



Sustainable Asia Leadership Program Overview

10-14 September 2012

Asian Development Bank



S4: Leadership

Governor Joey Sarte Salceda
Province of Albay, Philippines



Adaptation 101

1. Rehabilitation is best opportunity for risk reduction
2. Agricultural adaptation: camote for rice
3. Economic adaptation: human capital formation for physical capital formation
4. Zero casualty goal subsumes and brings forth all other developmental imperatives

TYPHOON DURIAN: FINANCIAL IMPLICATIONS ON ALBAY

	Damage Sustained	Formal / Recorded Sources of Recovery	Amount	Item	Rate of Recovery
1. Public Infrastructure	4,005	27%	3,872		97%
Natl Roads/Bridges	2,700	DPWH	1,400	Spcl Item in Natl Budget	
			980	Realignment/Augmentation	
			250	Supplemental Natl Budget	
Provincial Facilities	98	GSIS	28	Insurance Claim	
Natl Health Facilities	148	DOH	78	Spcl Item in Natl Budget	
Local Health Facilities	219	Transfer	160	Spcl Item in Natl Budget	
		AECID	28	Grant	
	630	Deped	630	Spcl Item in Natl Budget	
		AECID	170	Grant	
College	210	CHED	148	Spcl Item in Natl Budget	
2. Agriculture	903	6%	340		38%
Crops	570	DA	160	Spcl Item in Natl Budget	
		DAR	180	Spcl Item in Natl Budget	
		PCIC	13	Insurance Claim	
Irrigation	333	NIA	180	Spcl Item in Natl Budget	
3. Private Housing	10,045	67%	2,225		22%
Totally Damaged: 112,074	7,845	NHA	750	Spcl Item in Natl Budget	
Partlly Damaged: 99,986	2,200	DSWD	750	Spcl Item in Natl Budget	
		USAID	125	Grant	
		NGOs	300	Grants	
		HDMF	300	P100T home improvement loans	
Total	14,952		6,437	Recovery rate from formal sources	43%
			5,078	Recovery from private sources	34%
			11,515	Total Recovery	77%
			3,437	Unrecovered	23%

P41m from claims

36% of Albay GDP

AI

Less than 0.7 per cent of the total relief aid goes to disaster risk reduction

- Only 0.1% of Aid went to Prevention in 2001 and 0.7% in 2008
- 10% of Humanitarian Relief Funds Agreed in 2009



ADB



Leadership Program

Indicators for Palay	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Production (in Metric Tons)	107,274	142,425	124,062	104,001	131,895	131,882	155,700	179,467	156,892	148,036
Rank ¹	29	29	33	37		31	27	25	30	34
Per Capita	10.1	13.1	11.4	9.2	11.5	11.3	13.1	14.9	12.8	12.4
Rank ¹	42	43	50	55		53	49	41	51	
Area Harvested (in Hectares)	47,304	53,040	48,300	41,537	45,974	44,441	47,402	51,528	48,174	42,027
Average Yield Per Hectare	2.27	2.69	2.57	2.50	2.87	2.97	3.28	3.48	3.26	3.52
Utilization										
Seeds	3,548	3,978	3,623	3,115	3,448	3,333	3,555	3,865	3,613	3,152
Feeds and Wastes	6,973	9,258	8,064	6,760	8,573	8,572	10,121	11,665	10,198	9,622
Processed	96,753	129,189	112,375	94,126	119,874	119,977	142,024	163,937	143,081	135,262

148k mt of rice produced or only half of demand

Major Temporary Crops	2003		2004		2005		2006		2007	
	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)
Ampalaya	508.0	71	735.8	78	776.9	78	758.0	75	815.3	77
Cabbage	239.4	25	224.7	25	233.2	25	215.7	22	217.4	21
Camote	38,148.0	5,954	37,811.1	5,954	39,612.2	5,954	39,022.6	5,954	40,053.0	5,960
Cassava	14,348.0	1,867	14,273.3	1,877	15,115.3	1,887	14,863.1	1,887	15,156.1	1,897
Chayote	382.0	55		55	645.0	55	604.0	53	620.0	55
Eggplant	2,501.0	376	2,497.8	376	2,639.9	376	2,638.0	358	2,766.5	365
Gabi	8,644.0	934	8,445.0	934	8,685.7	934	8,665.0	920	8,777.4	925
Ginger	88.2	16	86.0	16	88.7	16	86.1	15	91.6	17
Gourd	178.0	16	656.1	30	678.3	30	664.0	29	675.3	32
Habitchuelas	282.6	74	287.7	72	304.1	72	307.1	70	313.3	75
Mongo	81.0	107	77.5	104	71.5	101	63.4	85	74.1	90
Okra	38.0	9	37.5	9	39.4	9	39.1	9	40.8	12
Peanut	639.9	837	636.1	837	662.5	837	662.4	827	675.5	833
Pepper	113.0	55	109.8	55	117.6	55	112.3	54	118.8	60
Sugarcane	68,669.5	1,060	66,768.8	1,060	68,525.3	1,060	67,800.0	1,040	60,472.7	530
Tomato	1,070.0	249	987.3	245	1,034.1	245	995.0	240	1,039.8	246
Ubi	657.1	90	612.7	81	624.0	78	580.0	75	587.0	75
Watermelon	163.9	38	157.8	38	149.5	60	144.9	30	141.0	30

40k mt of camote as substitute for rice

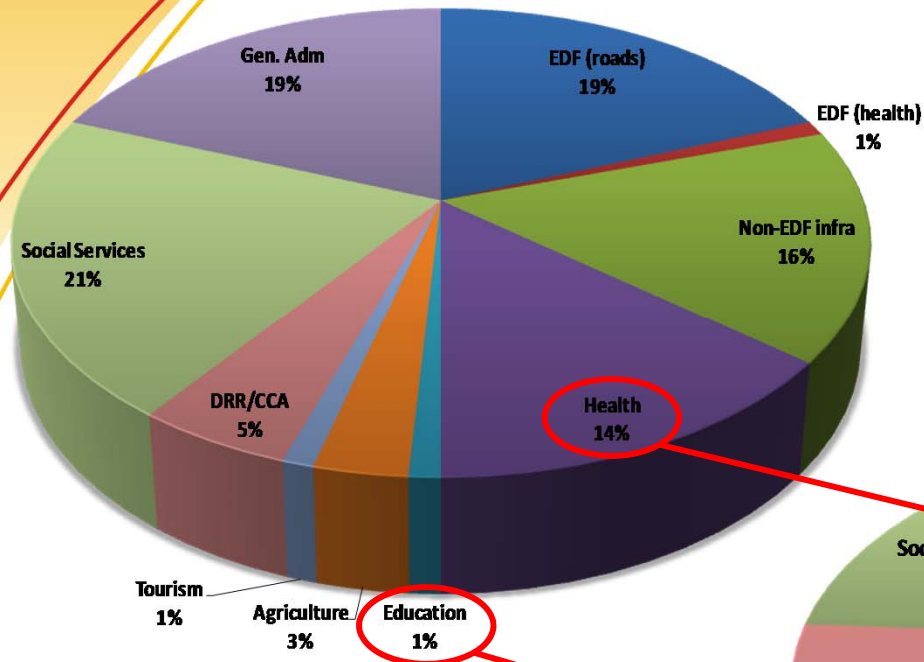
Type of Major Crop	2003		2004		2005		2006		2007	
	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)	Production (in Metric Tons)	Area Harvested (in Hectares)
Abaca	1,298	4,824	1,497	5,136	1,533	5,369	1,482	5,369	1,378	5,300
Banana	13,014	1,045	12,165	1,045	12,051	1,045	11,289	967	10,772	967
Cacao	13	90	13	90	14	90	13	90	12	85
Calamansi	158	185	159	167	159	167	153	150	146	150
Coconut	207,158	41,180	172,516	41,180	183,246	41,180	178,853	41,180	144,138	40,180
Coffee	98	341	99	341	100	341	96	335	95	328
Lanzones	2	7	-	2	-	2	-	2	0	2
Mandarin	17	75	16	75	15	75	13	70	13	70
Mango	12	60	12	60	12	60	12	60	9	56
Papaya	926	116	878	119	863	118	780	103	767	103
Pineapple	1,167	105	1,128	105	1,100	100	1,006	80	992	80
Rambutan	-	-	-	3	-	3	10	3	9	3

40k hectares for coconut, the 2nd biggest crop

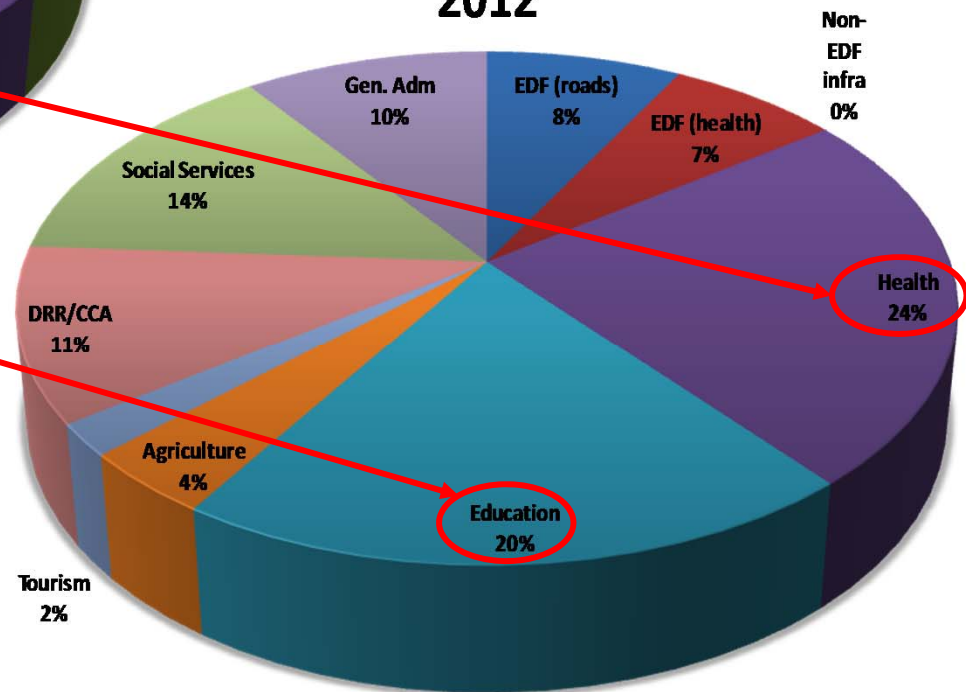


Albay Provincial Budget

2007



2012



Major Disaster Events in Albay Province 1995-2011:

Zero Casualty in 16 years except 2006 and 2011

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	

Major Disaster Events in Albay Province 1995-2011:

Zero Casualty in 16 years except 2006 and 2011

Calamities	Date	Affected Population		Damage Cost (Php)
		Persons	Dead	
Typhoon Mameng	Sep 28 1995	10,126	0	71,499,797
Typhoon Rosing	Nov 1 1995	440,372	0	539,599,785
Typhoon Pining	Nov 12 1997	1800	0	37,663,000
Typhoon Loleng	Oct 15 1998	201,834	0	303,950,141
Typhoon Sendang	Nov 7 1999	1,122	0	110,000
Mayon Volcano Eruption	1999	68,626	0	284,076,061
Mayon Volcano Eruption	2001	46,914	0	11,937,460
Typhoon Dindo	May 13 2004	33,892	0	226,712,081
Typhoon Unding	Nov 14 2004	1744	0	42,394,231
Typhoon Yoyong	Dec 4 2004	18,372	0	50,590,299
Tropical Storm Caloy	May 9 2006	47,065	0	99,346,841
Mayon Volcano Eruption	2006	40,451	0	50,590,299
Typhoon Milenyo	Sep 25 2006	698,460	14	1,665,316,133
Typhoon Reming	Nov 28 2006	1,060,875	618	3,230,435,702
Typhoon Mina	Nov 21 2008	214,734	0	22,800,000
Typhoon Frank	Jun 18 2008	138,937	0	21,789,000
Typhoon Dante	May 1 2009	49,712	0	238,316,148
Typhoon Pepeng	Oct 9 2009	89,926	0	9,000,719
Typhoon Santi	Oct 30 2009	671,314	0	6,510,000
Mayon Volcano Eruption	July 2009	47,563	0	16,659,000
TS Chedeng	May 25 2011	221,094	0	5,710,768
TS Falcon	June 22 2011	107,253	0	46,762,630

DRR/CCA Execution Strategy of Albay

- ☑ **Make MDG a goal, adaptation follows**
 - **Good goals**
 1. socially desirable
 2. desirably ambitious
- ☑ **Ordain policies**
- ☑ **Give it a budget**
- ☑ **Execute programs & projects**
- ☑ **Build institutions**
- ☑ **Nurture partnerships & mobilize resources**

