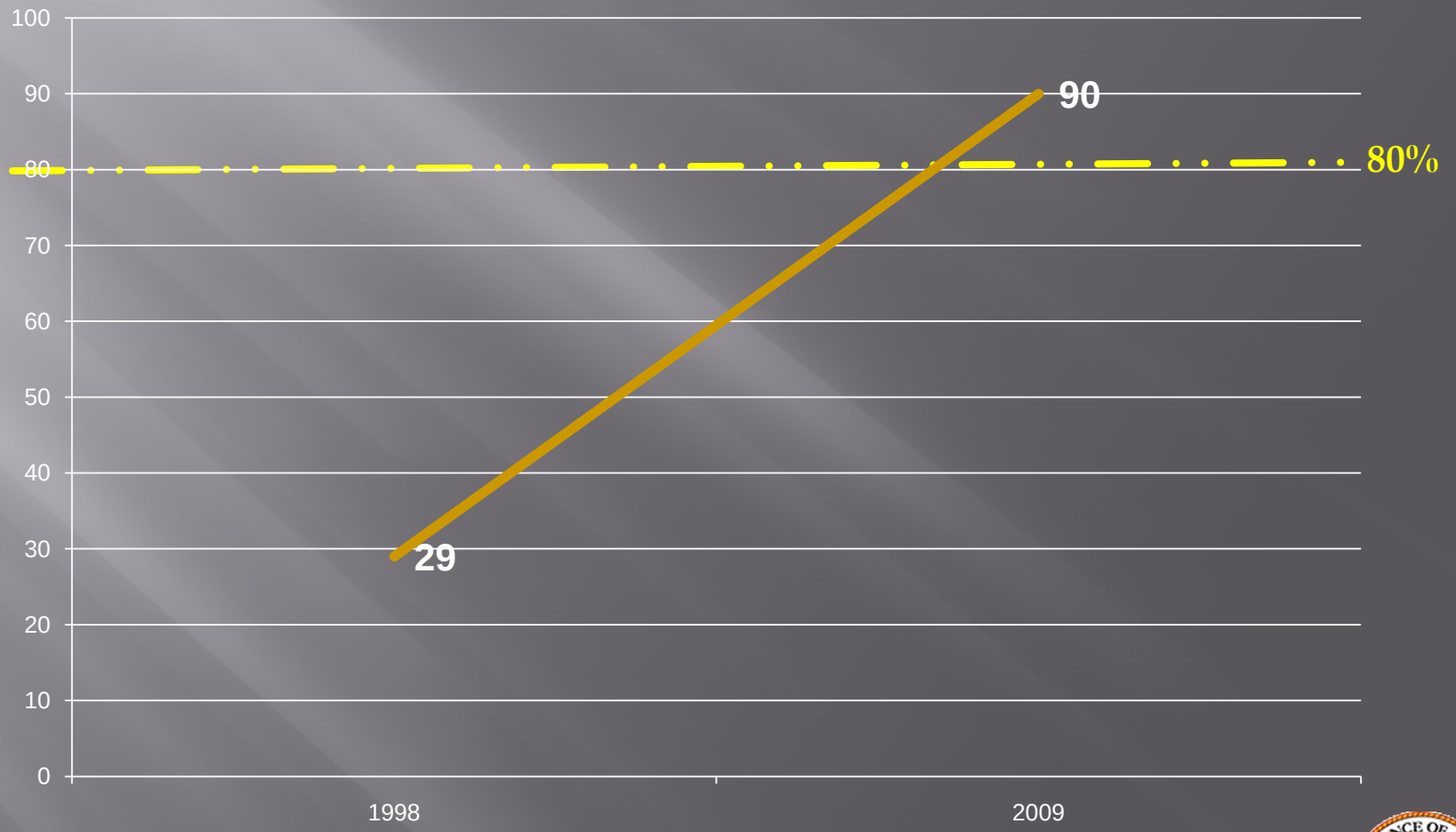

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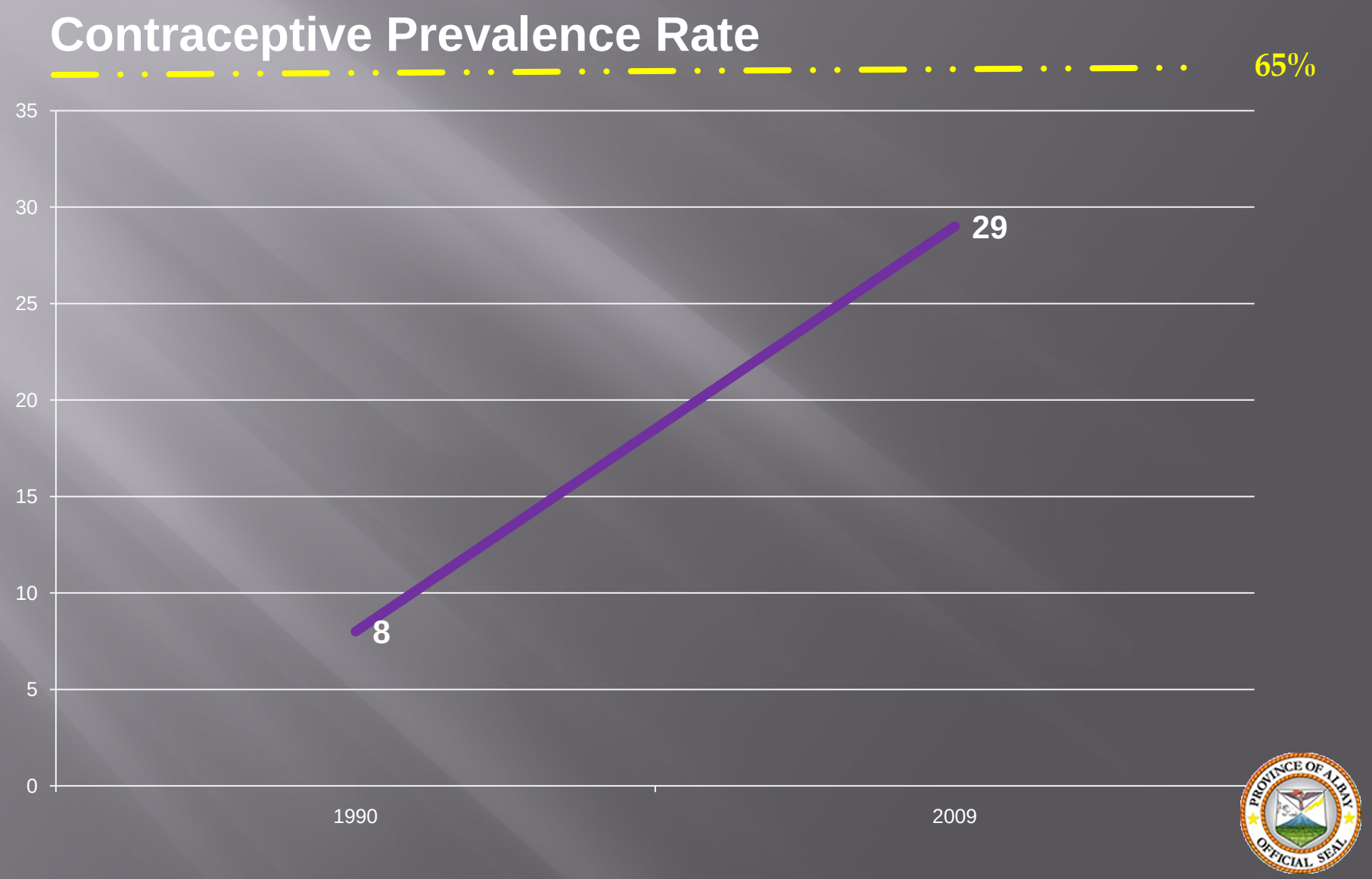

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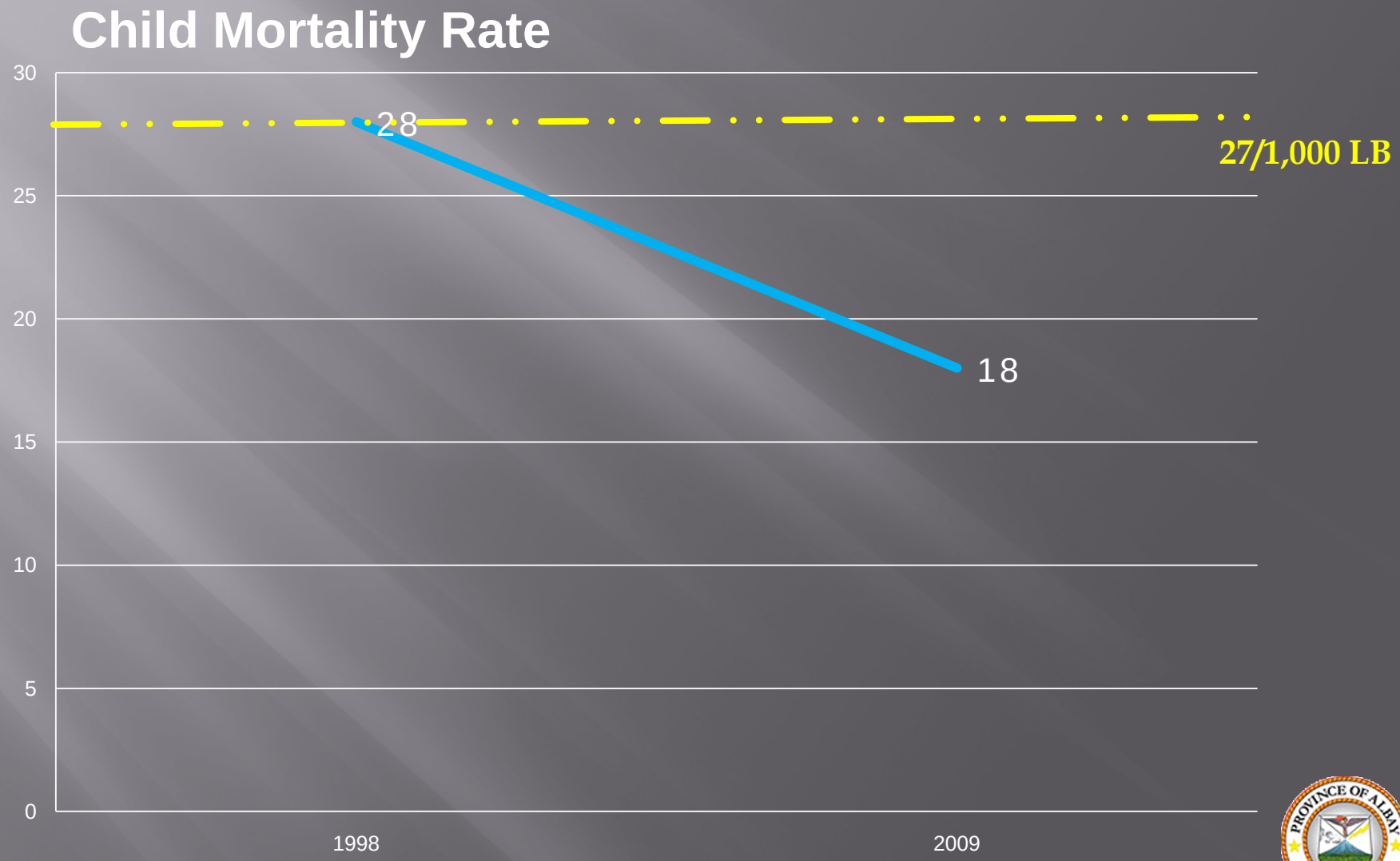

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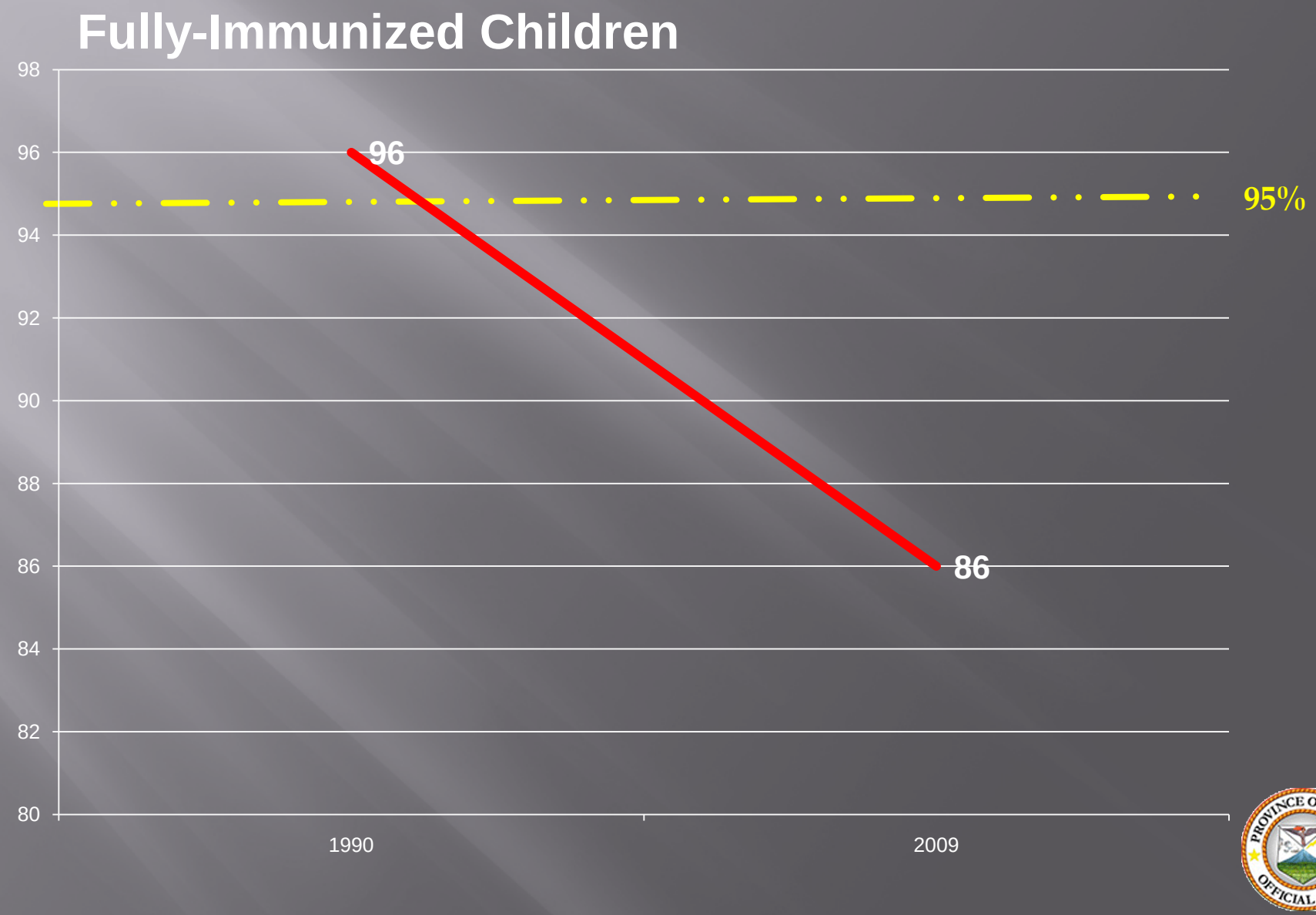