- **safe and shared development**
 - MDG achievement
 - HDI improvement
 - Climate-proofed and disaster- proofed (HFA)
 - **Zero casualty goal**
- Body of SP ordinances
 - 2 national laws on DRR and CCA were based on Albay model (RA 10121 & RA 9729)
- Incremental budget on top of calamity fund
 - Budget increase on Education and Health from 15% to 44%
- Disaster risk reduction
 - Climate change adaptation
 - Strategic shift to human capital formation (health and education) from physical capital formation
- **APSEMO** – Response, 1994
 - **CIRCA** – Adaptation, mitigation and IEC, 2007
 - **AMDGO** – Social Services / MDG, 2009
 - **Climate Change Academy** – Knowledge Mgmt, 2010
- P894m raised from 2007 to 2011, P398m from JICA in 2012 and P30m from OCD

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 - Elem	L	H
	Cohort survival - el	M	M
3	Gender parity - ele	H	H
4	Under-five mortality	H	H
	Infant mortality	H	H
	Proportion of fully-	M	H
5	Maternal mortality	L	H
	Contraceptive prev	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

MDGs are achievable, but must be owned by their beneficiaries



Legend:

L	low probability	H	high probability
M	medium probability		no data



Sustainable Asia
Leadership Program

1. DEPT OF HEALTH (DOH)	2010-2011	3,000,000.00
2. DEPT OF HEALTH (DOH)		10,000,000.00
3. DEPT OF SOCIAL WELFARE & DEVELOPMENT (DSWD)		14,000,000.00
4. NCA - DBM		5,000,000.00
5. PCA		5,000,000.00
6. DBM		10,000,000.00
7. DEPT OF AGRICULTURE		20,000,000.00
8. DEPT OF HEALTH (DOH)		24,203,000.00
9. PAS		336,377.00
10. SLRF		
11. NIA		
12. NCCA - DBM		
13. LGA-AIDS		
14. DBM		
15. PCSO ASSISTED ENDORSEMENT FUND PROGRAM		
16. PGA-NEDA MOA(LGU-SUMMIT)		
17. PAS-PCCARD		262,238.00
18. TF CALAMITY FUND		22,535,242.48
19. CRDESDA		366,000.00
20. DEPT OF HEALTH (DOH)		1,305,000.00
21. PCSO		66,201.06
22. ECCD - EARLY CHILD REC DEVT		2,091,846.83
23. BSWM		147,964.61
24. GAWAD KALASAG AWARD		50,000.00
25. DEPT OF AGRICULTURE CORN PRODUCTION		564,489.75
26. SEA-K MICRO FINANCING PROGRAM		33,400.00

**P894m mobilized
from partners
(July 2007-Dec 2011)**

27. DEPT OF AGRICULTURE		250,059.75
28. MOA NAT'L & LOCAL GOV'T COUNTERPARTING FOR CLASS-ROOM CONSTRUCTION		86,000,000.00
29. DOTC- INT'L AIRPORT		23,000,000.00
30. DOTC		13,000,000.00
31. DEPT OF HEALTH (DOH)		1,800,000.00
32. DBM		1,000,000.00
33. DOH (NAT'L BUN HEALTH REG.		
		3,649,200.00
		5,000,000.00
		42,000,000.00
		150,000,000.00
		55,000,000.00
		20,000,000.00
		6,100,000.00
43. DBM		20,000,000.00
44. HOSPITAL UPGRADING PROJECT OF DOH		363,606.50
45. DBM		3,000,000.00
46. DBM		1,000,000.00
47. HEALTH FACILITIES ENHANCEMENT PROGRAM		66,670,000.00
48. AGRI REHAB-RICE/HUCC	2012	3,500,000.00
49. AGRI REHAB-CORN PROD.	2012	7,000,000.00
50. AKO BICOL PARTY LIST	2012	4,150,000.00
52. PCSO	2012	2,000,000.00
TOTAL		894,002,742.62

Highlights of DRR/CCA Programs

- **Risk Mapping**
 - Comprehensive Land Use Plans
- **Integration into PDP, PDIP, AIP, PPMP**
- **Geostrategic Intervention (Go)**
- **Relocation (Go)**
- **Engineering Interventions (Defend)**
- **Social Preparations (Run)**
 - Community-based Warning and Evacuation Planning
 - Close coordination with Warning Agencies
- **Capacity Build-up**
 - Mobility Assets
 - Permanent Evacuation Center
- **Disaster Response**
 - Pre-emptive Evacuation
 - Pre-emptive Healthcare
- **Cluster Approach to Early Recovery**

STARTING THEM EARLY

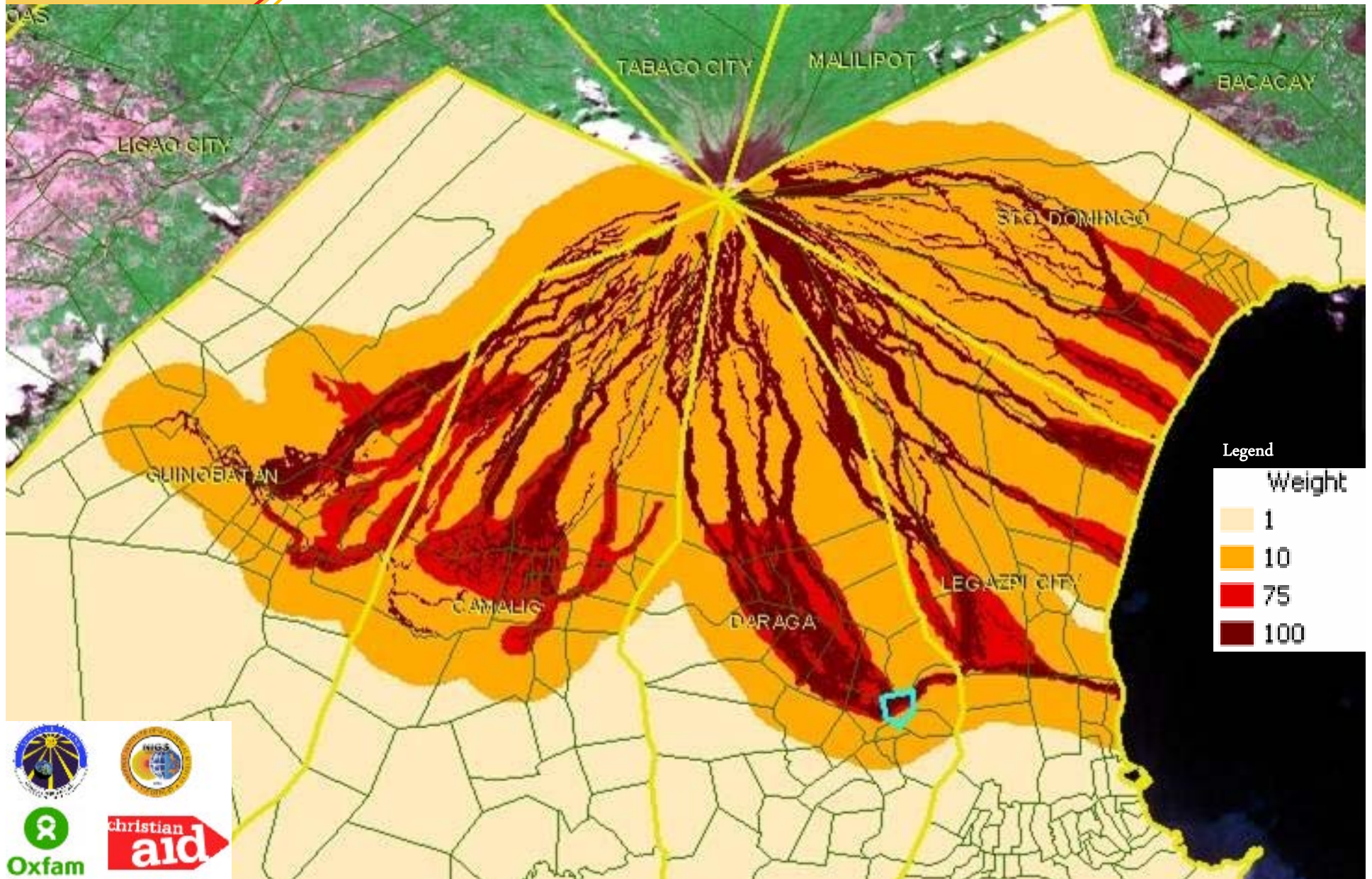


**Children DRR
thru games**

Lahar Hazard Map



Lahar Hazard Map



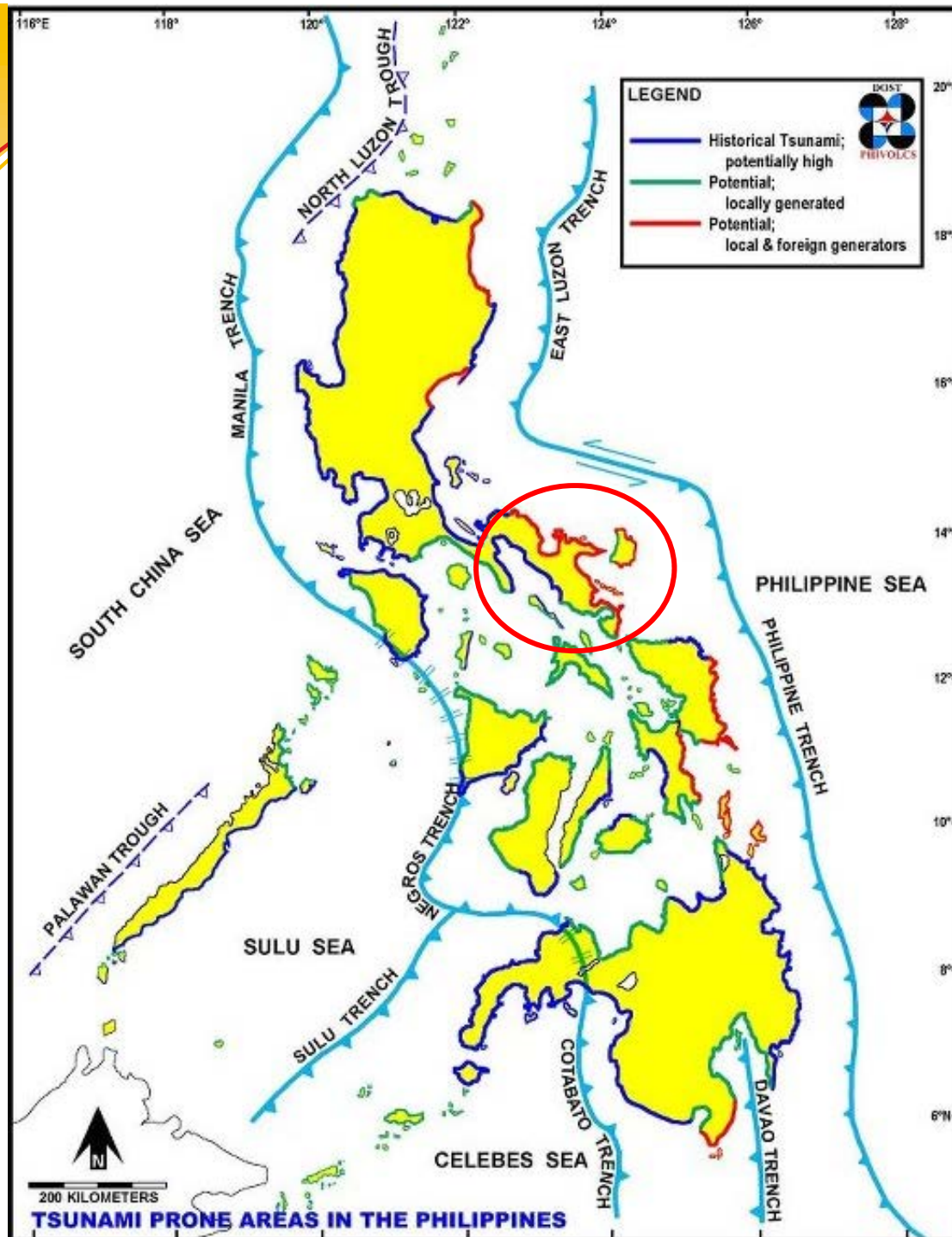
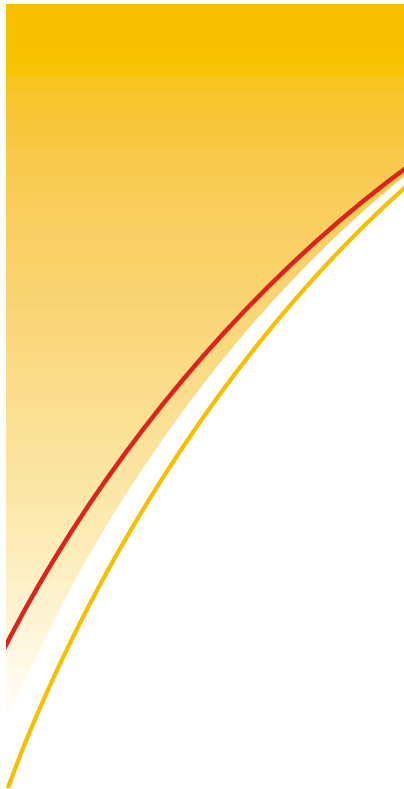
$$\text{HAZARD SCORE} = \Sigma(w^2 \times \text{Area})$$



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

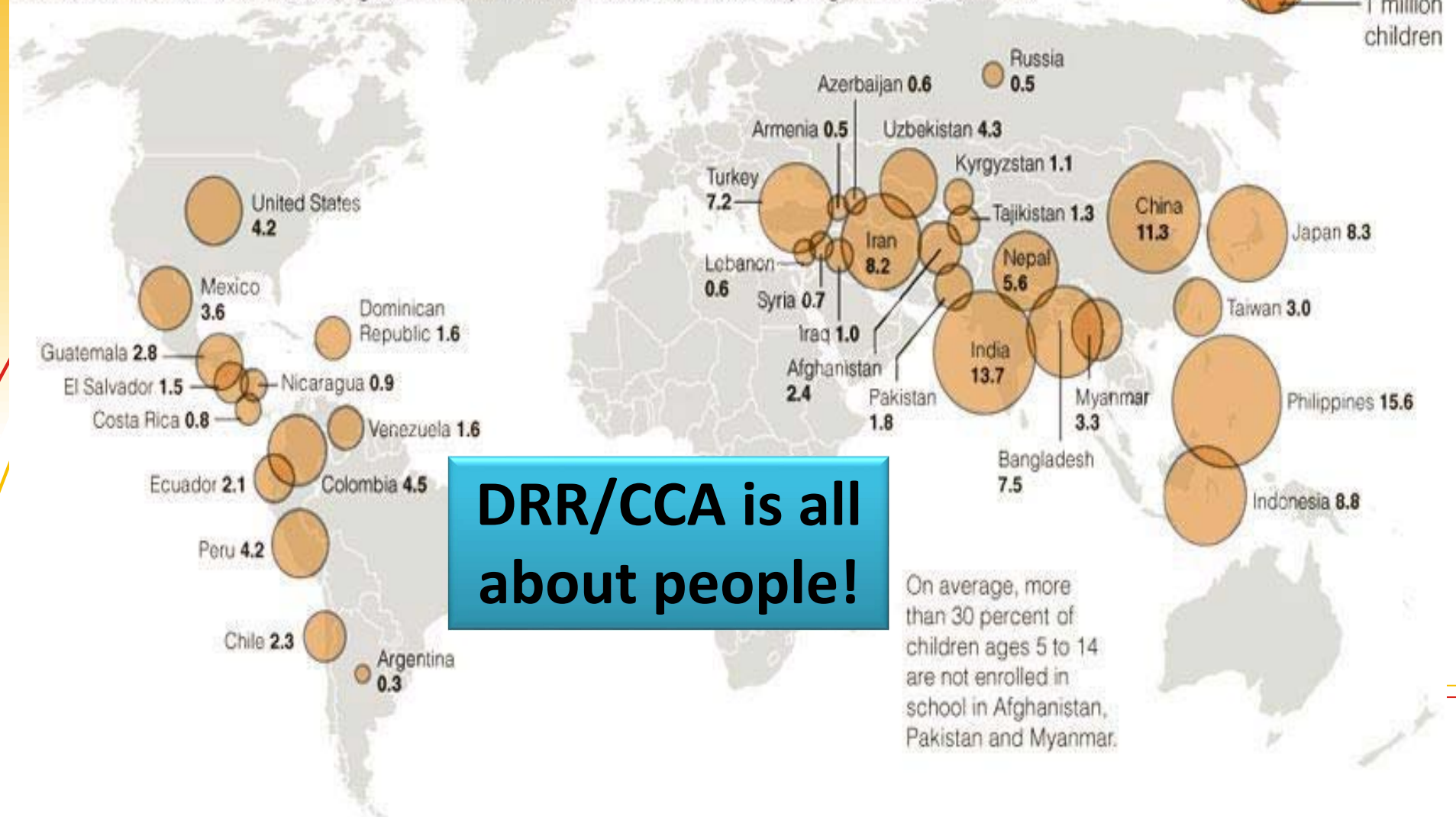
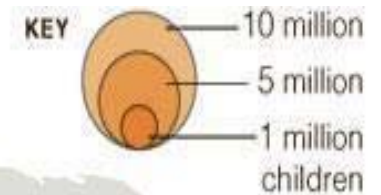
Disaster Risk Ranking of Albay

Type of Disaster Risk	Type of Hazard	Ranking
Climate Weather Related	(Historical) Typhoons	5 th
	(Projected) Rainfall Increase	1 st
	(Projected) Temperature Increase	16 th
	(Historical) El Nino	54 th
Geophysical (History)	Earthquake-Induced Shallow Landslides	1 st
	Earthquakes	59 th
	Tsunami	1 st
	Volcanic Eruptions	2 nd



School-Age Children in Earthquake Zones

Estimated number of children, ages 5 to 14, who live in areas of relatively high earthquake risk.



DRR/CCA is all about people!

On average, more than 30 percent of children ages 5 to 14 are not enrolled in school in Afghanistan, Pakistan and Myanmar.

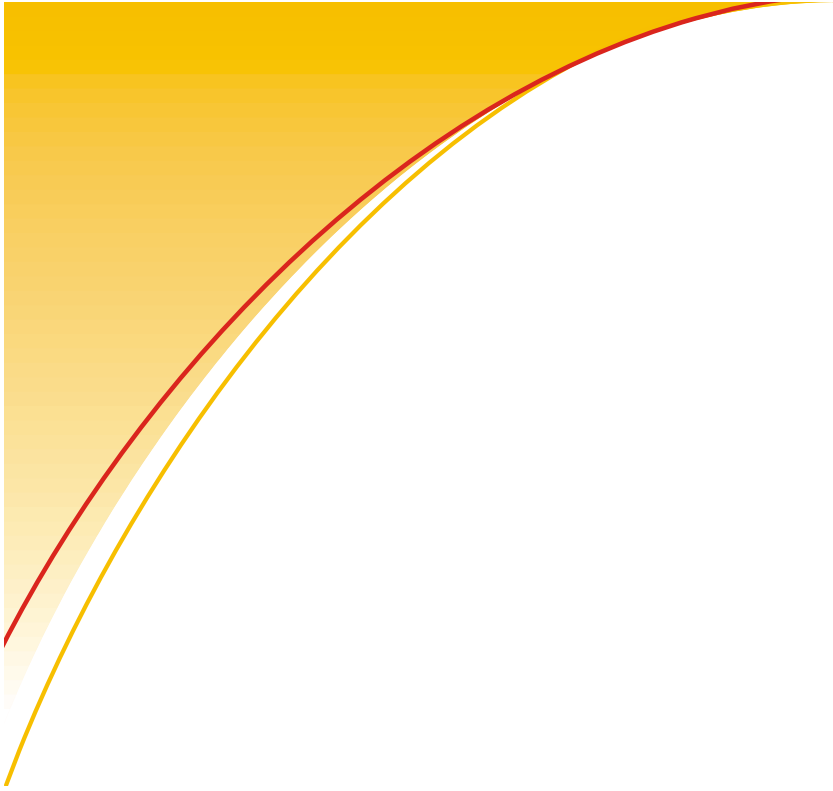
Sources: Susana Adamo and Maria Muñiz, Center for International Earth Science Information Network, Columbia University. Population estimates are based on data from the 2005 Gridded Population of the World data set and from the United Nations (with the exception of China, which is based on the Statistical Yearbook of the Republic of China, 2006). Earthquake hazard estimates are based on data from the Global Seismic Hazard Program.

THE NEW YORK TIMES



THANK YOU





DRR Practices of Albay

Hazard is largely science.

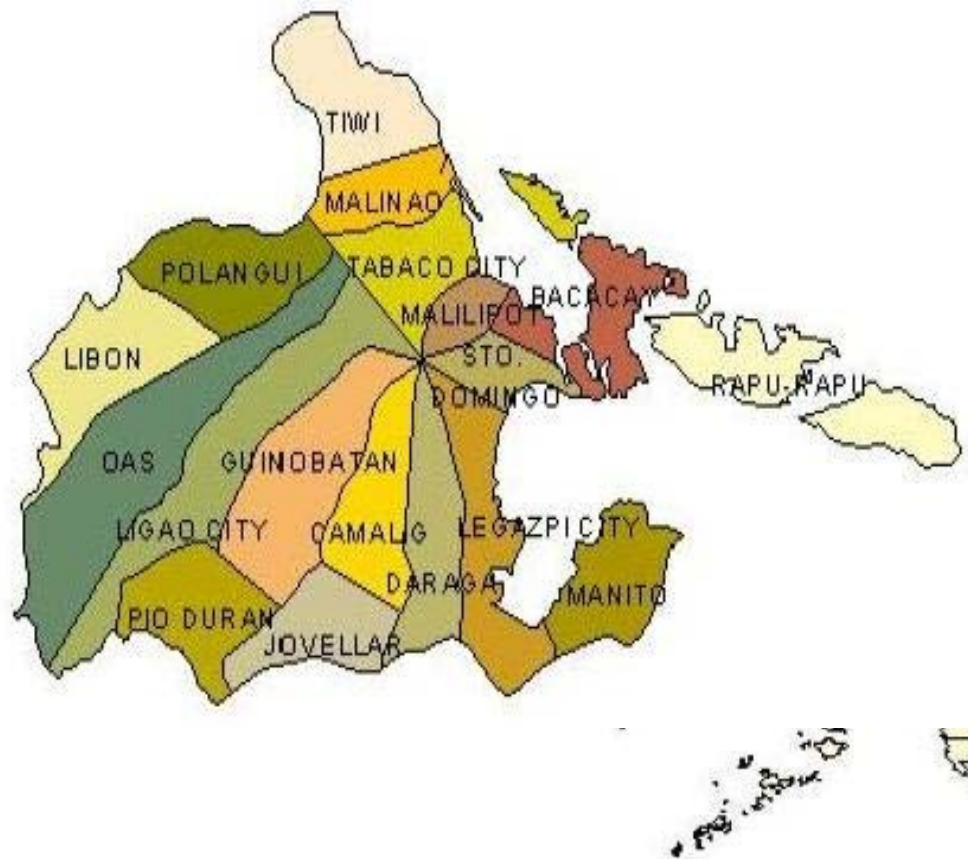
Risk is hazard in the eye of the affected.



Governor Joey Sarte Salceda
Province of Albay, Philippines



Province of ALBAY



- ❑ Land Area = 2,566 sq. km.
- ❑ Population = 1,233,432
(May 2010)
- ❑ 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

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.

**Vatican of
Disasters**

Jan 2012 Disaster Risk Assessment

NAME OF CITY/ MUNICIPALITY	FLOODING					LANDSLIDE					MUDFLOW / LAHAR				
	No. of Bgys Affected	Families Affected	30% of the Affected families	Population	30% of the population	No. of Bgys Affected	Families Affected	100% of the Affected families	Population	100% of the population	No. of Bgys Affected	Families Affected	40% of the Affected families	Population	40% of the population
1. TIWI	17	1,987	596	10,281	3,084	8	934	934	4,794	4,794			-		-
2. MALINAO	26	2,991	897	14,589	4,377	12	1,874	1,874	5,547	5,547			-		-
3. TABACO CITY	40	1,062	319	5,535	1,661	2	122	122	645	645	11	5,134	2,054	28,008	11,203
4. MALILIPOT	17	608	182	3,173	952	6	209	209	942	942	3	1,476	590	7,298	2,919
5. BACACAY	53	1,193	358	6,207	1,862	7	451	451	2,396	2,396	1	2,505	1,002	6,980	2,792
6. STO. DOMINGO	14	464	139	2,425	728	5	446	446	1,563	1,563	5	2,990	1,196	12,834	5,134
7. LEGAZPI CITY	66	16,372	4,912	84,182	25,255	10	305	305	1,611	1,611	8	5,348	2,139	23,814	9,526
8. RAPU-RAPU	33	1,392	418	7,993	2,398	5	522	522	2,643	2,643			-		-
9. MANITO	12	958	287	5,802	1,741	13	1,063	1,063	6,376	6,376			-		-
10. DARAGA	26	2,393	718	11,584	3,475	6	669	669	3,450	3,450	17	10,431	4,172	47,888	19,155
11. CAMALIG	23	4,604	1,381	24,105	7,232	10	822	822	4,228	4,228	7	3,220	1,288	16,075	6,430
12. GUINOBATAN	18	2,923	877	15,214	4,564	4	14	14	84	84	8	4,545	1,818	18,948	7,579
13. JOVELLAR	13	302	91	1,603	481	3	54	54	282	282			-		-
14. LIGAO CITY	29	897	269	4,608	1,382	21	1,928	1,928	10,052	10,052	7	2,080	832	10,820	4,328
15. PIODURAN	10	1,691	507	8,799	2,640	9	134	134	699	699			-		-
16. OAS	18	1,946	584	13,663	4,099	11	1,841	1,841	9,530	9,530			-		-
17. POLANGUI	25	7,136	2,141	35,999	10,800	12	1,115	1,115	5,777	5,777			-		-
18. LIBON	28	7,465	2,240	38,822	11,647	8	819	819	3,345	3,345			-		-
TOTAL	468	56,384	16,915	294,584	88,375	152	13,322	13,322	63,964	63,964	67	37,729	15,092	172,665	69,066

Sources: MGB V; CDCCs/MDCCs/BDCCs; NSO 2007

NOTE: Some of the population threatened by Mayon Volcano eruption are also threatened by other hazards like flood and lahar due to weather hazards. Some Coastal Barangays which are threatened by Storm Surge/Tsunami are also threatened by flooding. Hence, overlapping on total number of population (by barangay) affected by 2 or more types of hazards is possible.