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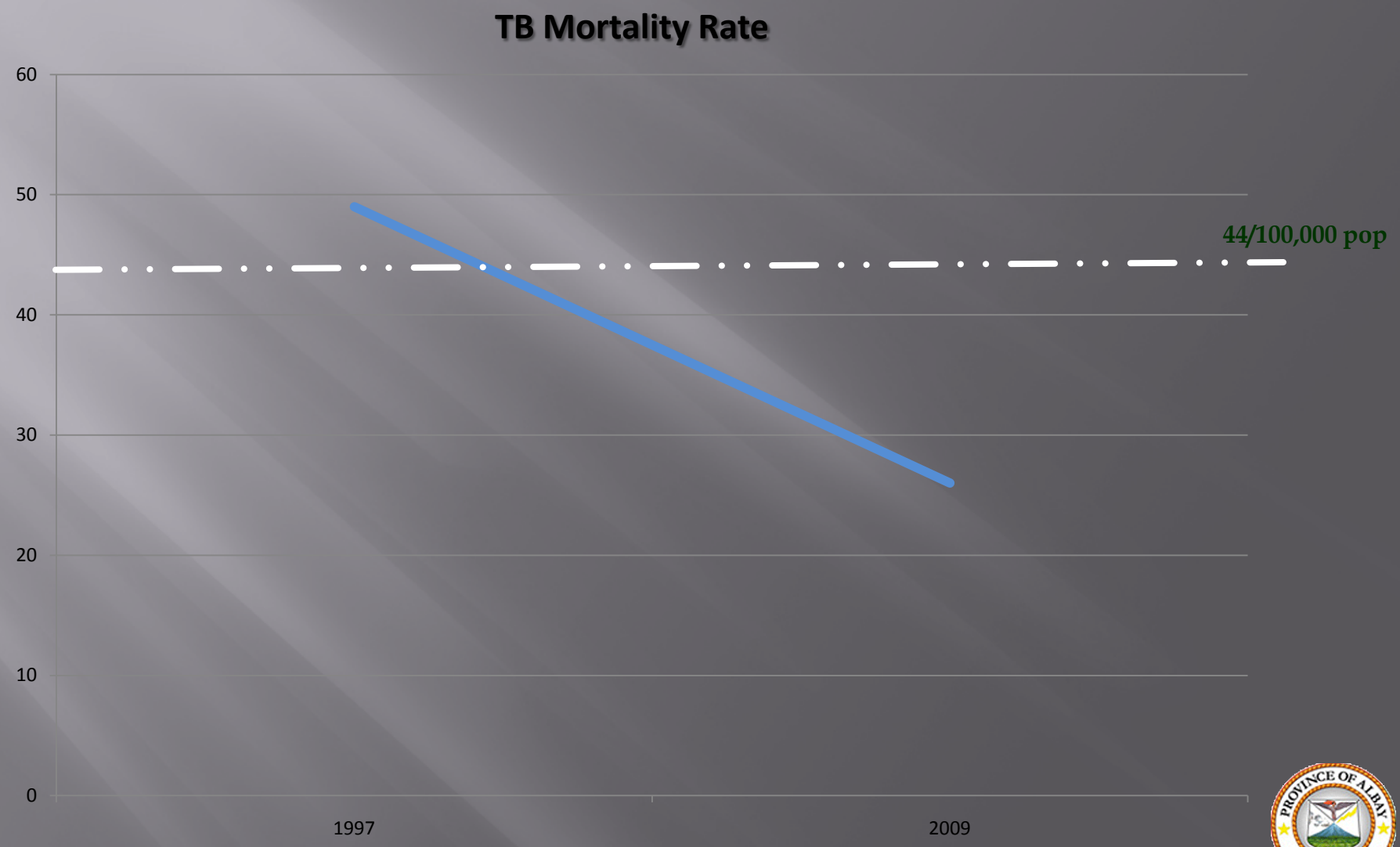

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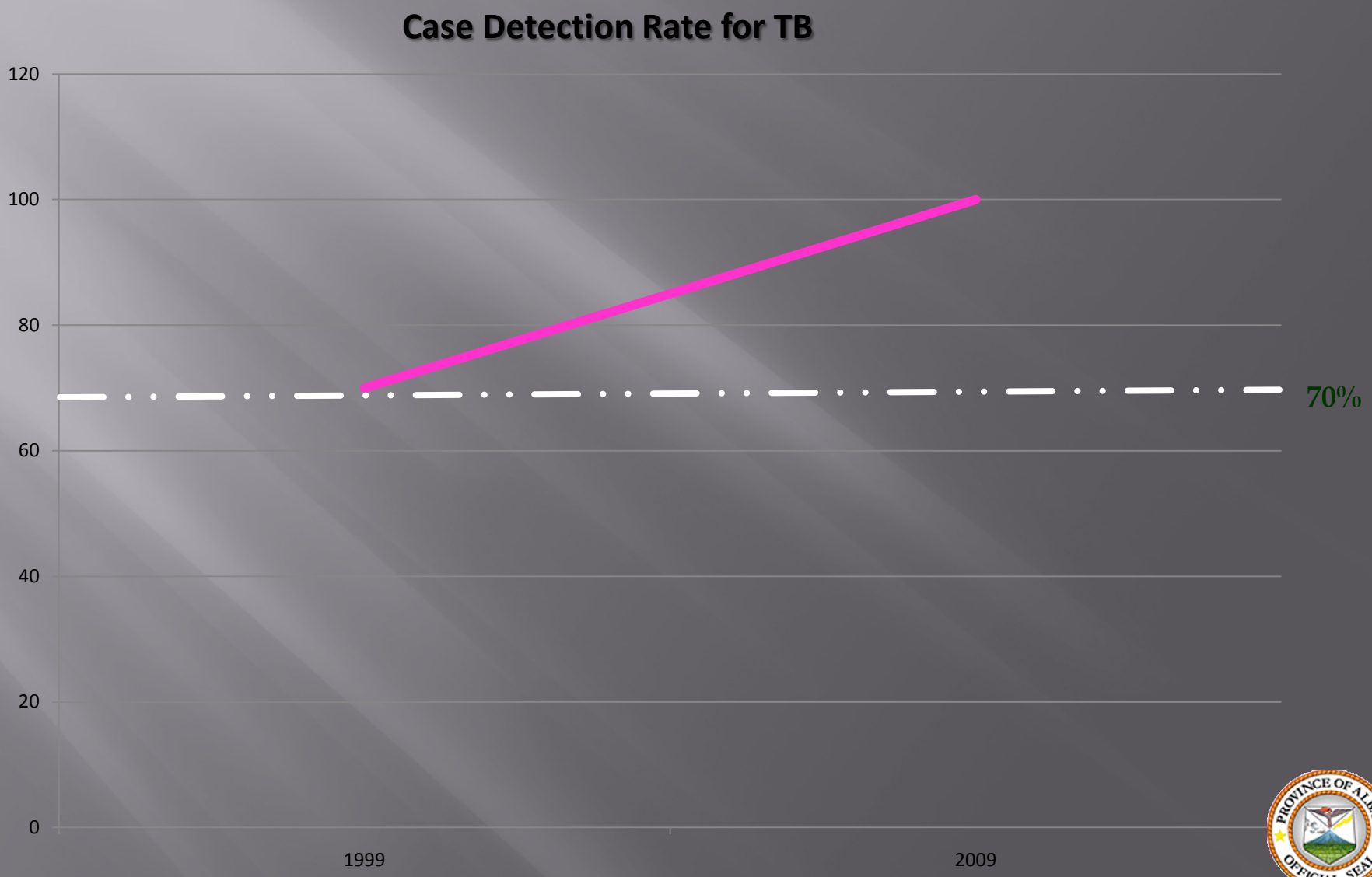

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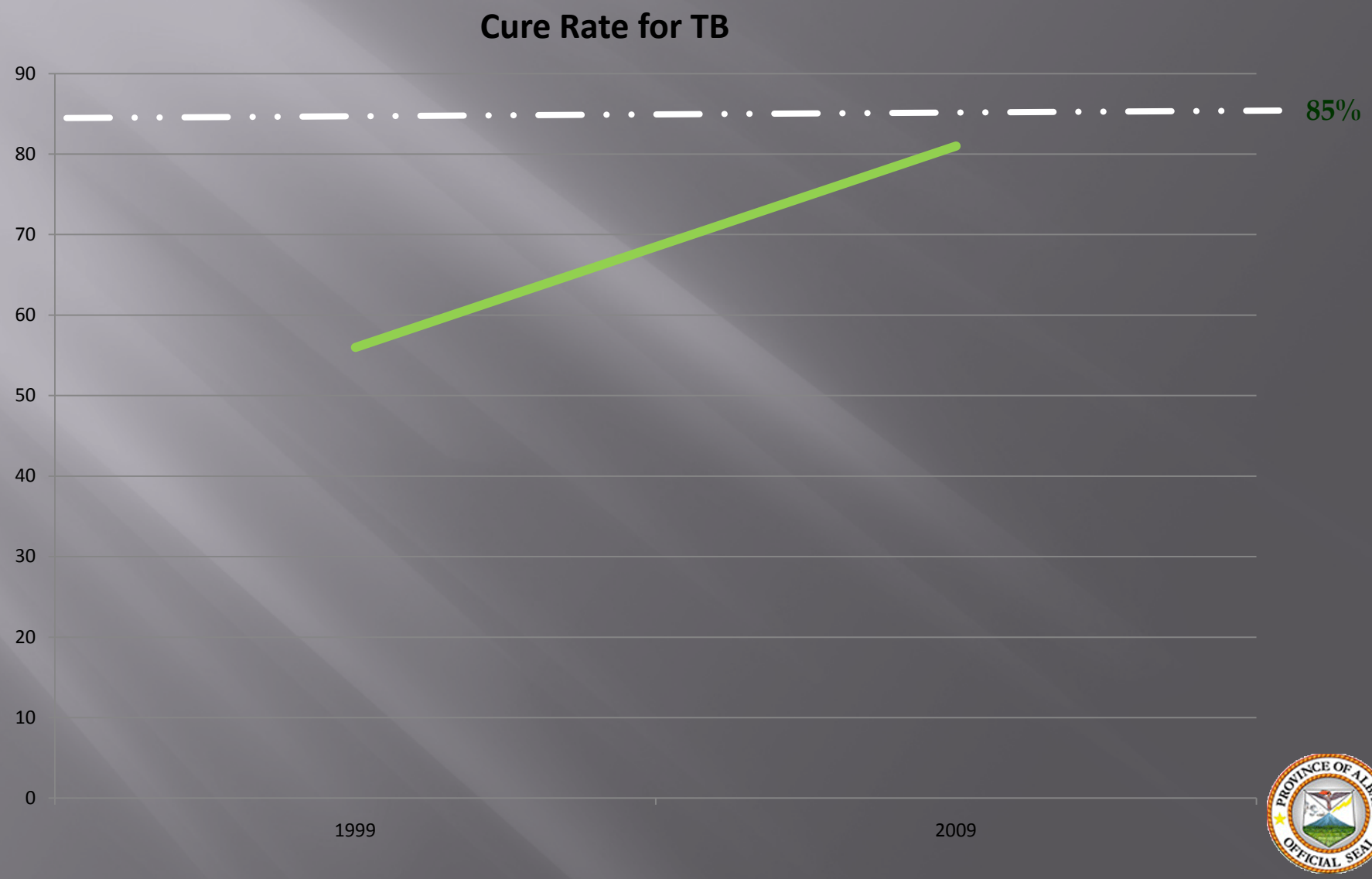

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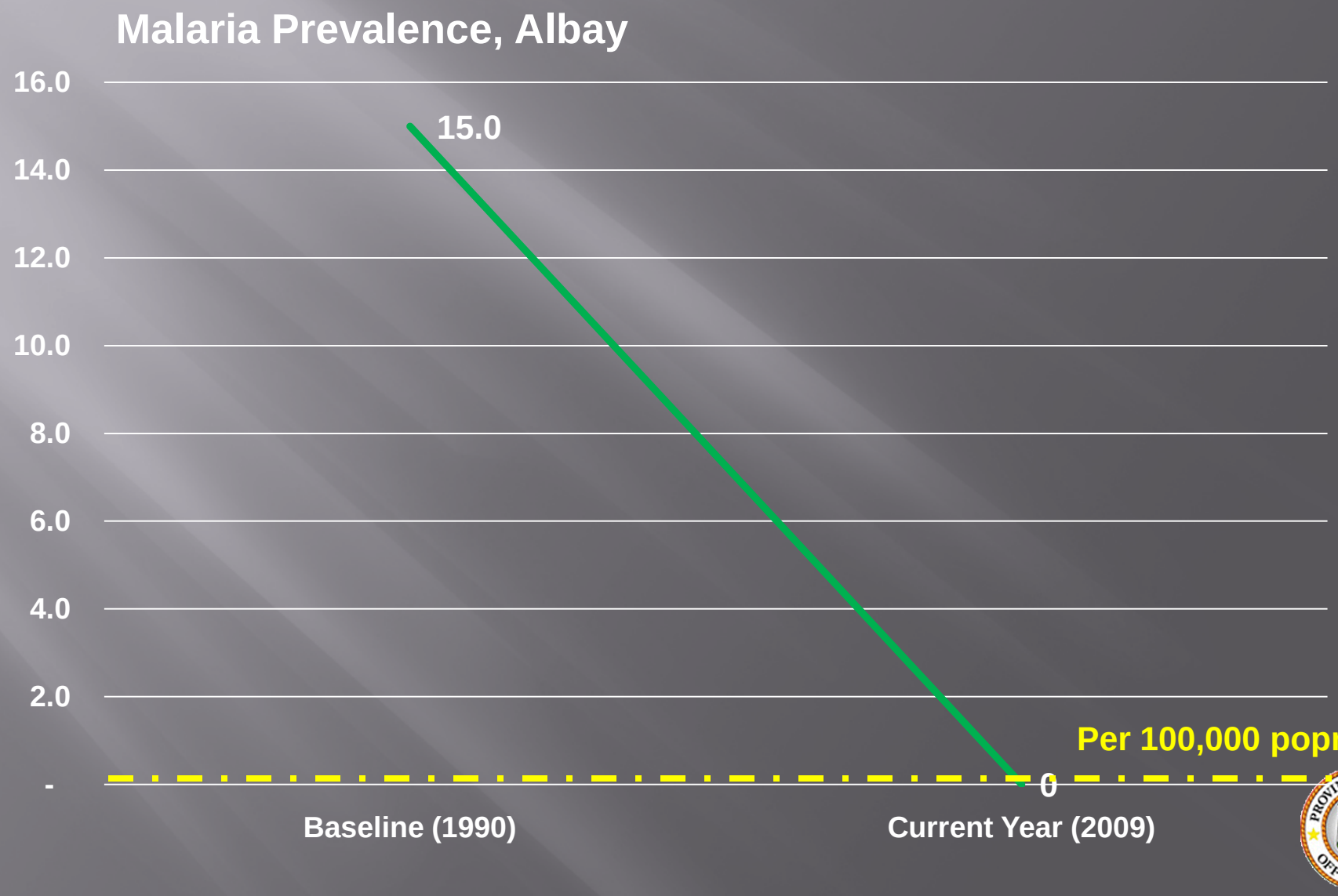