CULTURE OF RISK REDUCTION, not culture of response

- Reduction of risks boosts development. Development reduces risks.
- Poverty is key source of vulnerability- risky locations like danger zones and riverbanks are cheap.
- A well-educated, well-trained, healthy and well-employed population is a resilient population. [eg. Well-timed CCT in Manito enabled zero casualty in 2010 and 2011]
- Adaptation and DRR is an investment.
- No relocation, if homes are built safely. No evacuation, if vulnerable are relocated. No rescue, if evacuated. No rehab, if homes are built safely.

WHOLE OF GOVERNMENT WHOLE OF SOCIETY

- TEAM ALBAY (UN cluster approach)
- Seamless local – national collaboration but local as convergence given primacy of local preference and indigenous knowledge
- Civilian-military seamless partnerships
- Government-Nongovernment cooperation including Church-State

RIGHTS-BASED

Fairness to the poor, Fairness to the Future

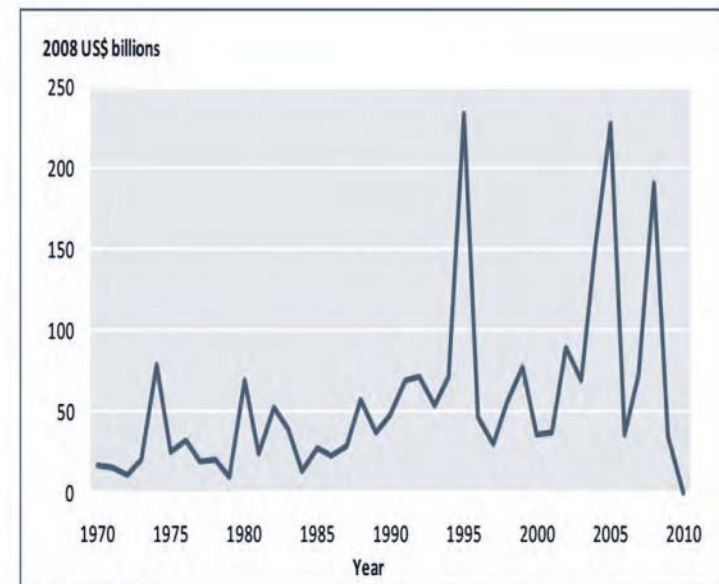
- Disasters kill poor people, make the poor poorer and breed more poor people. Thus, it is plain murder of the innocent and constitutes a moral failure. Social justice is the fundamental basis of DRR/CCA. It is the primordial duty of the state [and the civic duty of its elite and the markets they control] to save the vulnerable from disasters, climate change *[and from themselves?]*.
 - The more disasters: the higher the rights of the vulnerable, the higher the duties of the state.
 - **Zero casualty goal is a desirably ambitious and a socially desirable goal of the nation** *[Jesuits call it: holy desires]*
- People have the basic right to the capacity to adapt. Relief, recovery and rehab is essentially a compensation [penalty] of the state for failing to reduce exposure and to increase capacity.

Economic Damage on the Rise

- US\$ 1 trillion - 2000 to 2010
- US\$109 billion - 2010 alone
- The average cost of a disaster:

COUNTRY LEVEL	COST
Highly developed	US\$636M
Medium-developed	US\$209M
Low-income nation	US\$79M

ADB

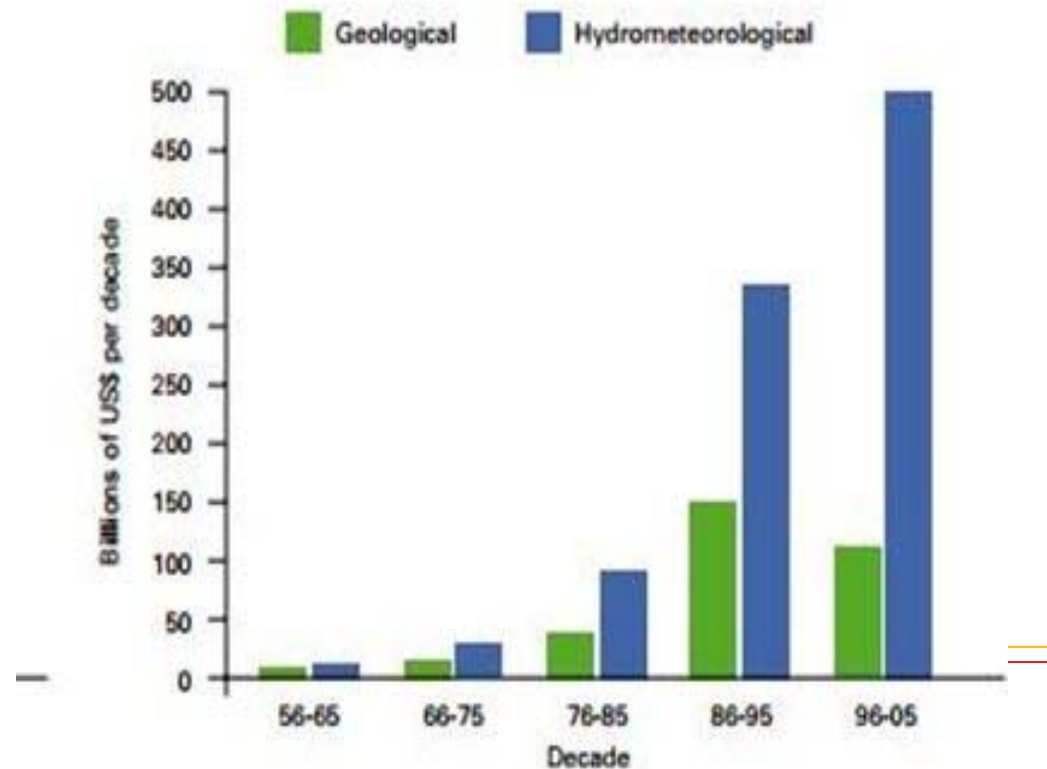


Source: EM-DAT/CRED.

DRR is an Economic Issue

- Disasters are costing more and have long-term economic impacts
- Disasters caused US\$109 billion in economic damage in 2010, three times more than in 2009.

Economic losses per decade



Source: Golnaraghi M., J. Douris, J.B. Migraine (2009) "Saving Lives Through Early Warning Systems and Emergency Preparedness," Risk Wise, Tudor Rose, Pages 137-141.

Small-Scale Disasters Create Long-Term Impacts

- Tens of thousands of small-scale disasters occur each year
- Small-scale disasters are often unreported but have an increasingly huge impact on development and poverty.



Less than 0.7 per cent of the total relief aid goes to disaster risk reduction

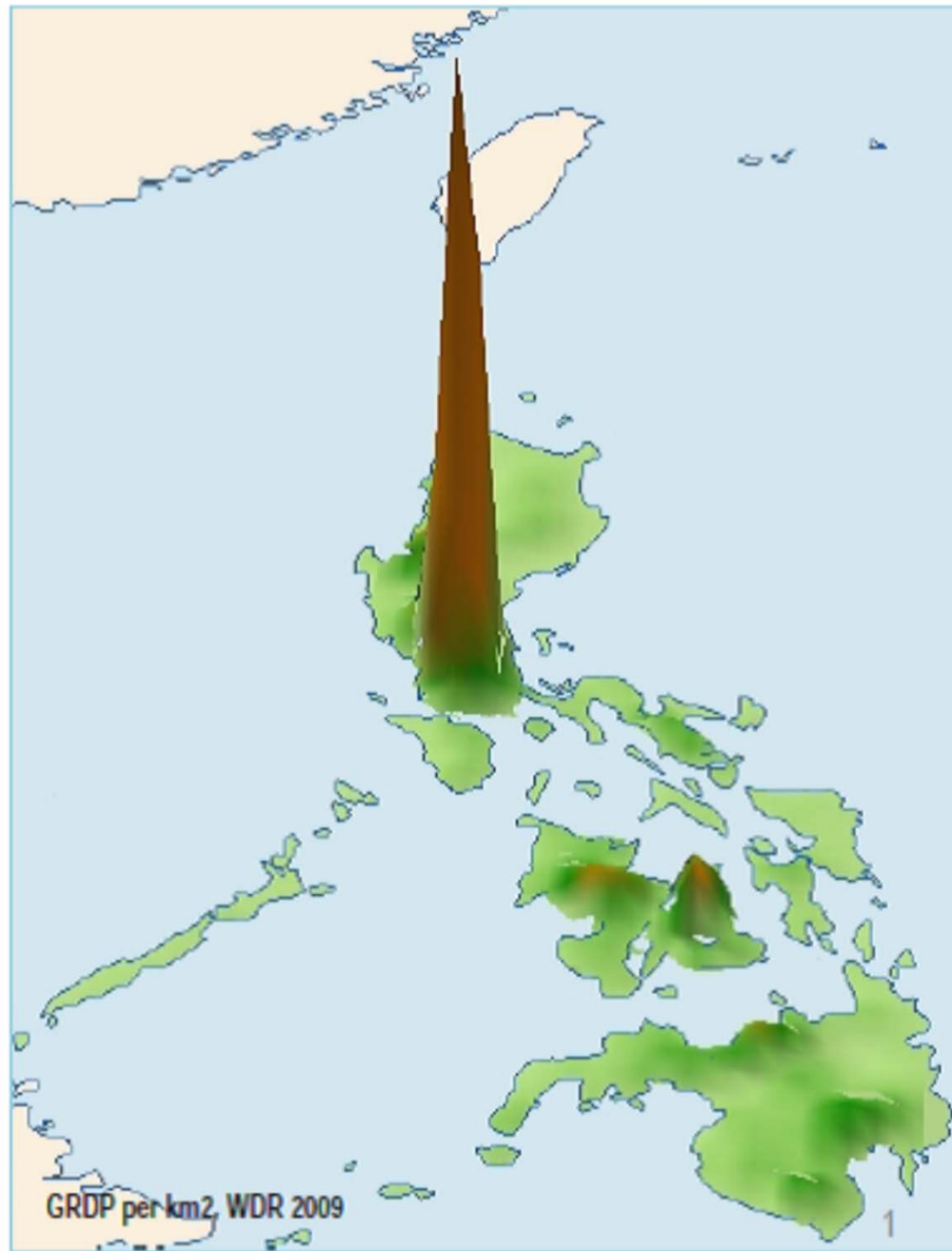
- Only 0.1% of Aid went to Prevention in 2001 and 0.7% in 2008
- 10% of Humanitarian Relief Funds Agreed in 2009



ADB



Leadership Program



Average annual losses to infrastructure and agriculture in 10 most vulnerable provinces vs. their 2006 local calamity funds

<i>Province</i>	(1) <i>LCF</i>	(2) <i>AAL INF</i>	(3) <i>AAL AGR</i>	(1) - (2) - (3) <i>Residual</i>
Albay	38,206,846	181,681,463	83,087,145	(226,561,762)
Aurora	15,372,128	157,067,625	10,635,058	(152,330,555)
Leyte	45,889,351	152,047,750	21,865,369	(128,023,768)
Northern Samar	24,105,875	137,116,250	5,689,359	(118,699,735)
Camarines Sur	40,279,550	135,439,000	173,851,548	(269,010,998)
Western Samar	25,909,160	100,295,875	11,638,987	(86,025,702)
Eastern Samar	20,636,040	78,787,500	12,184,160	(70,335,620)
Sorsogon	28,002,809	77,714,250	79,660,002	(129,371,442)
Catanduanes	15,285,628	65,753,579	41,626,084	(92,094,035)
Quezon	60,531,722	62,009,699	48,098,181	(49,576,158)
Total	314,219,109	1,147,912,992	488,335,892	(1,322,029,775)

Source: World Bank

Leadership Program

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	Albay poverty incidence at			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%