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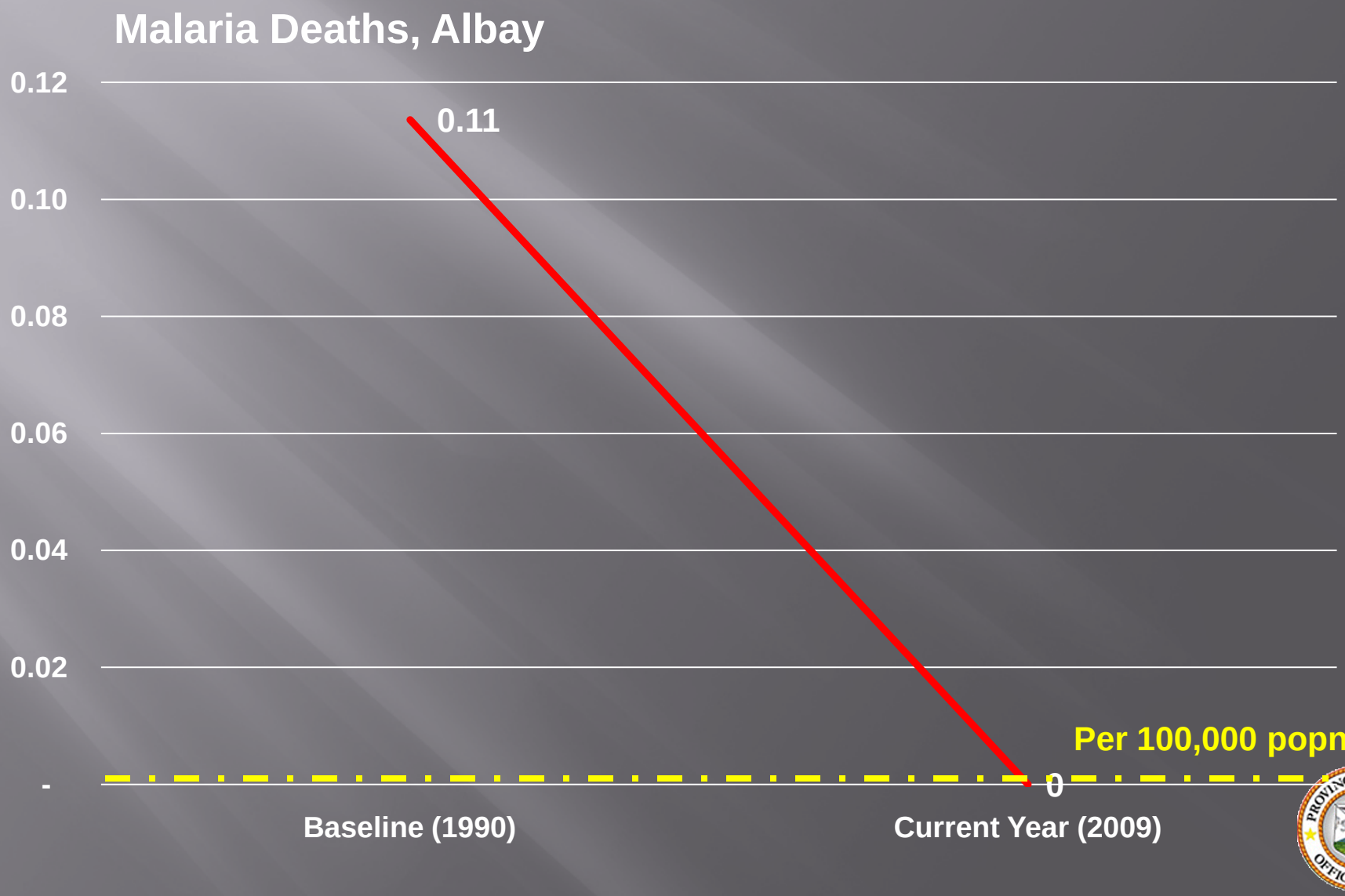
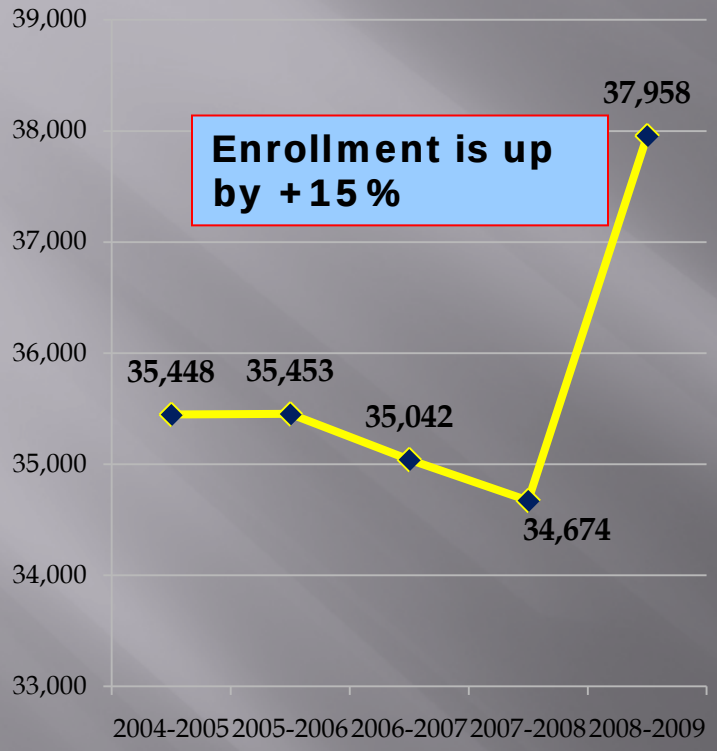
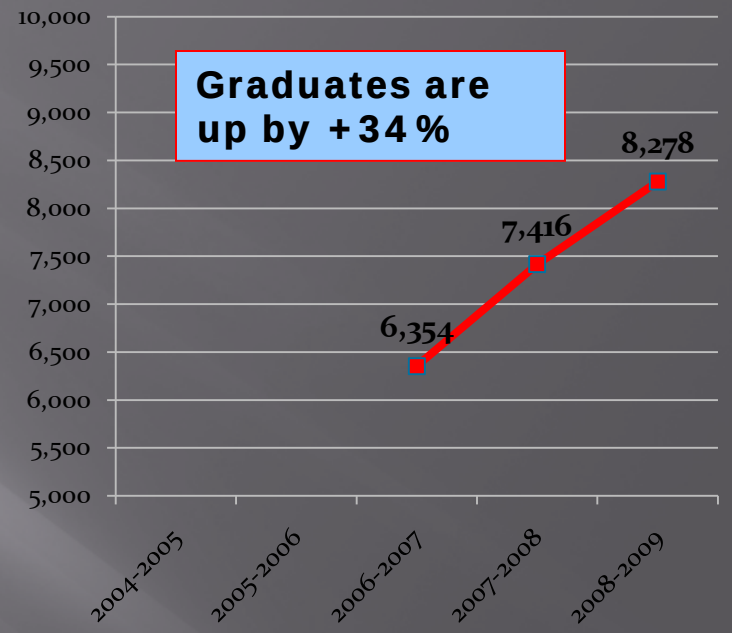


More kids in school, more finish school





Source: CHED

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			135.5	63.33	130.5
Sorsogon	**9,154**	42.03	159	68.10			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)

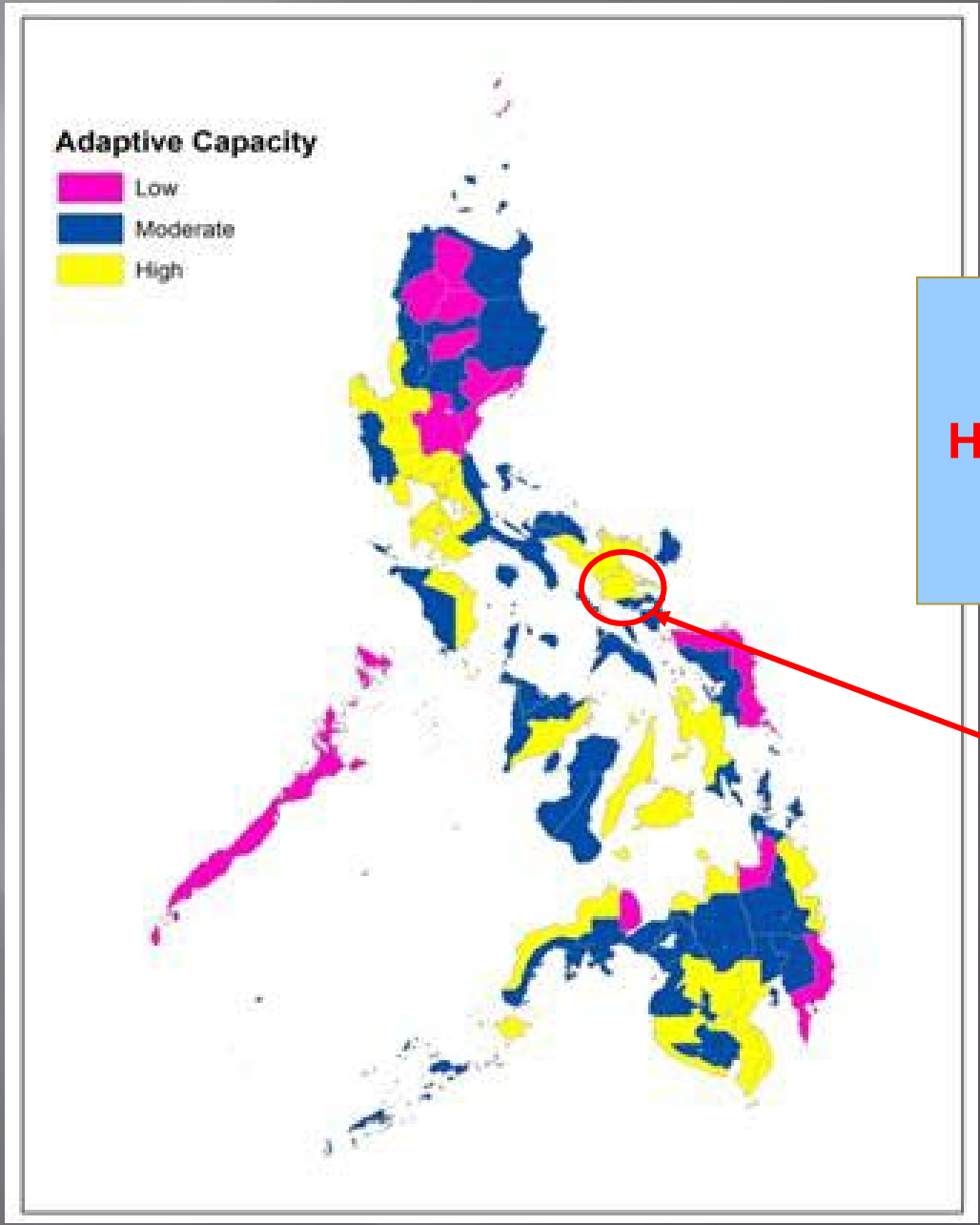
Cluster 3: **Small** Size Divisions (includes representative samples of private schools)

Recognition to Albay DRR

- ☑ Make MDG a goal, adaptation follows
- ☑ Ordain policies
- ☑ Give it a budget
- ☑ Execute programs and projects
- ☑ Build institutions
- ☑ Nurture partnerships / mobilize resources

THE STRATEGY

CIRCA



Risk =

Hazard x Exposure

Capacity

ADAPTATION = Increasing capacity so that development can proceed in the midst of risks

CIRCA

Adaptation Strategy of Albay Province

- **Make MDG a goal, adaptation follows**
  - Albay goal changed to “safe and shared development”
  - Safe is defined as climate-proofed and disaster-proofed (HFA)
  - Shared development is defined as MDG goals and HDI improvement (MDG)
  - **Zero casualty goal** embodies this overall goal in the DRR context
- **Ordain policies**:
  - Body of SP ordinances
  - Incremental budget on top of calamity fund
- **Execute programs and projects**:
  - Disaster risk reduction
  - Climate adaptation
  - Strategic shift to human capital formation (health and education) from physical capital formation

CIRCA

Adaptation Strategy of Albay Province

- **Make MDG a goal, adaptation follows**
  - Albay goal changed to “safe and shared development”
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  - **Zero casualty goal** embodies this overall goal in the DRR context
- **Ordain policies**:
  - Body of SP ordinances
  - Incremental budget on top of calamity fund
- **Execute programs and projects**:
  - A2C2
  - Adaptation is imperative
  - Mitigation is a duty

DRR Strategy of Albay

- **Build institutions**
  - **Apsemo** (2008 Galing Pook awardee) - DRR
  - **CIRCA** (Center for Initiatives on Research and Climate Action) – Adaptation, mitigation and IEC
  - **Albay MDG Office**- Social Services/MDG
- **Nurture partnerships and mobilize resources**
  - Continuing training with Pagasa and INGOs on climate risks
  - CIRCA is a consortium of BU and EMB
  - Grant from UNDP for climate integration into municipal and provincial CLUP
  - Climate curriculum development with UPLB
  - Mangrove planting with DENR, PNOC-EDC, coops and farmers

Albay Provincial Goal revised to:

"safe and shared development"

1. Shared development operationally defined as: achieve MDG and improve HDI.
2. Safe development is defined by **climate proofing** and **disaster proofing** of **development**. Climate change and disaster risks are key obstacles to MDG and HDI.
   a. Disaster risk reduction and climate action are built-in elements of the central economic strategy, not a contingency plan.
   b. Disaster risk reduction is guided by Hyogo Framework for Action and climate action is guided by UNFCCC.
   c. Goal is Zero casualty during disaster
3. Safe development + good governance = shared economic growth.

Resources for Institutionalized DMO

- **Permanent office**
  - created by ordinance in 1994 with regular 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

CIRCA

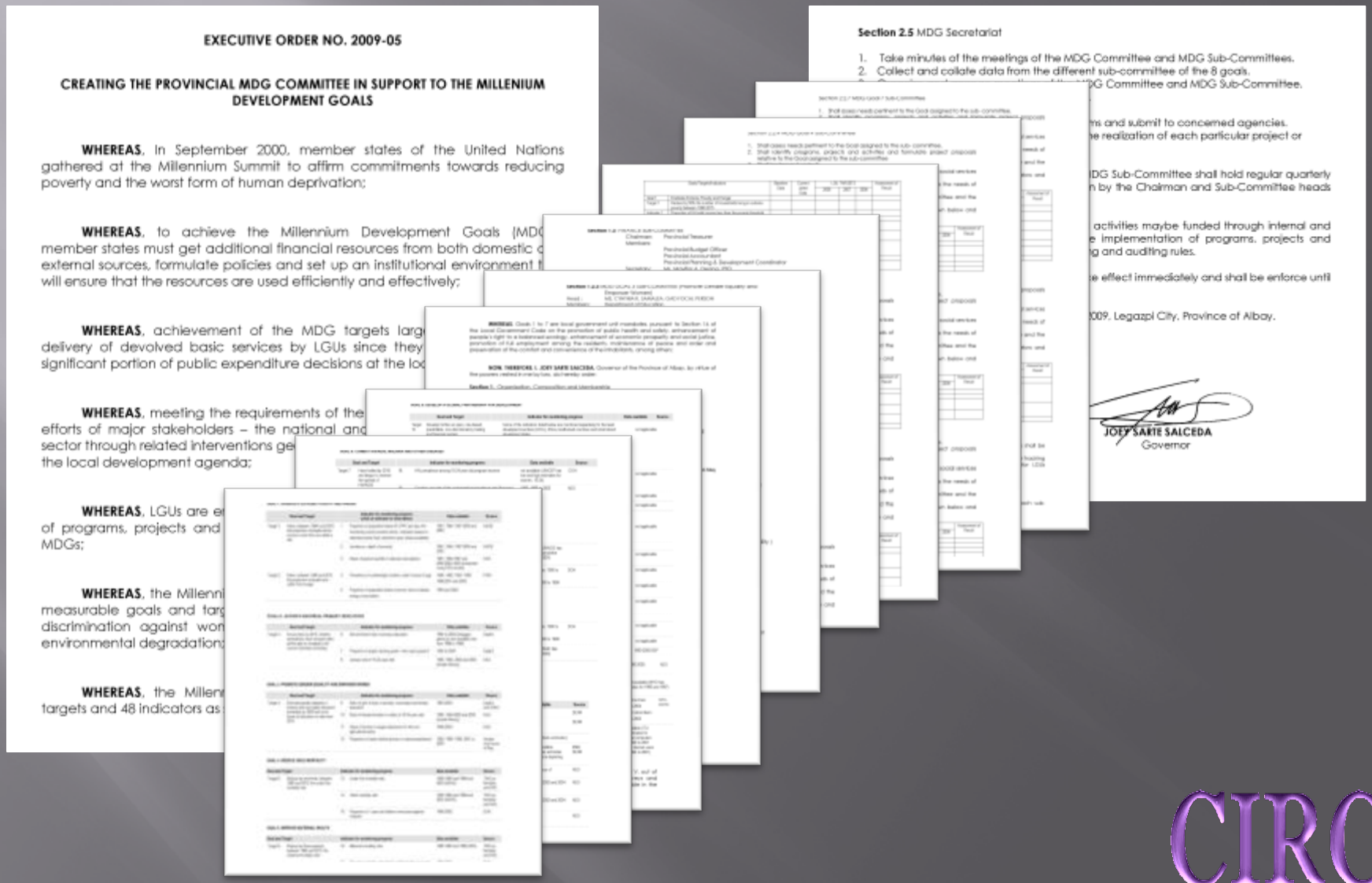
Resources for Institutionalized Climate Office

- **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)
    - 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

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

Albay MDG Supercom



EXECUTIVE ORDER NO. 2009-05

CREATING THE PROVINCIAL MDG COMMITTEE IN SUPPORT TO THE MILLENIUM DEVELOPMENT GOALS

WHEREAS, In September 2000, member states of the United Nations gathered at the Millennium Summit to affirm commitments towards reducing poverty and the worst form of human deprivation;

WHEREAS, to achieve the Millennium Development Goals (MDG member states must get additional financial resources from both domestic external sources, formulate policies and set up an institutional environment will ensure that the resources are used efficiently and effectively;

WHEREAS, achievement of the MDG targets larg delivery of devolved basic services by LGUs since they significant portion of public expenditure decisions at the loc

WHEREAS, meeting the requirements of the efforts of major stakeholders – the national and sector through related interventions ge the local development agenda;

WHEREAS, LGUs are e of programs, projects and MDGs;

WHEREAS, the Millenn measurable goals and targ discrimination against wom environmental degradation;

WHEREAS, the Millen targets and 48 indicators as

Section 2.5 MDG Secretariat

1. Take minutes of the meetings of the MDG Committee and MDG Sub-Committees.
2. Collect and collate data from the different sub-committee of the 8 goals.

G Committee and MDG Sub-Committee.

ms and submit to concerned agencies.
e realization of each particular project or

DG Sub-Committee shall hold regular quarterly
n by the Chairman and Sub-Committee heads

activities maybe funded through internal and
e implementation of programs, projects and
g and auditing rules.

e effect immediately and shall be enforce until

009, Legazpi City, Province of Albay.

JOEY SARTE SALCEDA
Governor

CIRCA

2009 ALBAY PROVINCIAL BUDGET: 9% earmarked for adaptation

Item of Expenditure	Amount	%
Personnel Services	302	38%
of which		
10% increase	27	3%
14th month + P12,000	24	3%
Regular Salaries	251	31%
Mem Health PS	***139***	***17%***
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 adaptation
- 24% for health
- 2% for social services
- 3% for agriculture

Internal sources:
- IRA
- Royalties geothermal

External sources:
- UNDP/AECD- P16m
- BSWM- P5m

Highlights of Adaptation Programs

- **Geostrategic Intervention**
- **Relocation**
- **Engineering Interventions**
- **Risk Mapping**
  - Comprehensive Land Use Plans
- **Social Preparations**
  - Community-based Warning and Evacuation Planning
  - Close coordination with Warning Agencies
- **Capacity Build-up**
  - Mobility Assets
  - Permanent Evacuation Center
- **Disaster Response**
  - Preemptive Evacuation
  - Preemptive Healthcare
- **Cluster Approach to Early Recovery**

CIRCA

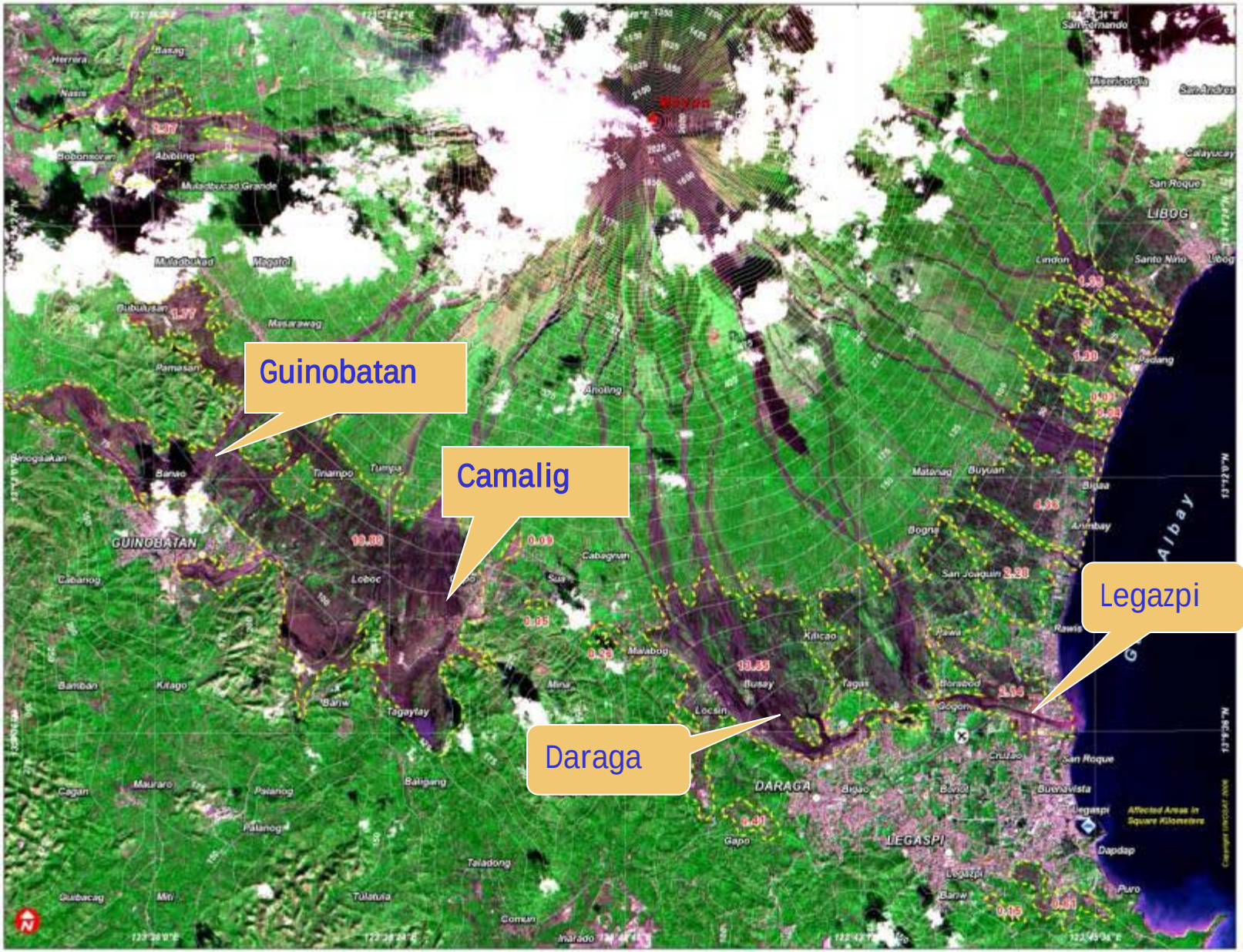
Risk Reduction: Geostrategic Intervention

- **Geostrategic 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

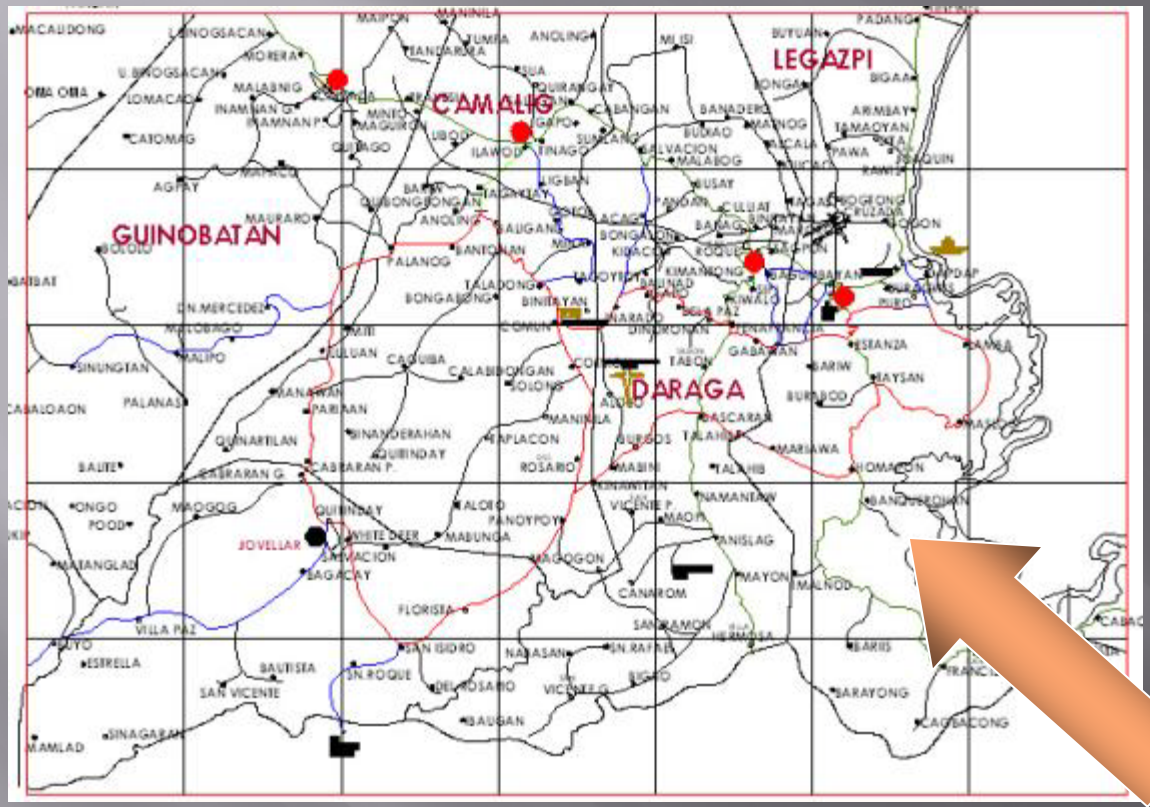
Overview of Flooding & Mudslide Damage Surrounding Mt. Mayon Volcano, Albay Province, Philippines

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



GUICADALE ECONOMIC PLATFORM



DRR w/o DISASTER

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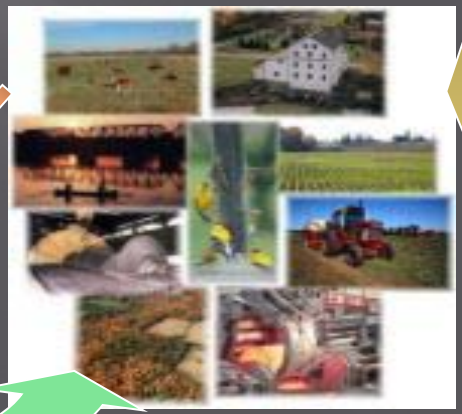
ECONOMIC EXPANSION