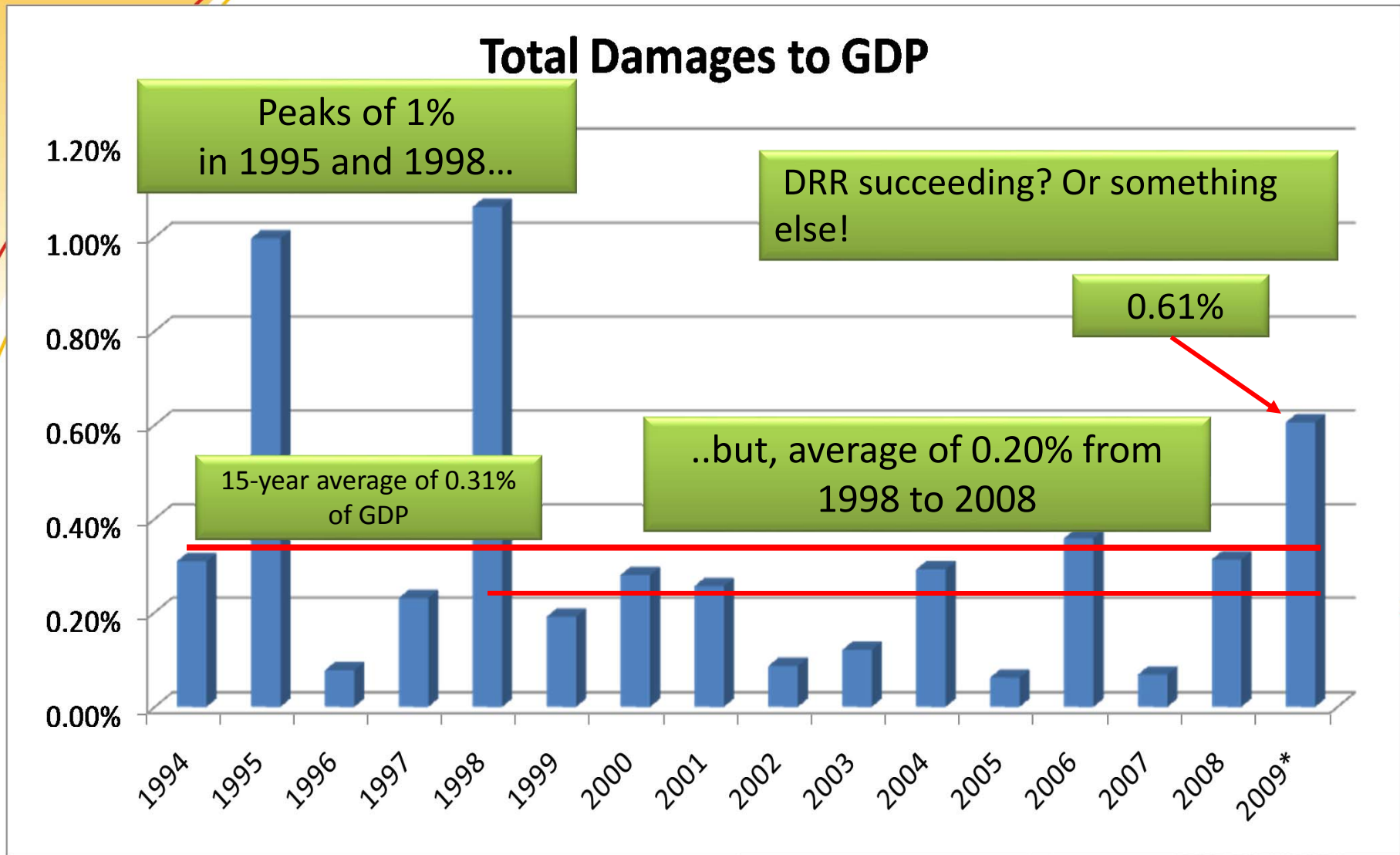
Albay poverty incidence at 37.8%, while lowest in region, remains high

Climate Disasters make MDGs more expensive to achieve

Implications of Climate Change for Certain Key Millennium Development Goals	
Millennium Development Goals	Linkages with climate
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/>

Disaster Damages: Rising



NATURAL AND MAN MADE INCIDENTS

JANUARY 1, 1994 - DECEMBER 31, 2008

YEAR	MMADE	NAT	CASUALTIES			AFFECTED		EVACUATED		DAMAGED HOUSES		DAMAGES TO PROPERTIES (P MILLIONS)			
	INCIDENTS		DEAD	INJ	MIS	FAMILIES	PERSON	FAMILIES	PERSONS	TOTALLY	PARTIALLY	INFRA	AGRI	PVT	TOTAL
1994	171	104	643	1,120	600	726,802	3,601,757			66,564	260,390	1,766.140	2,243.645	1,236.096	5,245.9
1995	299	111	1,873	5,148	708	1,793,438	8,907,608			296,860	842,065	3,706.770	13,627.964	1,666.835	19,001.6
1996	148	106	527	550	193	313,297	1,530,923			5,004	24,004	359.260	601.187	717.944	1,678.4
1997	196	72	360	624	20	584,311	524,694			5,341	22,076	1,302.600	1,701.566	553.524	5,586.7
1998	229	40	1,155	1,320	186	1,761,911	8,272,191			137,964	406,455	5,282.000	19,090.000	3,312.000	28,368.0
1999	167	94	870	773	110	1,584,810	4,369,941			23,128	76,621	1,720.000	2,408.000	1,540.000	5,668.0
2000	240	108	1,557	1,751	147	1,810,772	9,036,699	36,841	181,238	36,934	198,999	2,995.790	6,101.860	308.370	9,406.0
2001	244	71	867	1,399	227	982,544	4,704,550			20,753	58,501	4,324	4,241.85	701.338	9,267.2
2002	231	60	610	2,187	3,098	848,017	5,055,025	55,294	293,190	6,985	11,232	730.381	1,534.333	1,155.461	3,420.2
2003	310	96	767	3,195	123	920,313	4,307,762	20,156	89,871			1,570.244	2,930.576	692.128	5,192.9
2004	110	361	1,839	2,759	728	1,593,682	7,879,237	275,886	82,558	82,538	263,946	4,353.481	9,229.009	661.789	14,244.3
2005	307	65	613	853	122	327,270	1,623,031	21,453	108,369	4,413	21,877	673.388	2,254.199	439.707	3,367.3
2006	235	147	1,879	4,760	2,105	2,583,147	12,163,798	724,405	3,626,039	382,986	870,848	1046.666	11,060.201	174.262	21,651.1
2007	337	233	671	1,457	94	891,694	4,287,763	76,888	377,527	9,460	22,853	1,326.655	2,889.204	312.304	11,533.2
2008	304	248	1,704	2,091	818	1,997,547	9,935,009	331,559	1,620,668	139,837	569,512	8,394.145	14,862.732	255.697	23,512.6
Total	171	104	643	1,120	600	726,802	3,601,757	-	-	66,564	260,390	1,766	2,243.645	1,236.096	160,143.36

Source: Office of Civil Defense, Department of National Defense

Private property damages recorded at only P1.24bn or less than 1% of the total P160.14bn in 1994-2008!

RECOVERY: Calamity Fund

	DAMAGES (Pm)	NG CF (Pm)	NG CF to Damages	5% CF of LGU (Pm)	LGU + NG (Pm)	CF to Damages
1994	5,245.9	2,000.0	38.13%	2,350	4,350	82.92%
1995	19,001.6	2,000.0	10.53%	2,600	4,600	24.21%
1996	1,678.4	2,800.0	166.83%	2,850	5,650	336.63%
1997	5,586.7	2,000.0	35.80%	3,550	5,550	99.34%
1998	28,368.0	2,000.0	7.05%	3,850	5,850	20.62%
1999	5,668.0	1,000.0	17.64%	4,850	5,850	103.21%
2000	9,406.0	998.5	10.62%	5,600	6,599	70.15%
2001	9,267.2	998.5	10.77%	6,100	7,099	76.60%
2002	3,420.2	800.0	23.39%	6,700	7,500	219.29%
2003	5,192.9	700.0	13.48%	7,050	7,750	149.24%
2004	14,244.3	700.0	4.91%	If local calamity funds included, 121% but dedicated to local risks...		
2005	3,367.3	700.0	20.79%			
2006	Central government can cover only 27%		5.31%			
2007			26.47%			
2008	23,512.0	2,000.0	8.51%	10,550	12,550	53.38%
Total	160,143.4	21,047	26.68%	88,150	109,197	120.56%

TYPHOON DURIAN: FINANCIAL IMPLICATIONS ON ALBAY

	Damage Sustained	Formal / Recorded Sources of Recovery	Amount	Item	Rate of Recovery
1. Public Infrastructure	4,005	27%	3,872		97%
Natl Roads/Bridges	2,700	DPWH	1,400	Spcl Item in Natl Budget	
			980	Realignment/Augmentation	
			250	Supplemental Natl Budget	
Provincial Facilities	98	GSIS	28	Insurance Claim	
Natl Health Facilities	148	DOH	78	Spcl Item in Natl Budget	
Local Health Facilities	219	Transfer	160	Spcl Item in Natl Budget	
		AECID	28	Grant	
		Deped	630	Spcl Item in Natl Budget	
		AECID	170	Grant	
College	210	CHED	148	Spcl Item in Natl Budget	
2. Agriculture	903	6%	340		38%
Crops	570	DA	160	Spcl Item in Natl Budget	
		DAR	180	Spcl Item in Natl Budget	
		PCIC	13	Insurance Claim	
Irrigation	333	NIA	180	Spcl Item in Natl Budget	
3. Private Housing	10,045	67%	2,225		22%
Totally Damaged: 112,074	7,845	NHA	750	Spcl Item in Natl Budget	
Partly Damaged: 99,986	2,200	DSWD	750	Spcl Item in Natl Budget	
		USAID	125	Grant	
		NGOs	300	Grants	
		HDMF	300	P100T home improvement loans	
Total	14,952		6,437	Recovery rate from formal sources	43%
			5,078	Recovery from private sources	34%
			11,515	Total Recovery	77%
			3,437	Unrecovered	23%

P41m from claims

36% of Albay GDP

AI

2011 ALBAY PROVINCIAL BUDGET: 9% earmarked for adaptation but whole budget is sensitized to CCA/DRR

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 adaptation
- Entire budget is ADAPTATION budget
 - 24% for health
 - 2% for social services
- 3% for agriculture

Internal sources:

- IRA
- Royalties geothermal

External sources:

- UNDP/AECD- P16m
- BSWM- P5m

BREAKDOWN OF 5% PROVINCIAL DISASTER RISK REDUCTION MANAGEMENT FUND CY 2012

PARTICULARS	NET AMOUNT (PhP)
i - 30% Quick Response Activities: 1. Quick response and recovery which will be spent to any of the following: Relief and Food commodities, Medicines, Fuels and lubricants, emergency transportation services, Communication Services, Purchase of Rubber boats, training expenses & other recovery programs, such as: housing materials, monitoring & evaluation activities, repair and reconstruction and other works and services.	15,013,839.68
SUBTOTAL	15,013,839.68
ii- 70% Other Disaster Risk Reduction Management Activities: 1. Other Disaster Risk Reduction Management Expenses, to wit: Purchase of life-saving equipment, emergency disaster preparedness, training / conference / emergency meeting expense, stock piling warning eqpt., communication equipment and facilities, Repair/Rehab programs(ex.water systems) IT equipment, fuel & lubricants, other works/services, Emergency field investigation, risk mapping and other MOOE required.	35,032,292.57
SUB-TOTAL	35,032,292.57
TOTAL	50,046,132.25

Prepared by:

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APSEMO Dept. Head
& PDRRMC Exec. Officer

APPROVED:

JOEY SARTE SALCEDA
Governor
& PDRRMC Chairman



ALBAY PUBLIC SAFETY AND EMERGENCY MANAGEMENT
Provincial Disaster Operation Center
Old Albay, Legazpi City

Year	Personal Services	MOOE	Capital Outlay	TOTAL	Remarks
2012	7,501,895.60	1,340,000.00	0	8,841,895.60	
2011	6,874,005.60	1,380,000.00	0.00	8,254,005.60	
2010	6,265,769.86	1,380,000.00	50,000.00	7,695,769.86	
2009	5,114,684.16	2,738,484.32	2,015,289.00	9,868,457.48	
2008	4,993,894.92	1,155,000.00	220,000.00	6,368,894.92	
2007	4,606,243.00	1,151,000.00	117,608.00	5,874,851.00	
2006	4,336,894.00	1,151,000.00	117,608.00	5,605,502.00	
2005	3,227,748.00	1,139,000.00	160,000.00	4,526,748.00	PS- Items under Med Serv Div Transf to hos- pitals (Incldng. funding)
2004	3,446,536.38	1,157,000.00	100,000.00	4,703,536.38	
2003	3,882,603.00	1,072,000.00	100,000.00	5,054,603.00	33,465.78 Salary adjustments (PS)
2002	3,840,465.12	1,172,000.00	189,585.00	5,202,050.12	Purchase of Motorcycles under Supplemental Bud. (Capital Outlay)
2001	2,832,162.00	1,172,000.00	-	4,004,162.00	821,880.75 Salary adjustments (PS)
2000	2,720,005.00	1,000,000.00	-	3,720,005.00	
1999	2,409,900.00	394,700.00	350,000.00	3,154,600.00	
1998	2,189,385.00	391,900.00	-	2,581,285.00	
1997	1,377,527.00	370,000.00	-	1,747,527.00	
1996	463,150.00	288,910.50	-	752,060.94	
1995	496,727.00	174,031.00	31,500.00	702,258.00	

Prepared by:

Noted:

MA. CRISTINA S. ADOR
Statistician IV

CEDRIC D. DAEP, PhD
Department Head



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

FUNDING ASSISTANCE TO THE PROVINCIAL GOVERNMENT OF ALBAY

DONOR / AGENCY	YEAR	AMOUNT	AMOUNT (PhP)
FOREIGN:			
1. AGENCIA ESPANOLA DE COOPERACION INTERNACIONAL			
PARA EL DESARROLLO (AECID)	2008	60,000,000.00	
	2008	10,500,000.00	
	2009	25,189,980.00	
	2011	30,000,000.00	
	2011	13,425,800.00	
(DOH)	2011	17,000,000.00	
(DOH-Vehicle)	2011	1,568,000.00	
SUB-TOTAL (PhP)		157,683,780.00	
2. GOVERNMENT OF KOREA		PhP2147000	
3. UNDP (CIRCA- Dollars)	2009-2012	400,000.00	
(HIV- PhP)	2012	PhP150000	
LOCAL (PHIL. AGENCY)			
Natl Irrigation Authority	2007		4,750,000.00
DAR			6,000,000.00
DA			40,000,000.00
NIA			14,000,000.00
CF - CARE			50,000,000.00
I L O -Intl Labor Org			86,420.00
MVUC - SLRF			1,745,580.22



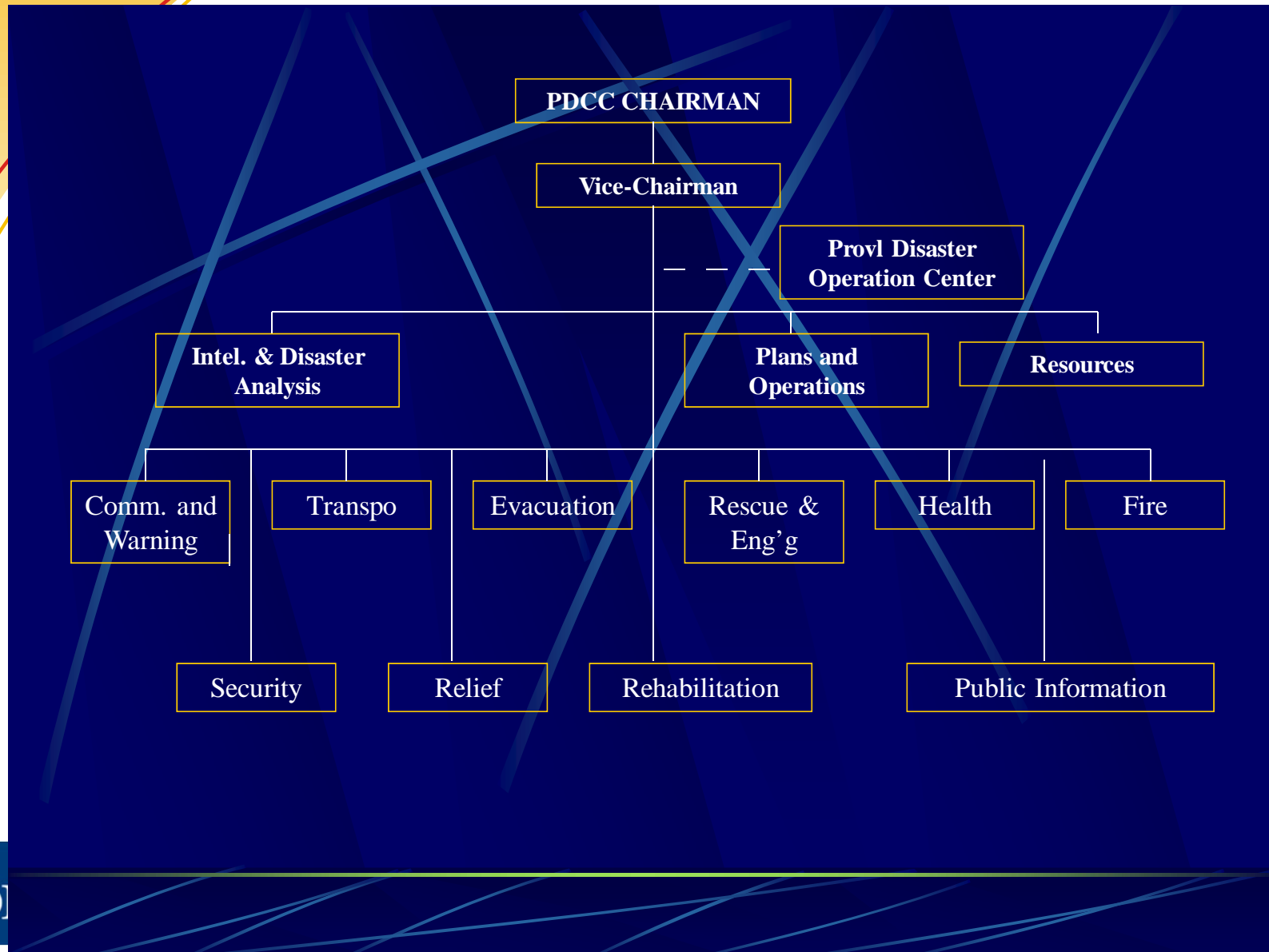
1. DEPT OF HEALTH (DOH)	2010-2011	3,000,000.00
2. DEPT OF HEALTH (DOH)		10,000,000.00
3. DEPT OF SOCIAL WELFARE & DEVELOPMENT (DSWD)		14,000,000.00
4. NCA - DBM		5,000,000.00
5. PCA		5,000,000.00
6. DBM		10,000,000.00
7. DEPT OF AGRICULTURE		20,000,000.00
8. DEPT OF HEALTH (DOH)		24,203,000.00
9. PAS		396,377.00
10. SLRF		3,261,334.14
11. NIA		135,000,000.00
12. NCCA - DBM		83,250.00
13. LGA-AIDS		200,000.00
14. DBM		6,068,000.00
15. PCSO ASSISTED ENDORSEMENT FUND PROGRAM		101,496.89
16. PGA-NEDA MOA(LGU-SUMMIT)		3,500,000.00
17. PAS-PCCARD		262,238.00
18. TF CALAMITY FUND		22,535,242.48
19. CRDESDA		366,000.00
20. DEPT OF HEALTH (DOH)		1,305,000.00
21. PCSO		66,201.06
22. ECCD - EARLY CHILD REC DEVT		2,091,846.83
23. BSWM		147,964.61
24. GAWAD KALASAG AWARD		50,000.00
25. DEPT OF AGRICULTURE CORN PRODUCTION		564,489.75
26. SEA-K MICRO FINANCING PROGRAM		33,400.00

27. DEPT OF AGRICULTURE		250,059.75
28. MOA NAT'L & LOCAL GOV'T COUNTERPARTING FOR CLASS- ROOM CONSTRUCTION		86,000,000.00
29. DOTC- INT'L AIRPORT		23,000,000.00
30. DOTC		13,000,000.00
31. DEPT OF HEALTH (DOH)		1,800,000.00
32. DBM		1,000,000.00
33. DOH- (NAT'L PHILHEALTH REG. DAY)		3,649,200.00
36. DONATION FROM CEBU		5,000,000.00
37. TF CALAMITY FUND-OCD		42,000,000.00
38. BSWM		150,000,000.00
40. DBM-NCA		55,000,000.00
41. DBM		20,000,000.00
42. DILG-PAMANA NG LAHI		6,100,000.00
43. DBM		20,000,000.00
44. HOSPITAL UPGRADING PROJECT OF DOH		363,606.50
45. DBM		3,000,000.00
46. DBM		1,000,000.00
47. HEALTH FACILITIES ENHANCE- MENT PROGRAM		66,670,000.00
48. AGRI REHAB-RICE/HUCC	2012	3,500,000.00
49. AGRI REHAB-CORN PROD.	2012	7,000,000.00
50. AKO BICOL PARTY LIST	2012	4,150,000.00
52. PCSO	2012	2,000,000.00
TOTAL		894,002,742.62

Resources for Institutionalized DMO

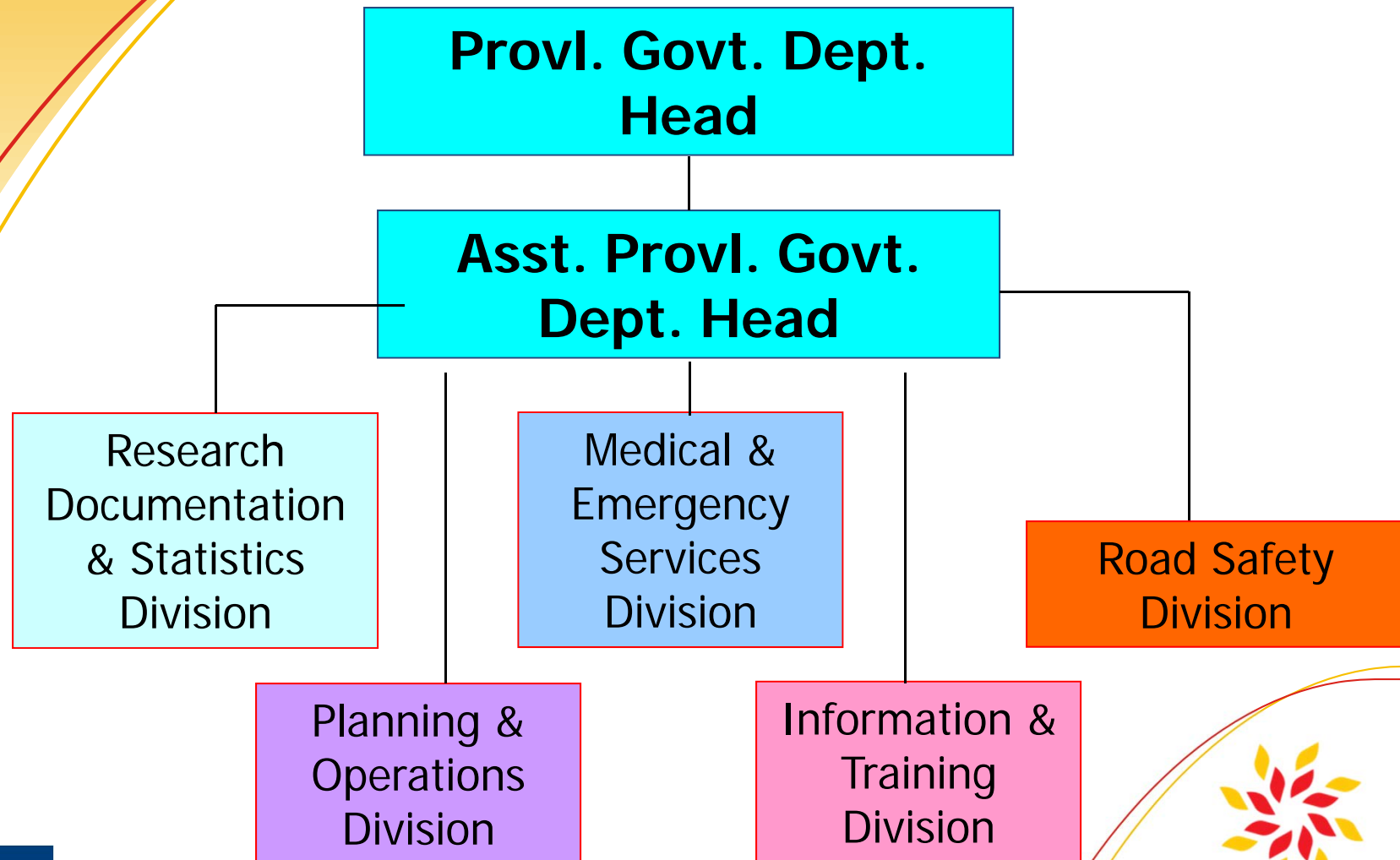
- **Permanent office: APSEMO**
 - created by ordinance in 1994 with regular plantilla of 25 including emergency research and disaster specialists.
 - has managed and survived disasters [including 7 governors!]
- **Sources of Funds**
 - Regular allocation from the annual provincial budget (IRA) separate 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