INVESTMENTS

=

DRR MEASURES

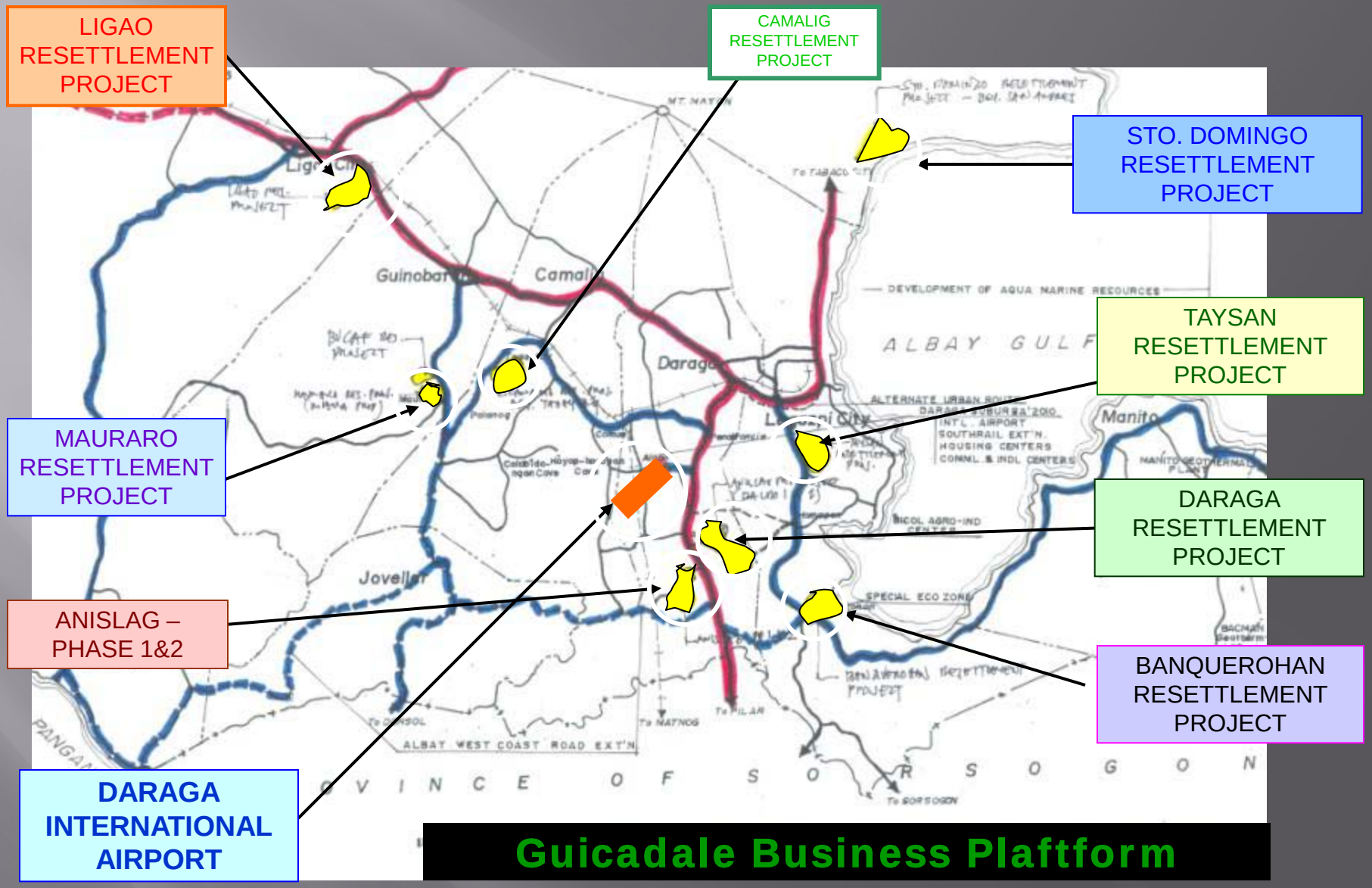
Risk Reduction: Relocation

- **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)


LIGAO RESETTLEMENT PROJECT
CAMALIG RESETTLEMENT PROJECT
STO. DOMINGO RESETTLEMENT PROJECT
TAYSAN RESETTLEMENT PROJECT
MAURARO RESETTLEMENT PROJECT
DARAGA RESETTLEMENT PROJECT
ANISLAG – PHASE 1&2
BANQUEROHAN RESETTLEMENT PROJECT
DARAGA INTERNATIONAL AIRPORT
Guicadale Business Plaftform
ALBAY GULF
DEVELOPMENT OF AQUA MARINE RESOURCES
ALBAY WEST COAST ROAD EXT'N
SPECIAL ECO ZONE
Manito
Jovellar

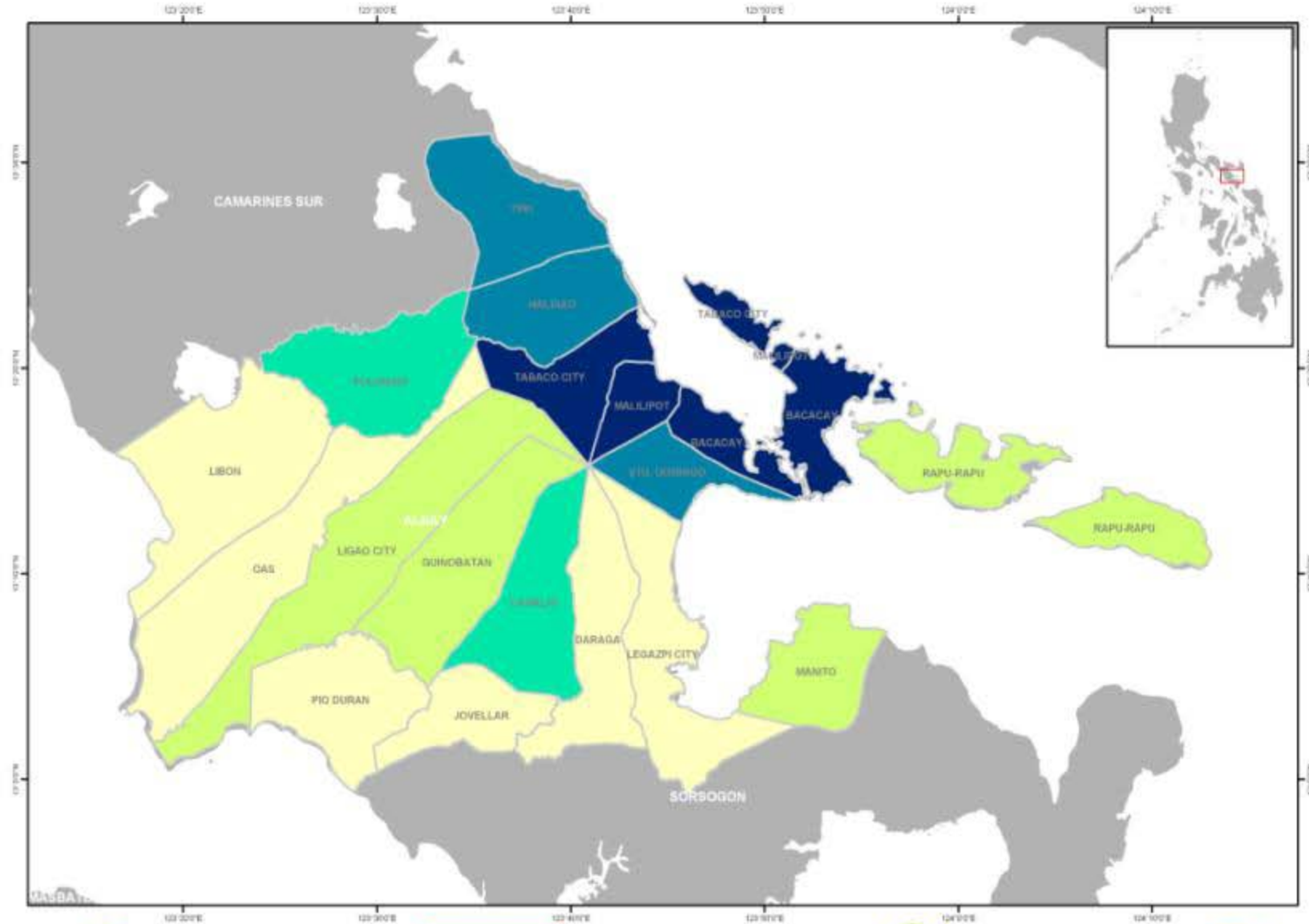
Risk Reduction: Land Use Plan and Zoning

- **Comprehensive Land Use Plan**
  - First line of defense against disaster: science-based adaptation
  - SIMCLIM (localized climate scenario) software customized for Albay
  - Training of 18 municipalities in preparation of CLUPs on integration climate risks at municipal level
  - *VA / SEI analyis now complete (vulnerability assessment) / socioeconomic impacts*
  - Integration of climate and disaster risks into zoning ordinance
  - Source of Funds: P16m from **UNDF MDGCF**
- **Soil Analysis**
  - BSWM-led soil testing of 15 LGUs with 3 already done (Polangui, Ligao and Tiwi)
  - Source of Funds:P5m from **Dept of Agriculture MOOE** downloaded to Provincial Government

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

Typhoon Risk Map of Albay Province, Philippines



LEGEND

- Municipal Boundary

Risk

- Very Low
- Low
- Moderate
- High
- Very High

MAP INFORMATION

This map illustrates the risk posed by typhoon in Albay province.

High risk areas are municipalities that are frequently hit by strong typhoons, as well as, being densely populated with high poverty incidence.

Typhoon is the name given to a tropical cyclone with maximum sustained winds of 64 knots or near the center in the western North Pacific (WMO)

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

H = Typhoon Hazard Score
E = Population Density
V = Poverty Incidence

The Typhoon Hazard Score (H) was computed for each municipality of the study area using the formula:

$$H = \Sigma (w_i \times A_i) / M$$

Where w is the weight based on the frequency of typhoons with wind velocity above 100kph, A is the area of the typhoon hazard, and M is the area of the municipality.

Population density is the number of persons per square kilometers. Poverty incidence is the proportion of the poor population to the total population based on the per capita poverty threshold.

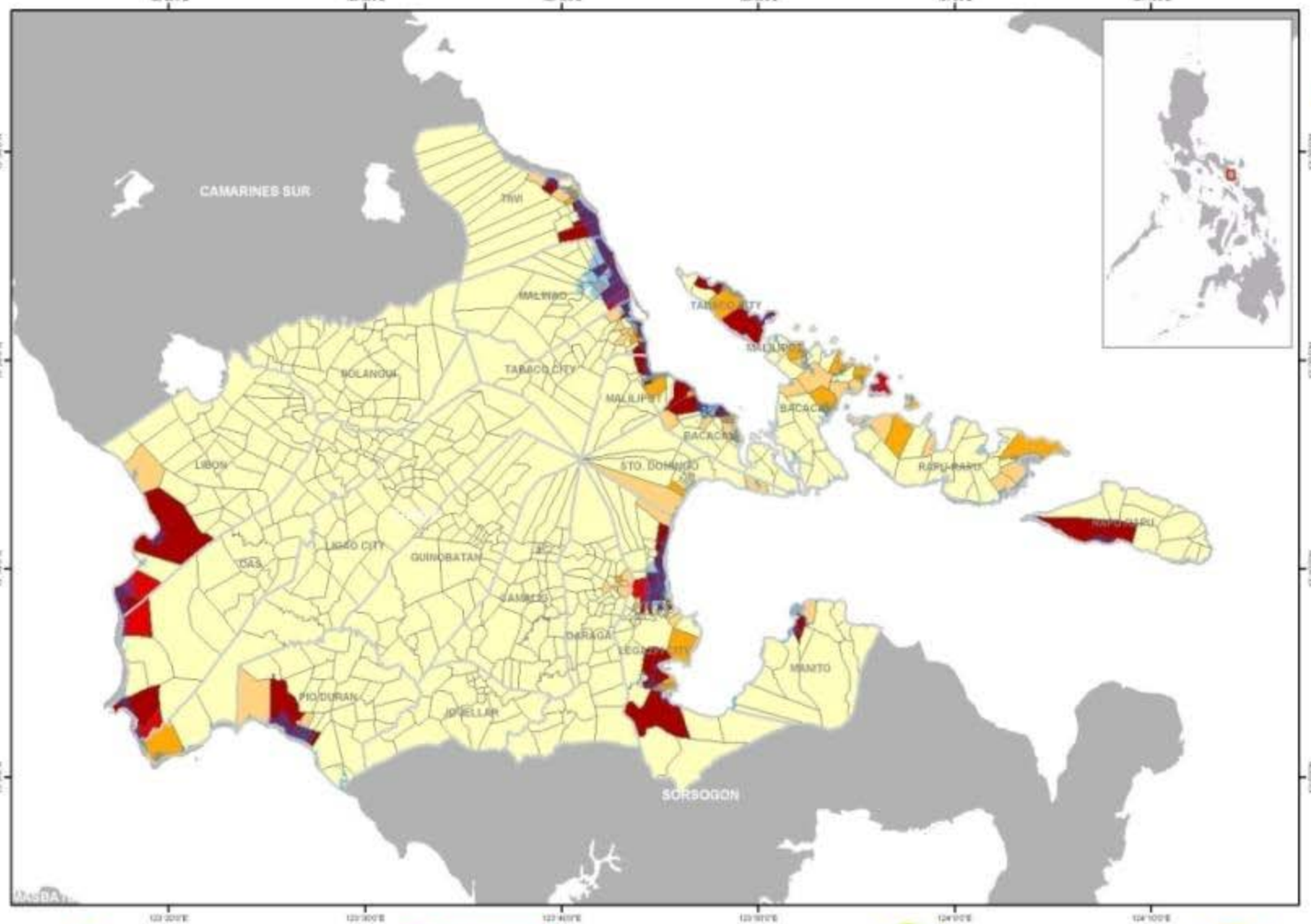
Km
0 1 2 4 6

Map Scale for A3 Prints:	**Typhoon Data:**
1 : 350000	JTWC Best Track Data (1945-2000)
Poverty Data:	**Map Production:**
NSCB	Manila Observatory
Population Data:	**Map Produced by:**
NSO	Engr. Joel de Mesa
GIS Data:	Armelle Reca Remedio
MO, NAMRIA, NSCB, NSO	**Projection:** GCS Luzon Datum

christian aid

Oxfam

Coastal Flooding Risk Map of Albay Province, Philippines



LEGEND

- Barangay Boundary
- Municipal Boundary
- Low Lying Coastal Areas (0-10m)

Risk

- 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. (MetEd)

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:

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

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.

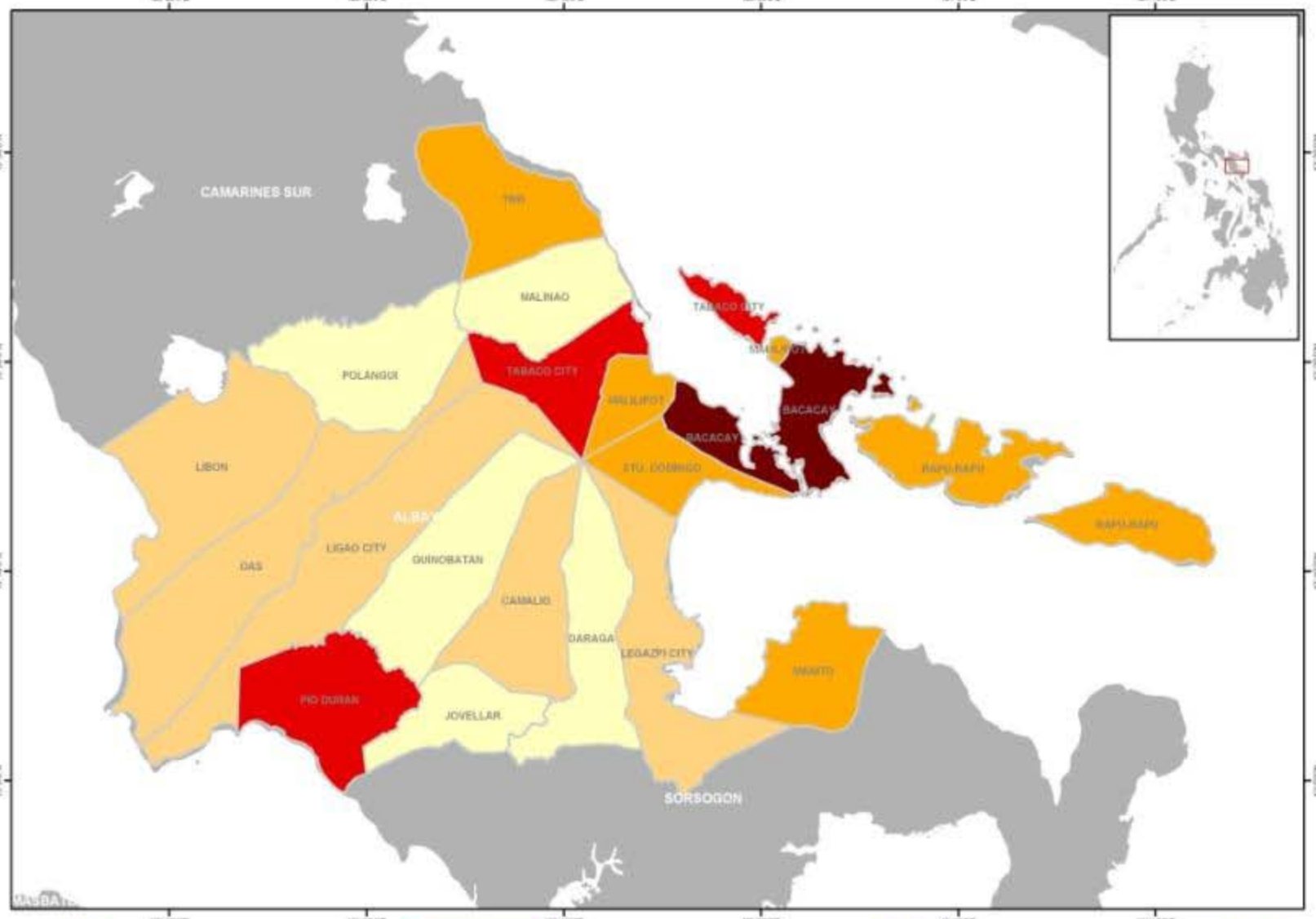
Km
0 1 2 4 6

Map Scale for A3 Prints:	**GIS Data:**
1 : 350000	MO, NAMRIA, NSCB, NSO
Elevation Data:	**Map Production:**
SRTM 90m DEM	Manila Observatory
Poverty Data:	**Map Produced by:**
NSCB	Engr. Joel de Mesa Armelle Reca Remedio
Population Data:	**Projection:**
NSO	GCS Luzon Datum

christian aid

Oxfam

Temperature Increase Risk Map of Albay Province, Philippines



LEGEND

- Municipal Boundary

Risk

- Very Low
- Low
- Moderate
- High
- Very High

MAP INFORMATION

This map illustrates the risk posed by temperature increase in Albay province.

High risk areas are municipalities that experience a rise in temperature, as well as, being densely populated with high numbers of poor people.

An increase in temperature can cause sea level rise, increased intensity of extreme weather events, and a significant change to the amount and pattern of precipitation.

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

H = Temperature Increase Hazard Score
E = Population Density
V = Poverty Incidence

The Temperature Increase Hazard Score (H) was computed for each municipality of the study area using the formula:

$$H = \Sigma (a2 \times A) / M$$

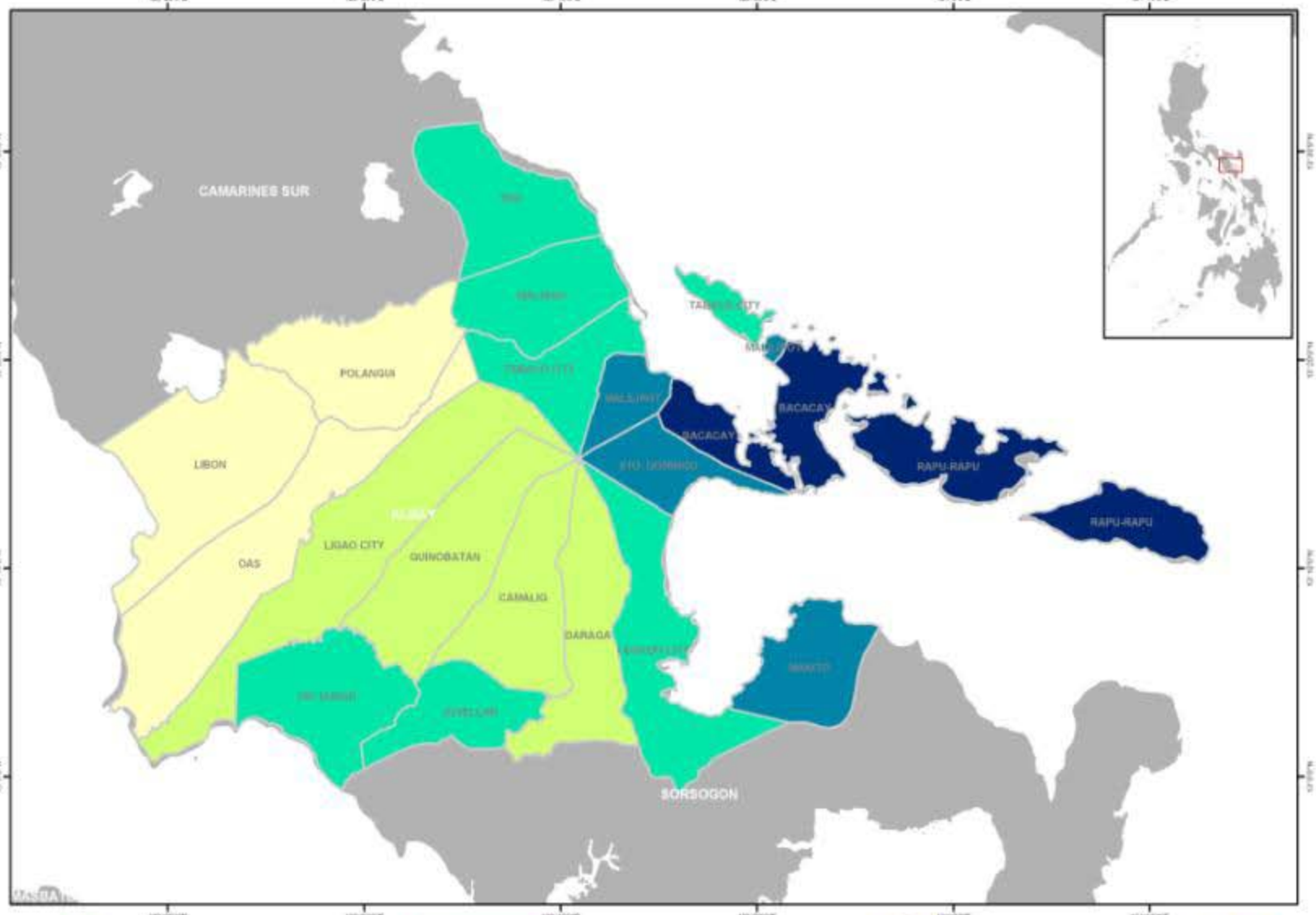
Where a is the weight based on annual average increase in temperature, A is the area of the temperature increase hazard, and M is the area of the municipality.

Population density is the number of persons per square kilometers. Poverty incidence is the proportion of the poor population to the total population based on the per capita poverty threshold.

Km
0 1 2 4 8

Map Scale for A3 Prints:	**Temperature Data:**
1 : 350000	The Abdus Salam ICTP RegCM3, NIMRP2
Poverty Data:	GISST, OISST, USGS,
NSCB	PAGASA
Population Data:	**Map Production:**
NSO	Manila Observatory
GIS Data:	**Map Produced by:**
MO, NAMRIA, NSCB, NSO	Engr. Joel de Mesa Armelle Reca Remedio
	Projection:
	GCS Luzon Datum

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



LEGEND

Municipal Boundary

Hazard

- Very Low
- Low
- Moderate
- High
- Very High

MAP INFORMATION

This map illustrates the hazard posed by rainfall increase in Albay province.

High hazard areas are municipalities that experience rainfall increase in the months of March, April and May.

Rainfall is the primary trigger of lahar flow, landslides, and flood.

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

H = Rainfall Increase Hazard Score
E = Population Density
V = Poverty Incidence

The Rainfall Increase Hazard Score (H) was computed for each municipality of the study area using the formula:

$$H = \Sigma (w_i \times A_i) / M$$

Where w_i is the weight based on the 3-monthly average increase in accumulated rainfall, A is the area of the rainfall increase hazard, and M is the area of the municipality.

Population density is the number of persons per square kilometers. Poverty incidence is the proportion of the poor population to the total population based on the per capita poverty threshold.

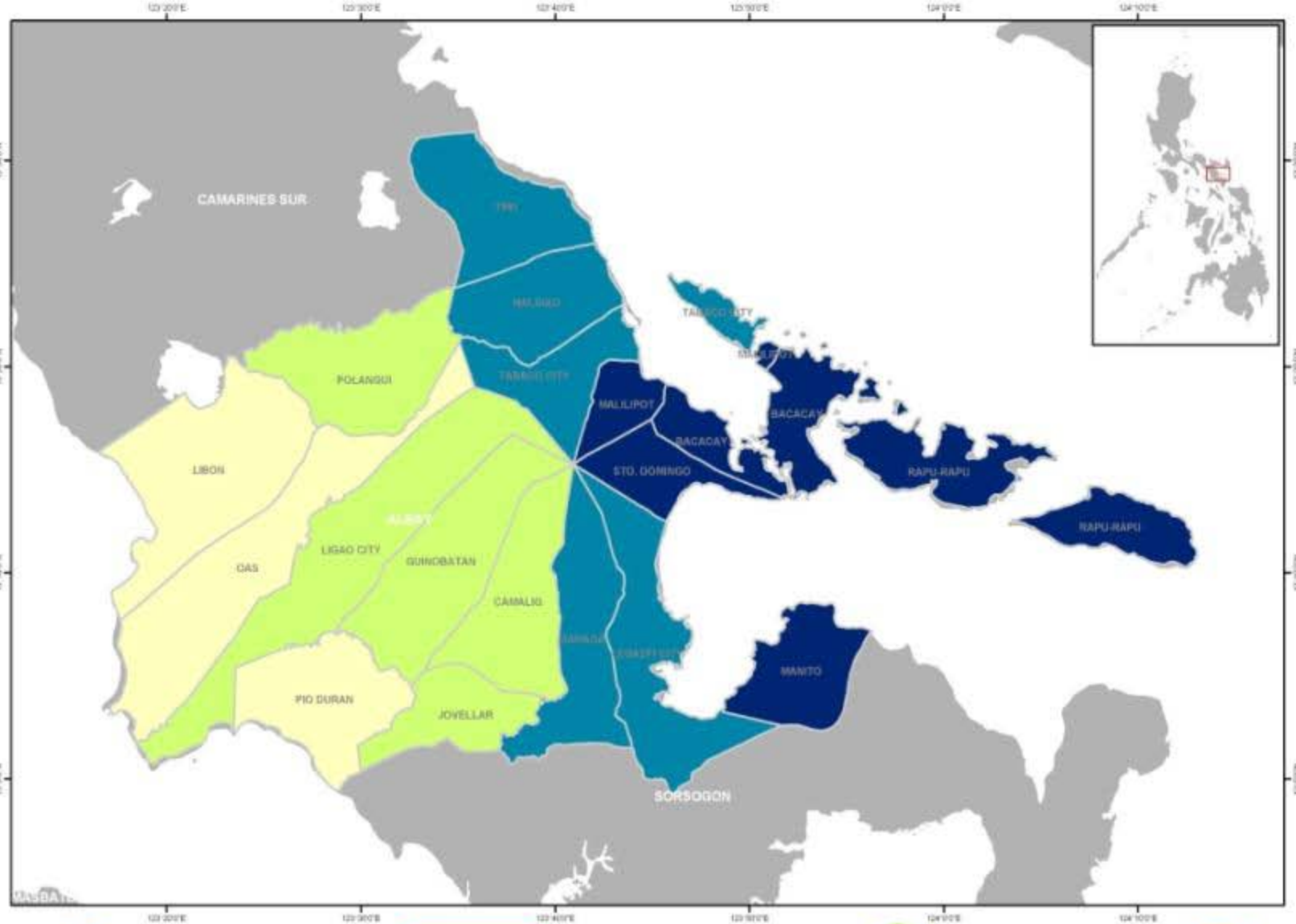
Km
0 1 2 4 8

Map Scale for A3 Prints:	**Rainfall Data:**
1 : 350000	The Abdus Salam ICTP RegCM3, NMRP2
Poverty Data:	GISST, OISST, USGS,
NSCB	PAGASA
Population Data:	**Map Production:**
NSO	Manila Observatory
GIS Data:	**Map Produced by:**
MO, NAMRIA	Engr. Joel de Mesa
NSCB, NSO	Armelle Reca Remedio
	Projection:
	GCS Luzon Datum

christian aid

Oxfam

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



LEGEND

- Municipal Boundary

Hazard

- Very Low
- Low
- Moderate
- High
- Very High

MAP INFORMATION

This map illustrates the hazard posed by rainfall increase in Albay province.