Organizational Structure as a Council

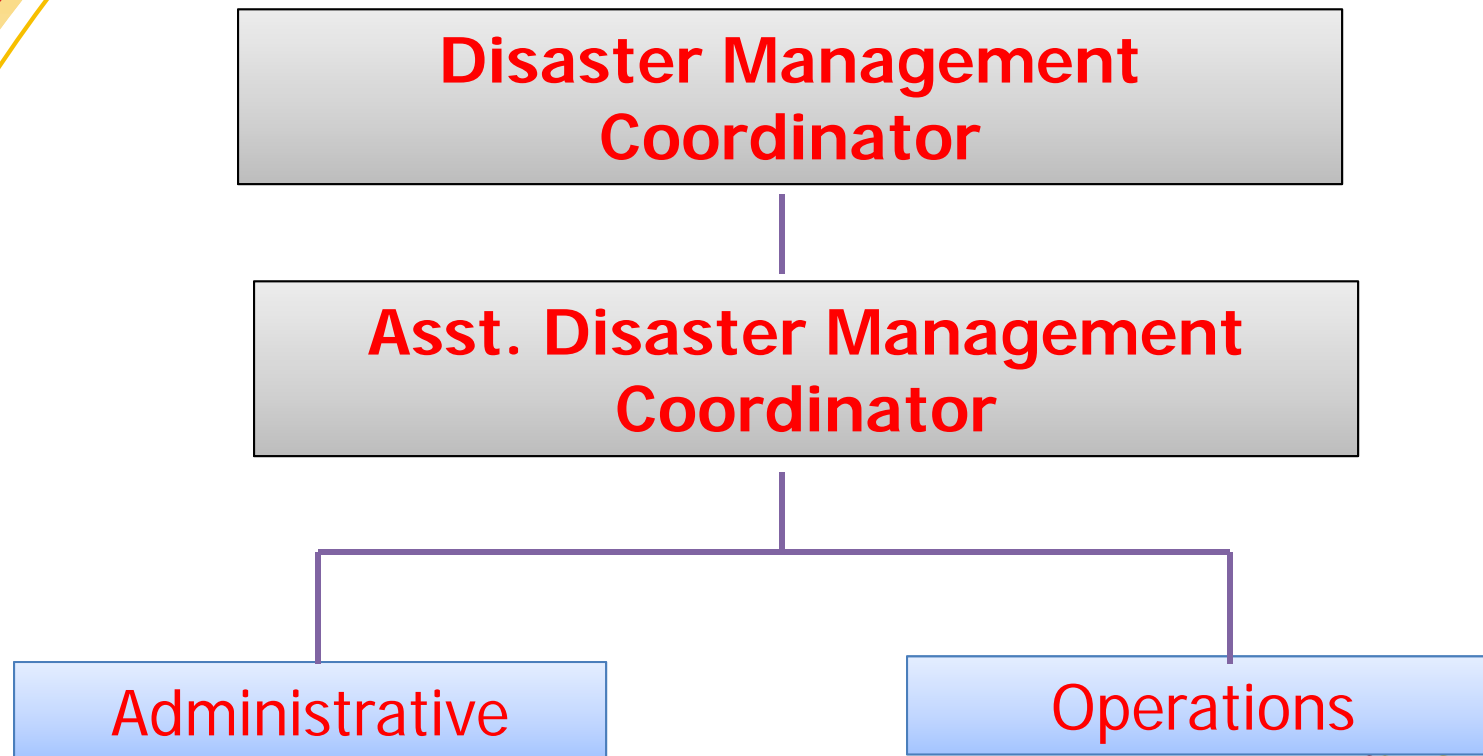


Organizational Structure as DRR Permanent Office

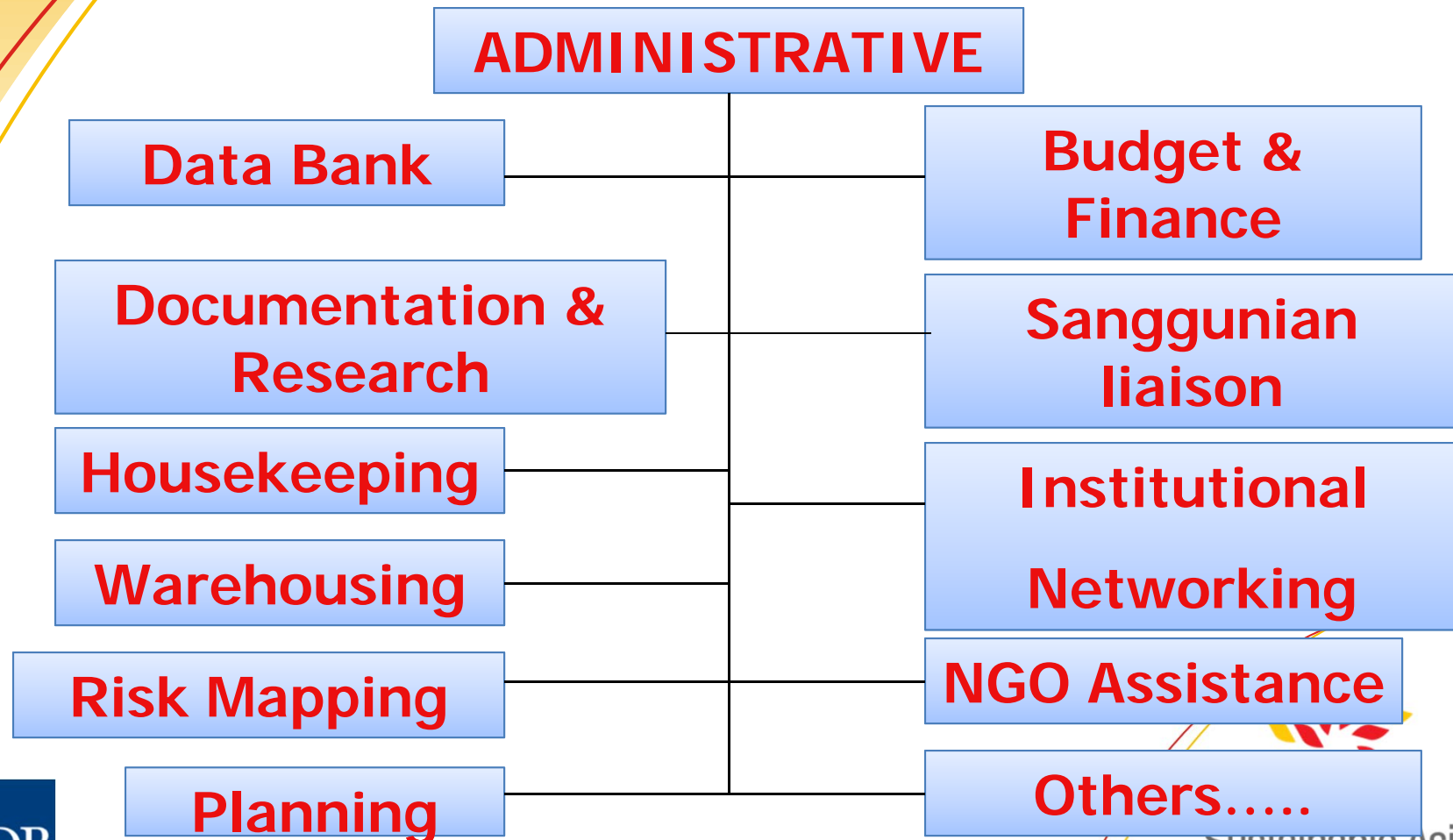
Albay Public Safety & Emergency Management Office



Emergency Management Structure when emergency situation is declared

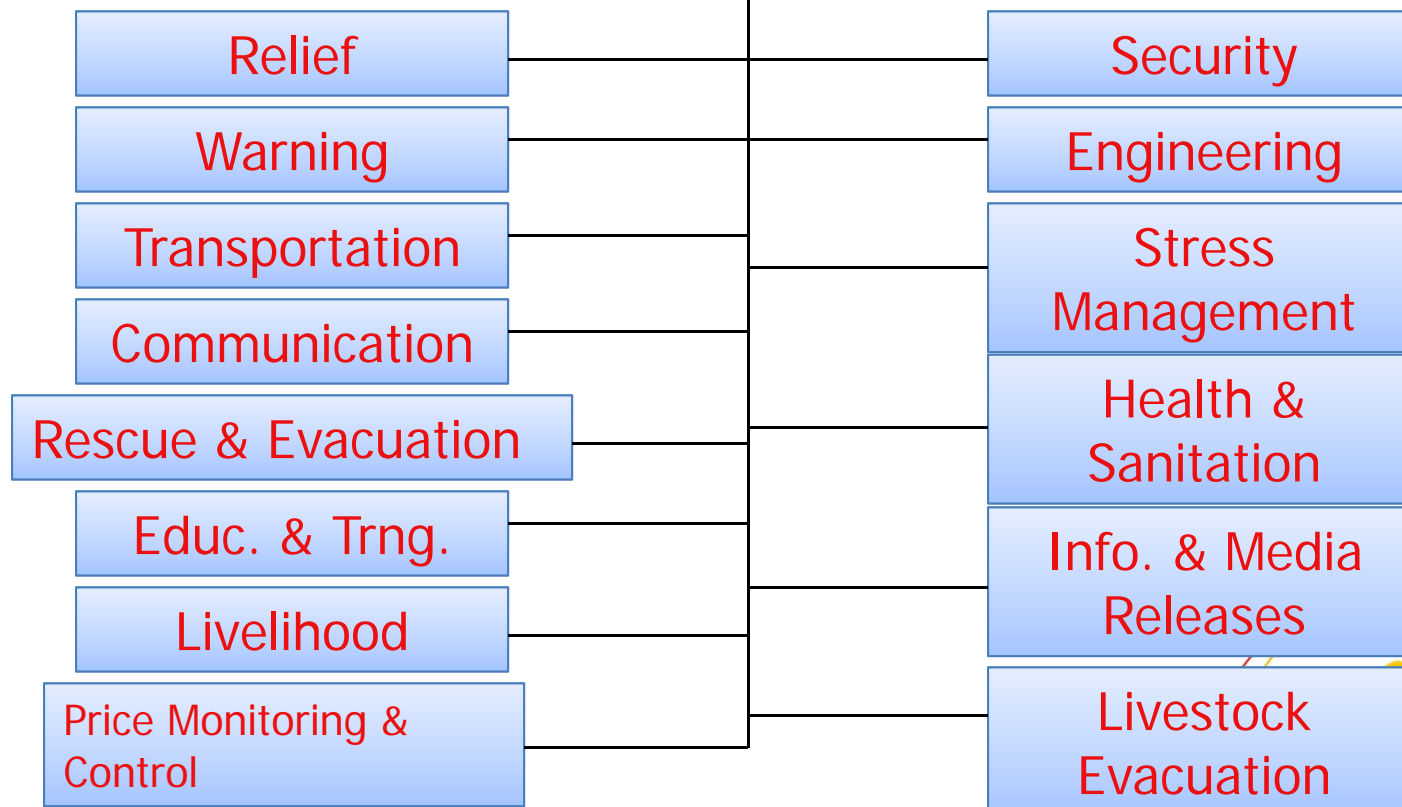


Emergency Management Structure when emergency situation is declared

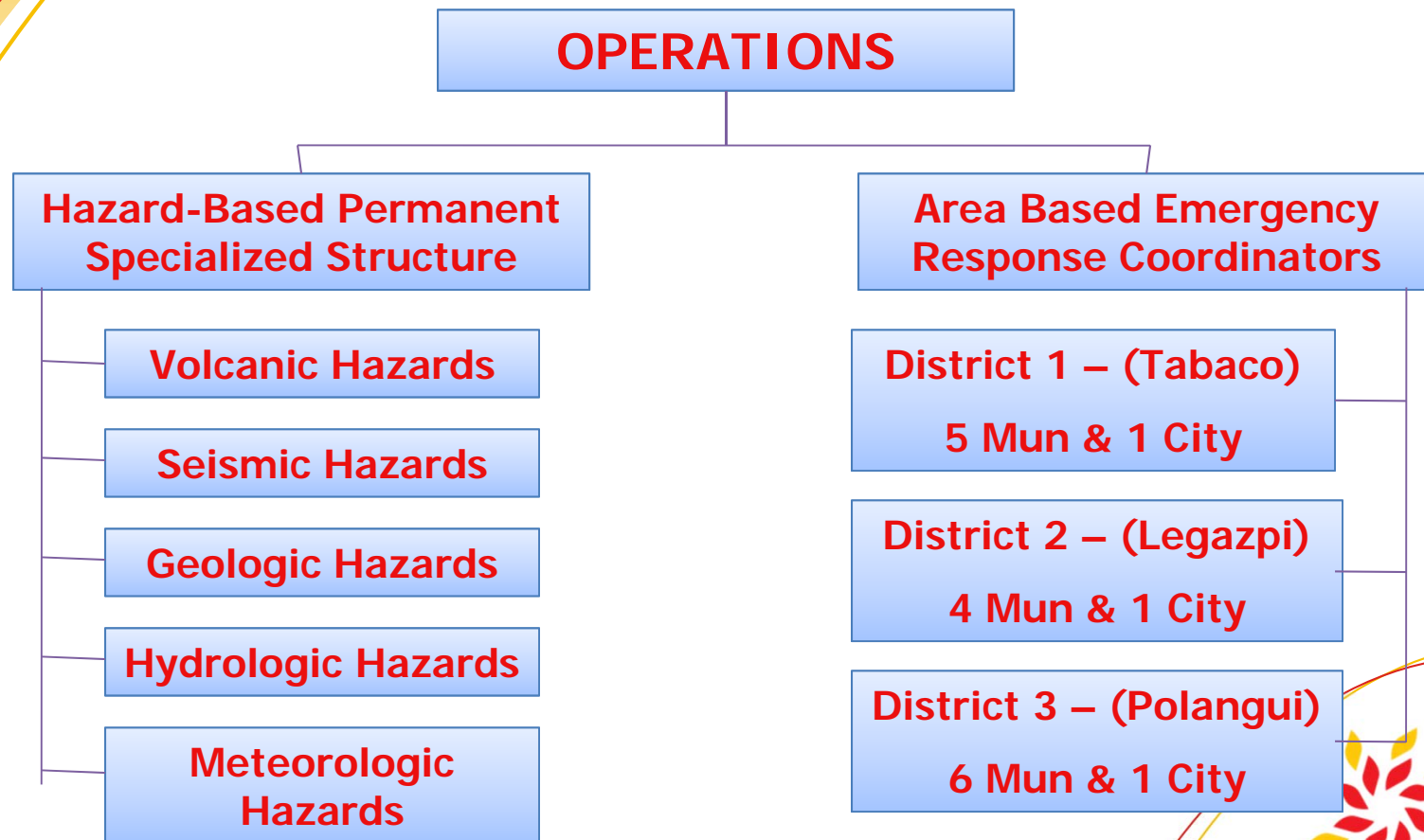


Emergency Management Structure when emergency situation is declared

Area Based Emergency Response Functions



Emergency Management Structure when emergency situation is declared



Disaster Operation Center Facilities and Equipment

- Office spaces in 3-floor PDMO Bldg (Provincial Disaster Management Office)
- Warehouse
- Powerhouse and 3 units of power generators (5 kva, 3kva & 600 volts)
- Information room
- Conference room (70 persons 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)

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 MILLENNIUM 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 and external sources, formulate policies and set up an institutional environment that will ensure that the resources are used efficiently and effectively;

WHEREAS, achievement of the MDG targets largely depends on the delivery of devolved basic services by LGUs since they represent a significant portion of public expenditure decisions at the local level;

WHEREAS, meeting the requirements of the MDGs requires the efforts of major stakeholders – the national and local governments and the private sector through related interventions geared towards the local development agenda;

WHEREAS, LGUs are the primary implementers of MDG programs, projects and activities;

WHEREAS, the Millennium Development Goals are measurable goals and targets that require discrimination against work that causes environmental degradation;

WHEREAS, the Millennium Development Goals 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.

and submit to concerned agencies, for the realization of each particular project or

MDG Sub-Committee shall hold regular quarterly meetings by the Chairman and Sub-Committee heads

activities may be funded through internal and external sources and implementation of programs, projects and activities and auditing rules.

shall take effect immediately and shall be enforced until

2009, Legazpi City, Province of Albay.