High hazard areas are municipalities that experience rainfall increase in the months of October, November and December.

Rainfall is the primary trigger of lahar flow, landslides, and flood.

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

H = Rainfall Increase Hazard Score
E = Population Density
V = Poverty Incidence

The Rainfall Increase Hazard Score (H) was computed for each municipality of the study area using the formula:

$$H = \Sigma (w_i \times A_i) / M$$

Where w is the weight based on the 3-monthly average increase in accumulated rainfall, A is the area of the rainfall increase hazard, and M is the area of the municipality.

Population density is the number of persons per square kilometers. Poverty incidence is the proportion of the poor population to the total population based on the per capita poverty threshold.

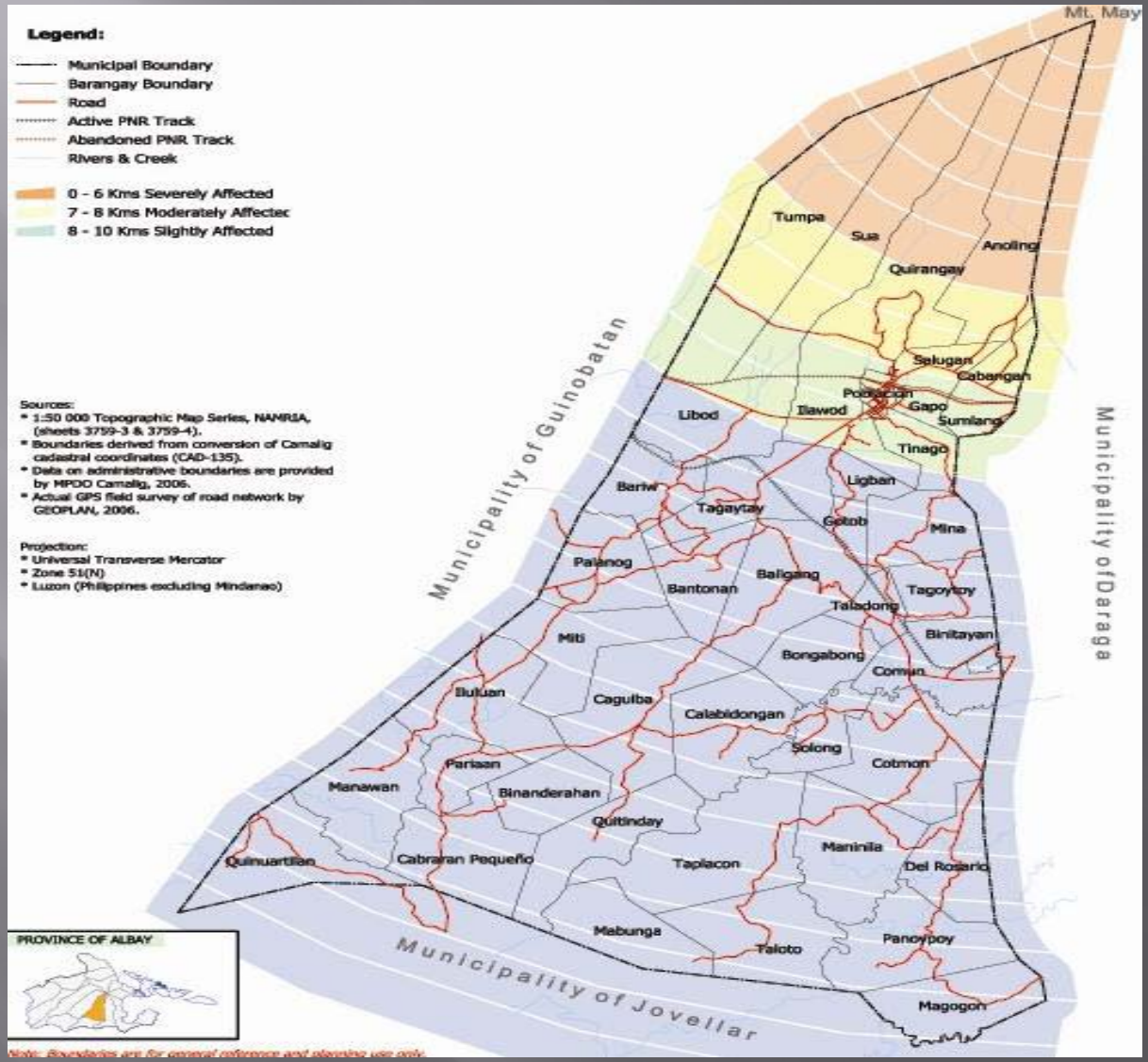
Km
0 1 2 4 6

Map Scale for A3 Prints:	**Rainfall Data:**
1 : 350000	The Abdus Salam ICTP RegCM3, NIRP2,
Poverty Data:	GISST, OISST, USGS,
NSCB	PAGASA
Population Data:	**Map Production:**
NSO	Manila Observatory
GIS Data:	**Map Produced by:**
MO, NAMRIA,	Engr. Joel de Mesa
NSCB, NSO	Armelle Reca Remedio
	Projection:
	GCS Luzon Datum

christian aid

Oxfam

Risk Mapping



Risk Reduction: Engineering Interventions

- **Engineering Interventions**
  - **Flood Control**
    - **Infrastructure Projects**
  - **Bicol River Basin and Watershed Project**
    - Flood control for flood plains
    - Watershed protection and reforestation
    - Irrigation rehabilitation
    - Multi-year P3.4bn
  - **Source of Funds**
    - World Bank country assistance with NG counterpart

Engineering Interventions: Biggest Gap

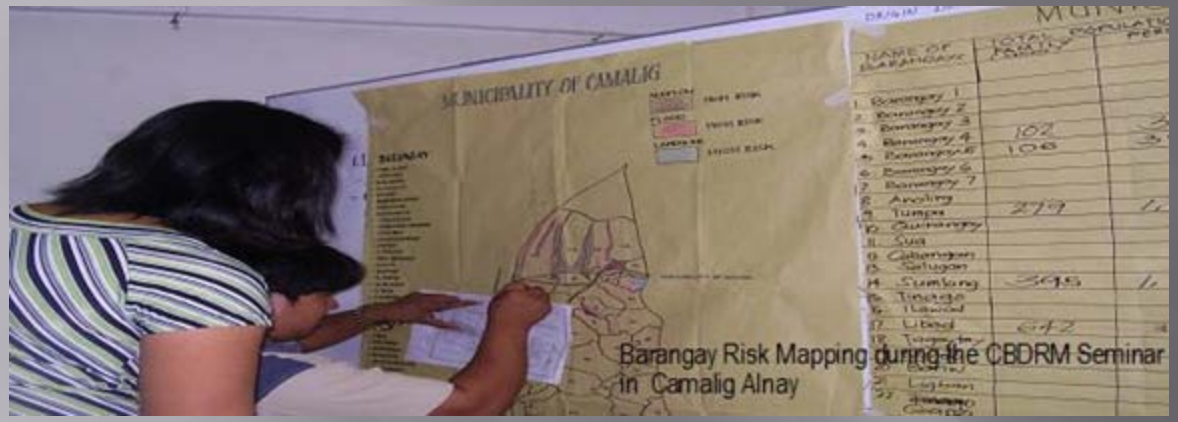
CIRCA

Resources for Social Preparations

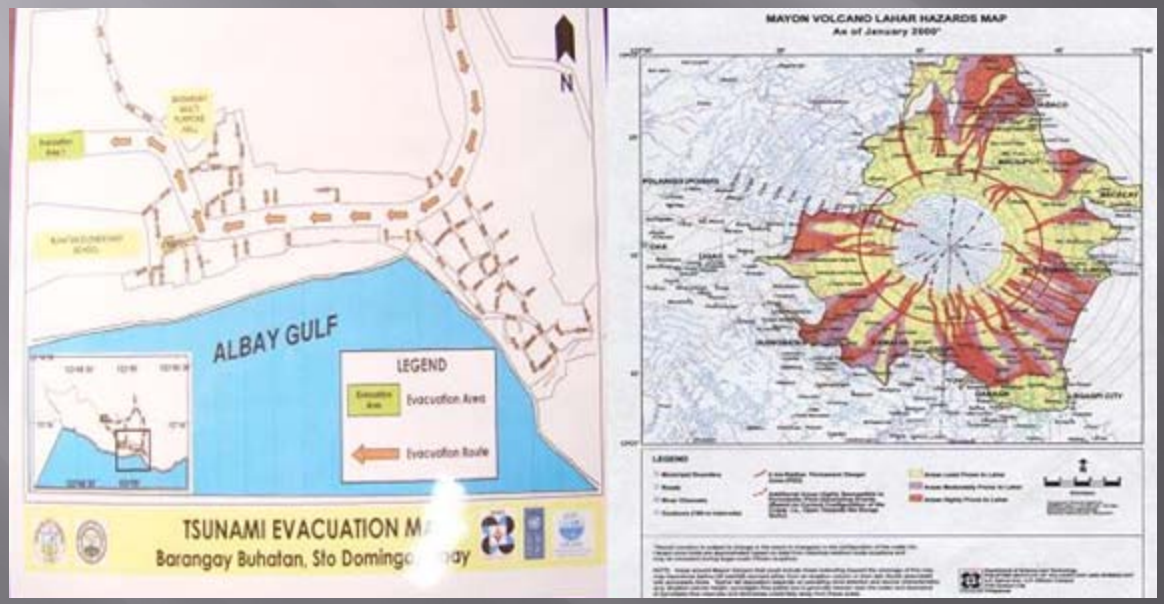
- **Continuous Training and Education**
  - Components
    - Household preparedness
    - Community preparedness (first responder capacity)
    - LGU preparedness (first integrator)
    - Skills development for government and volunteers
    - Warning System Communication Protocol and Evacuation Procedures
    - 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
  - Source of Funds
    - Regular annual provincial budget

CIRCA

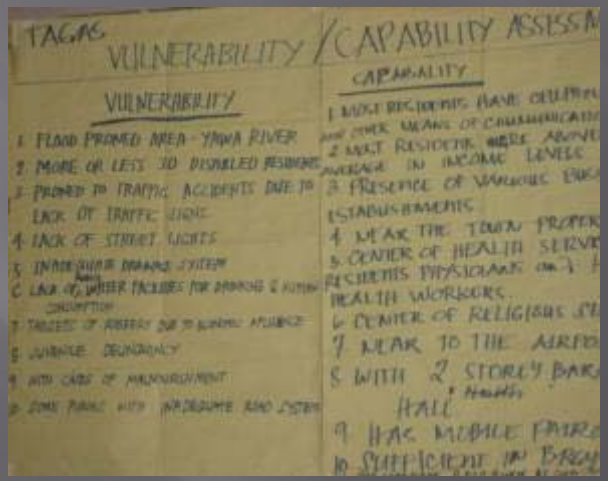
Social Preparations



Barangay Risk Mapping during the CBDRM Seminar in Camalig Alnay



Community Training and Seminar



Community Drills

Training of Emergency Paramedics

Training of Rescue Team

Starting them early

Children DRR through Games

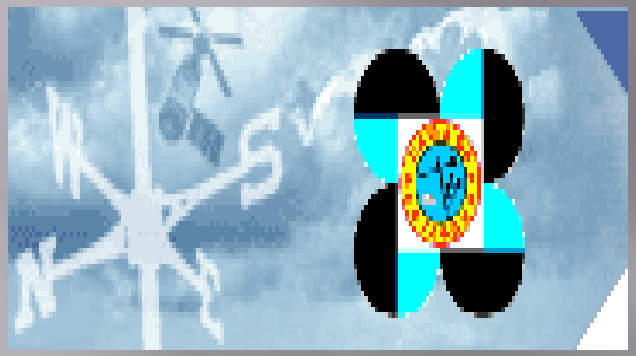
Children DRR through Magic

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

Doppler Radar

Community-Based Early Warning



Warning Agencies

APSEMO

Communities LGUS

DOST

PHIVOLCS

Community-based Warning Communications

Community Disaster Preparedness and Response Activities

(Organizing, Education and Trainings)

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**
- **Safe Schools**
    - Validation survey of all school buildings for structural safety (design), safety from hazards (location) and safety for health
    - Provision of water-sanitation facilities to 700 school buildings
    - Source of Funds: DOH HEMS-Unicef

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 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 – 95% Completed
- Camalig – 95% Completed
- Malilipot- For Construction
- Tabaco City- For Construction
- Ligao City- For Construction

Permanent Reloc ation 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

Disaster Response: Preemptive Evacuation

- **Preemptive Evacuation**
  - Preemptive evacuation is our key response mechanism to achieve zero casualty goal
  - Based on gravity and proximity of risk,
    - Evacuate on Signal 1 or 2 instead of Signal 3
  - Practiced 7 times (Typhoon Mina, TECF and Typhoon Frank, Ondoy, Pepeng, LPA and Santi, Mayon eruption)
  - Evacuation protocols are well-established
  - Ready budget also critical
    - Calamity Fund balance maintained sufficient for a frequency of 3 major preemptive evacuations

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

Preemptive Evacuation: Three Cases

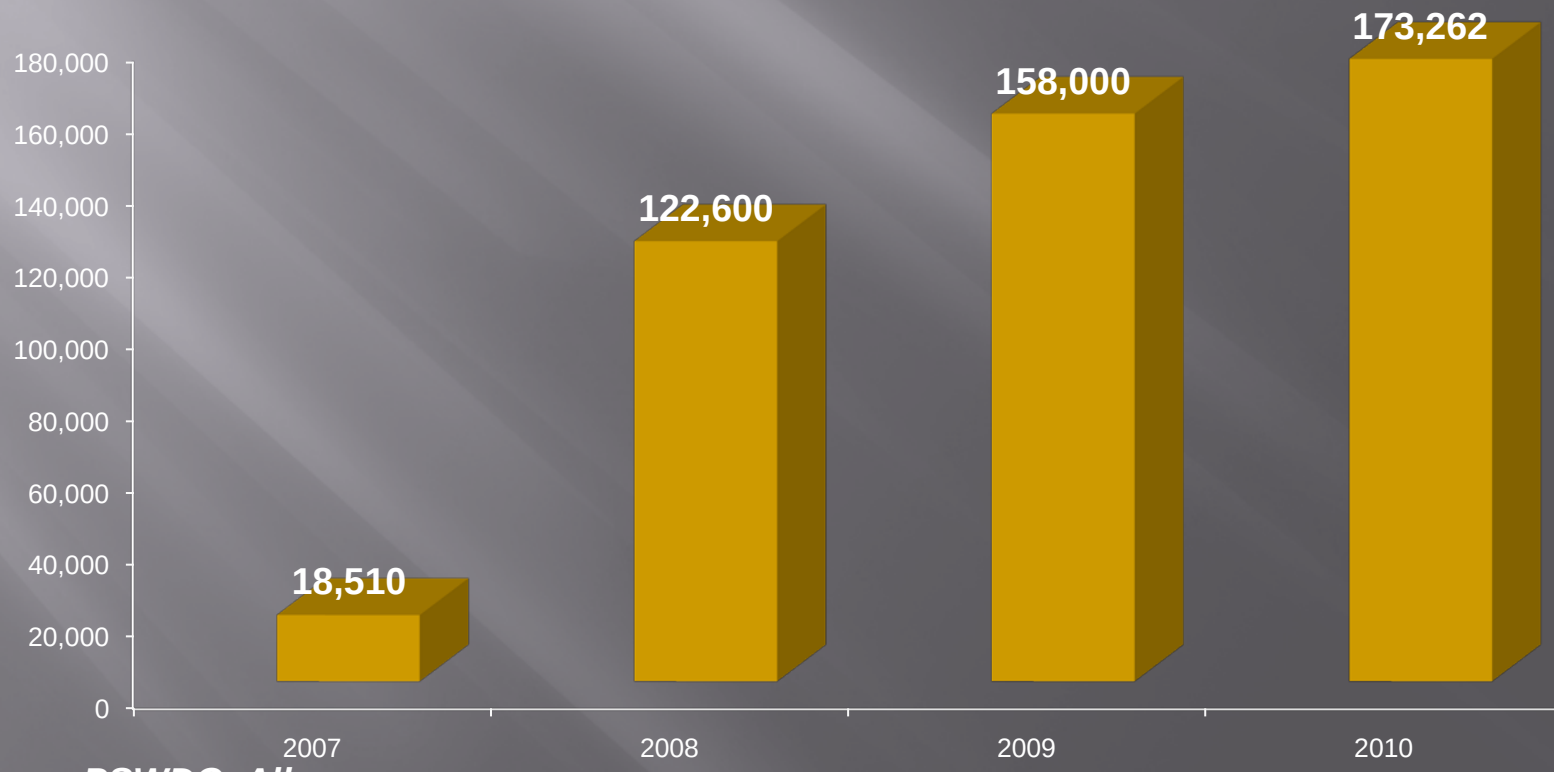
- **Typhoon Mina, Lando, Nonoy** (Nov.22 to 28, 2007)
  - No. of Evacuees: 33,694 families
  - Cost: P19m
  - Result: Zero casualty
  - **Sources**: Calamity Fund and Reserves of Medicines and Food Supply, Augmentation from DSWD
- **TECF** (Feb. 21 to March 8, 2008)
  - No. of Evacuees: 16,503 families
  - Cost: P12m
  - Result: Zero casualty
  - **Sources**: Calamity Fund and Reserves of Medicines and Food Supply
- **Typhoon Frank** (June 20-21, 2008)
  - No. of Evacuees: 23,086 families
  - Cost: P9m
  - Result: Zero casualty
  - **Sources**: Calamity Fund and Reserves of Medicines and Food Supply

Preemptive Healthcare

- **Preemptive Healthcare**
  - 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
  - Source of funds: Public health programs of provincial heal th office (provincial budget,) PCSO, DOH

NUMBER OF FAMILIES ENROLLED

Universal Phil Health Coverage: 2007-2010



Source: PSWDO, Albay

Preemptive Healthcare

- **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: trainors / 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

Preemptive Healthcare

- **Health Emergency Management**
  - Upgrading of health facilities
    - 9 provincial hospitals rehabilitated at P59.5m
      - Source: BCARE / Provincial Government / AECID
    - 2 major for upgrading to secondary hospital- P91m
      - Source: DOH 2008 budget
    - Provision of 18 ambulances to all LGUs- P21m
      - Source: BCARE / Provincial Govt
    - Source of Funds:DOH
  - Universal health insurance
    - Provides all households with access even to private medical services during emergency situations
    - Source of Funds: 24% of provincial budget is for health

Resources for Preemptive Evacuation

- Principally funded by CALAMITY FUND and use of prepositioned resources
  - Access triggered by Declaration of State of Imminent Disaster
  - Agreement with National Food Authority for standby 15,000 bags of rice
- LGUs provide funds for mobilization / transportation from households/villages to evacuation centers
- Province provide funds for maintenance of evacuation centers and needs of evacuees during the
  - Some support from DWSD, mainly regional office, and NG Calamity Fund.
- Cost efficiency depends on **(1) warning accuracy** and (2) **risk mapping and evacuation targeting.**

Implementing Guidelines for Preemptive Evacuation

- **Conditions Precedents**
  - No sailing to sea
  - Suspension of classes (all levels)
  - Suspension of offices/businesses
  - OCD notification
  - Secure Sangguniang Panlalawigan
    - Declaration of State of Imminent Disaster
  - Secure food supply
  - Notification and coordination with CHR

- **Order of Evacuation Priorities**
  1. Flood
  2. Landslide
  3. Wind (light materials)
  4. Seaboard (storm surge)

Resources for Preemptive Evacuation

- Except for the Daraga Emergency Evacuation Center, all EECs will be constructed inside the compound of Department of Education Elementary Schools
- They will serve as classrooms during normal period and will be automatically converted into evacuation center once evacuation order is release by the PDCC
- It can also be used for:
  - Training Venue of day Care Personnel
  - Venue for capacity building initiatives
  - Livelihood Generation
  - Gender Sensitivity
  - Child Care
  - Debriefing during and after calamity
  - and other activities that will benefit the community

Resources for Recovery

- **Damage and Disaster Assessment System**
  - Uses Risk Mapping and Warning System as starting points
  - Well-established protocols
- **Integrated Recovery Plan**
  - Correlated with Development Plan
  - Resource mobilization is key to success
  - Provincial Planning takes the lead and Apsemo provides inputs
- **Cluster Approach** with Albay MDG Office as coordinator/secretariat.
  - Camp Management
    - Relocation
    - Emergency shelter assistance
  - Water, health, sanitation and Nutrition
  - Psycho-social care
  - Food Security
  - Protection

PROVINCE : ALBAY

REGION :V

SYSTEM/PROJECT	LEGIS DIST	LOCA PROVI SERV	MAGES AND WORK TO BE DONE
12. Bubuluan CIS	III	Guinobat	ning of washed out canal embankment. upstream dikes both sides of dam.
13. Bumavora CIS	III	Pio Duran	ning of washed out canal embankment. protection of 1 siphon and Laterals
14. Carangcan CIS	III	Pio Duran	& cove structure s still underwater as of this date. damsite.
15. Nagas-Maramba CIS	III	Oas	ged Main Canal and Laterals s still underwater as of this date.
16. Prim-Left Quinale CIS	III	Polangui & Libon	ning of washed out canal embankment. th dams. t upstream & downstream of dam ring and concrete piles.
17. San Agustin CIS	III	Libon	ning of washed out canal embankment. s still underwater as of this date. ning of washed out Elevated Flume. dike upstream and downstream of the dam
18. Right Quinale CIS	III	Polangui	ning of washed out canal embankment. ver upstream of the dam.
19. San Francisco-Gabon CIS	III	Polangui	ning of washed out canal embankment. s still underwater as of this date. dike upstream and downstream of the dam
20. South Quinale CIS	III	Oas & L	ning of washed out main canal.
TOTAL			

Prepared by:

Chief, Irrig
NIA-Albay

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

Typhoon "Reming"

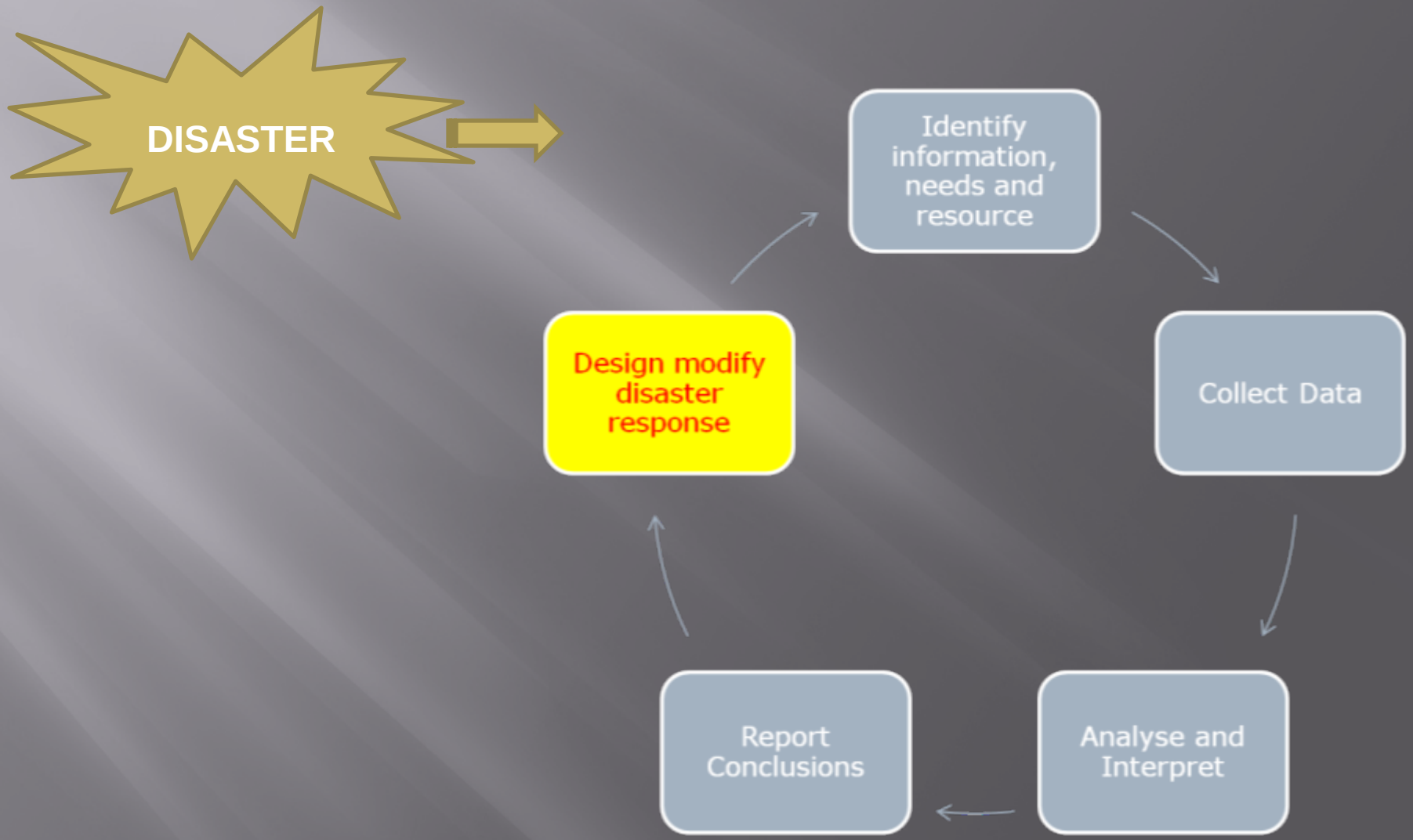
Date of Occurrence : November 29 - 30, 2006

FINAL DAMAGE REPORT

Resources for Response and Recovery: Damage and Disaster Assessment System

- **Damage and Disaster Assessment System (DDAS)** is well-established process refined over many cases of disasters. It is **coordinated by Apsemo** that leads a interdepartmental team who coordinates with their national counterparts.
  - PAS/MAOs for agriculture with DA
  - PSWDO for housing with DSWD
  - PHO for casualties with
  - PEO for infrastructure
- **Damage assessment process uses Risk Mapping as its starting point,** preparedness activities and the pre-disaster warning phase and the emergency phase. Data gathering is spread out and information analysis and dissemination is centralized.
  - Priorities prescribed
  - Scheduling prescribed
  - Forms prescribed
  - Protocols in information dissemination established

The Assessment Process



Mechanics for Damage and Disaster Assessment

- Pre-Disaster Phase: Establishing the Before (done during normal season)
  1. Enables well-targeted damage assessment (time, manpower and MOOE)
     - ☐ Determine threatened population (area and hazard specific).
     - ☐ Determine critical resources (area and hazard specific).
- Disaster /Post Disaster Phase: Looking for the After (completed within 5 days after the calamity)
  1. Determine potential location of problem
  2. Determine the magnitude of problem.
  3. Determine the immediate priorities

- Protocols
  1. While PHO secures on-the-ground data and provides basic information on casualties, DOH is the sole official source of this data.
  2. PEO concentrates on provincial facilities and DPWH on national infrastructure. Apsemo coordinates the aggregation and reconciliation of data on physical damages.
  3. PAS relies mainly on LGU submissions and aggregates data for reporting to DA RFU V.

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

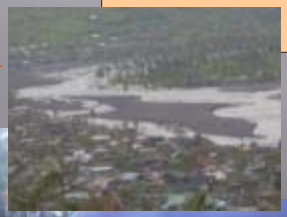
Resources for Recovery

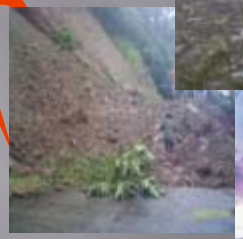
- **Integrated Recovery Plan**
  - Planning office takes over while DMO provides inputs
  - Uses results of damage assessment mechanism
  - Correlated with development plan

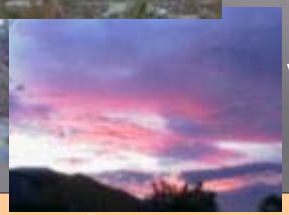
Cluster Approach to Early Recovery

- **Cluster Approach is a workable mechanism for public-private partnership in disaster response and recovery.**
  - **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**

Resource Mechanism for Recovery: AMDGO Cluster Approach







Integrated Recovery Plan: Resource Capability And Gaps

Private Sectors

LGUs

NGAs

Inter-Agency Complementation and Supports

NGOs

Donors

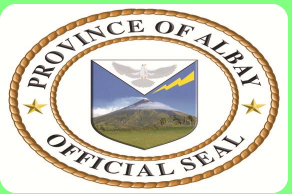
Int'l Donors

Validations

Institutional Strengthening And Project Development

Community plan and actions

Documentation & Reports



THANK YOU CIRCA