JOY SARTI SALCEDA
Governor

Resources for Institutionalized Training

- **Program office: Climate Change Academy**

- Initiated by UNDP, CCC and Provincial Govt of Albay
- Office inaugurated by President Noy Aquino
- Visited by Queen Sofia of Spain
- Institution for knowledge management
 - International trainees- Laos, Myanmar, Cambodia, Vietnam, Kenya, Nigeria and Timor Leste
 - Local- 57 LGUs

- **Sources of Funds**

- Regular allocation from the annual provincial budget (IRA)
- To implement P5m from DENR
- To implement P30m from OCD



Highlights of DRR/CCA Programs

- **Risk Mapping**
 - Comprehensive Land Use Plans
- **Integration into PDP, PDIP, AIP, PPMP**
- **Geostrategic Intervention (Go)**
- **Relocation (Go)**
- **Engineering Interventions (Defend)**
- **Social Preparations (Run)**
 - Community-based Warning and Evacuation Planning
 - Close coordination with Warning Agencies
- **Capacity Build-up**
 - Mobility Assets
 - Permanent Evacuation Center
- **Disaster Response**
 - Pre-emptive Evacuation
 - Pre-emptive Healthcare
- **Cluster Approach to Early Recovery**

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
 - **Component LGUs (but technical assistance from province)**
 - Population and Resource Mapping
 - Comprehensive Land Use Plan



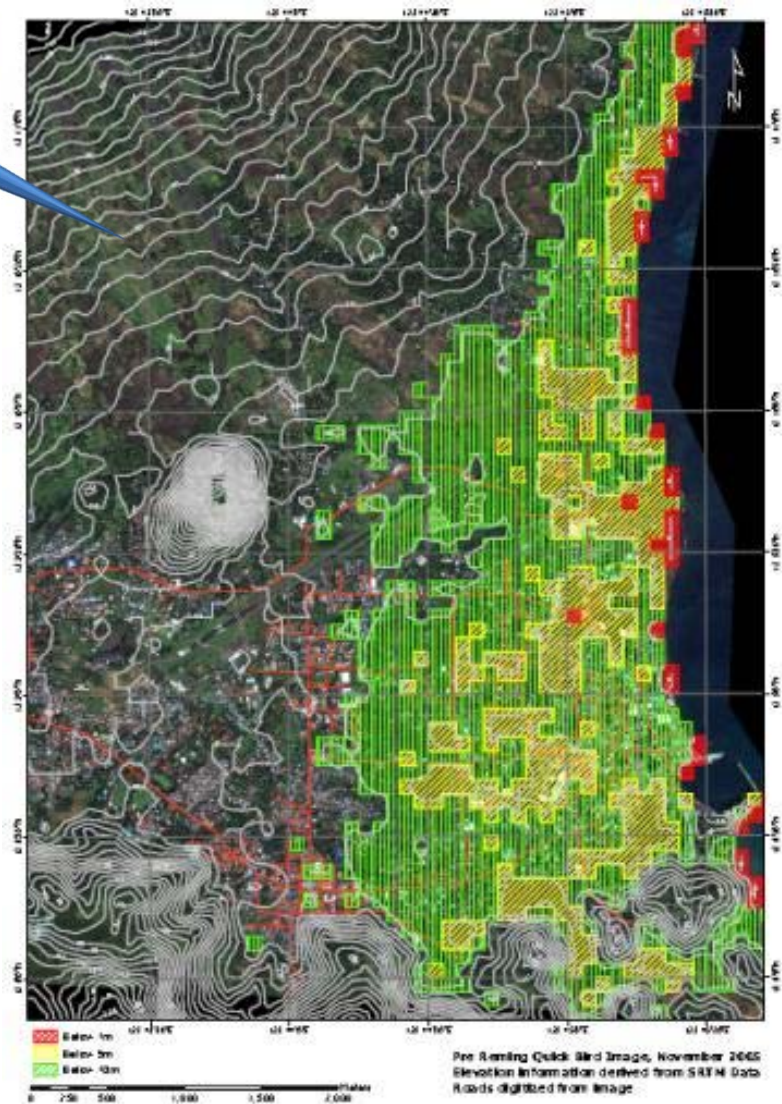
Legazpi FLOOD Map



Earthquake Map

FAULTS

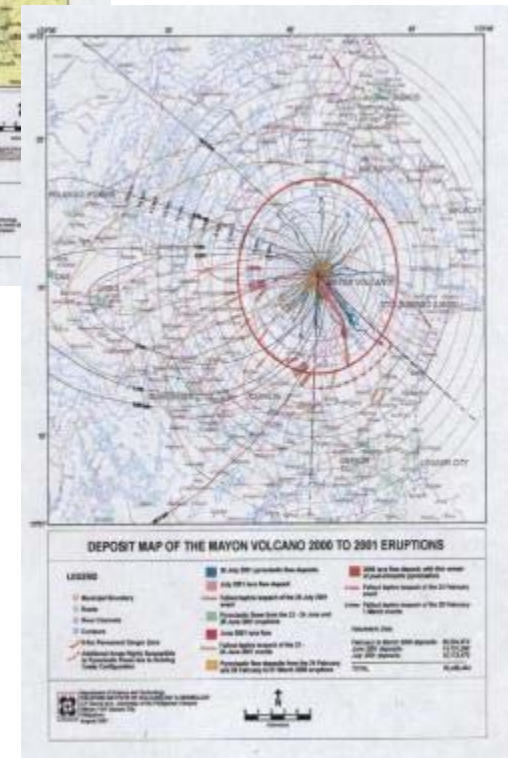
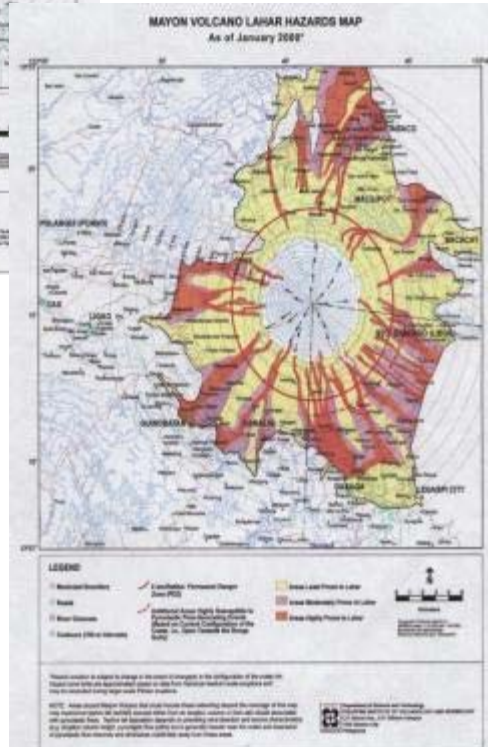
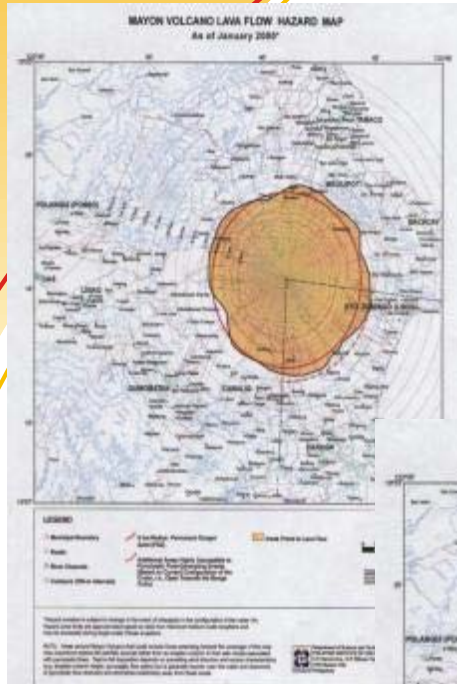
TSUNAMI



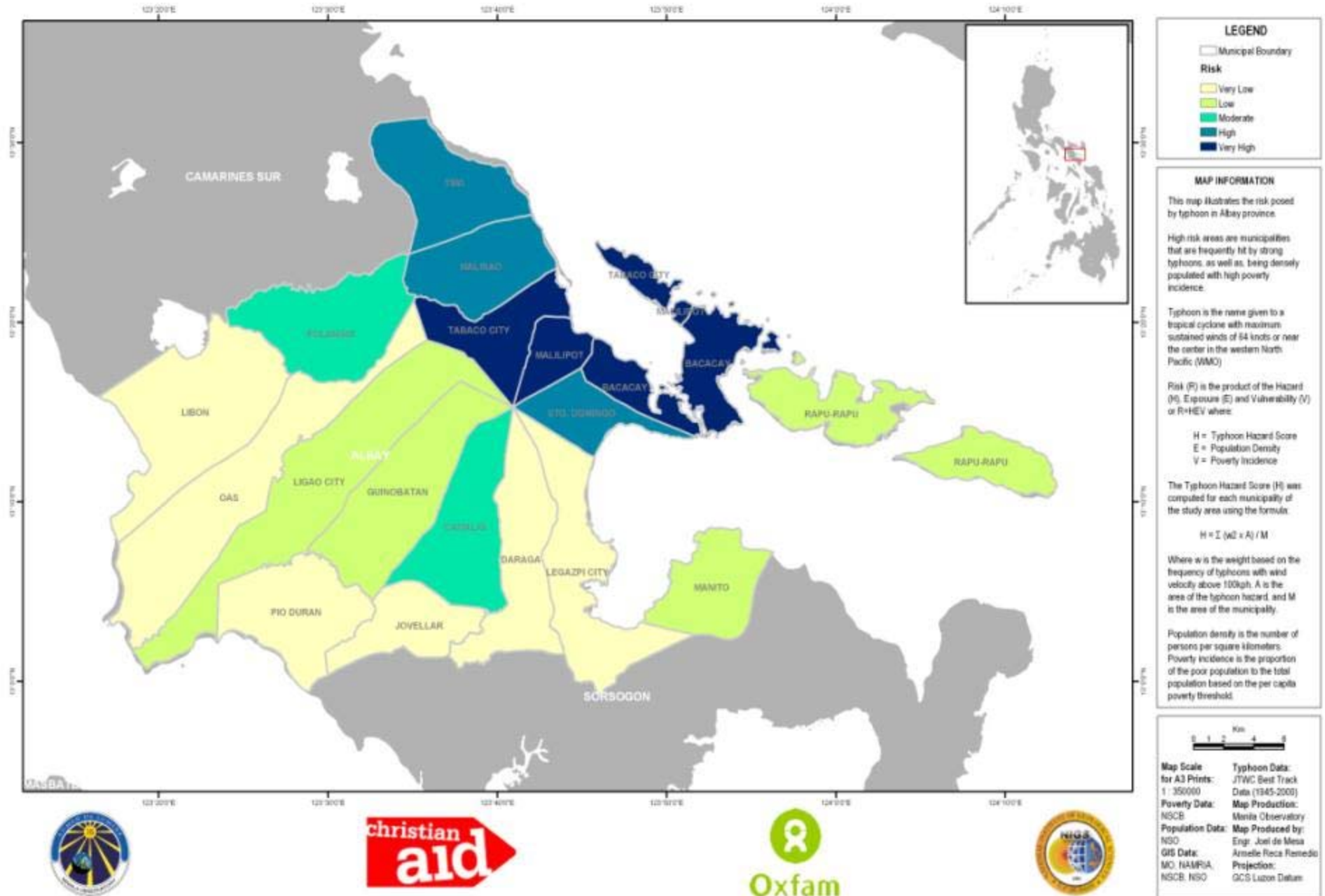
AD

Leadership Program

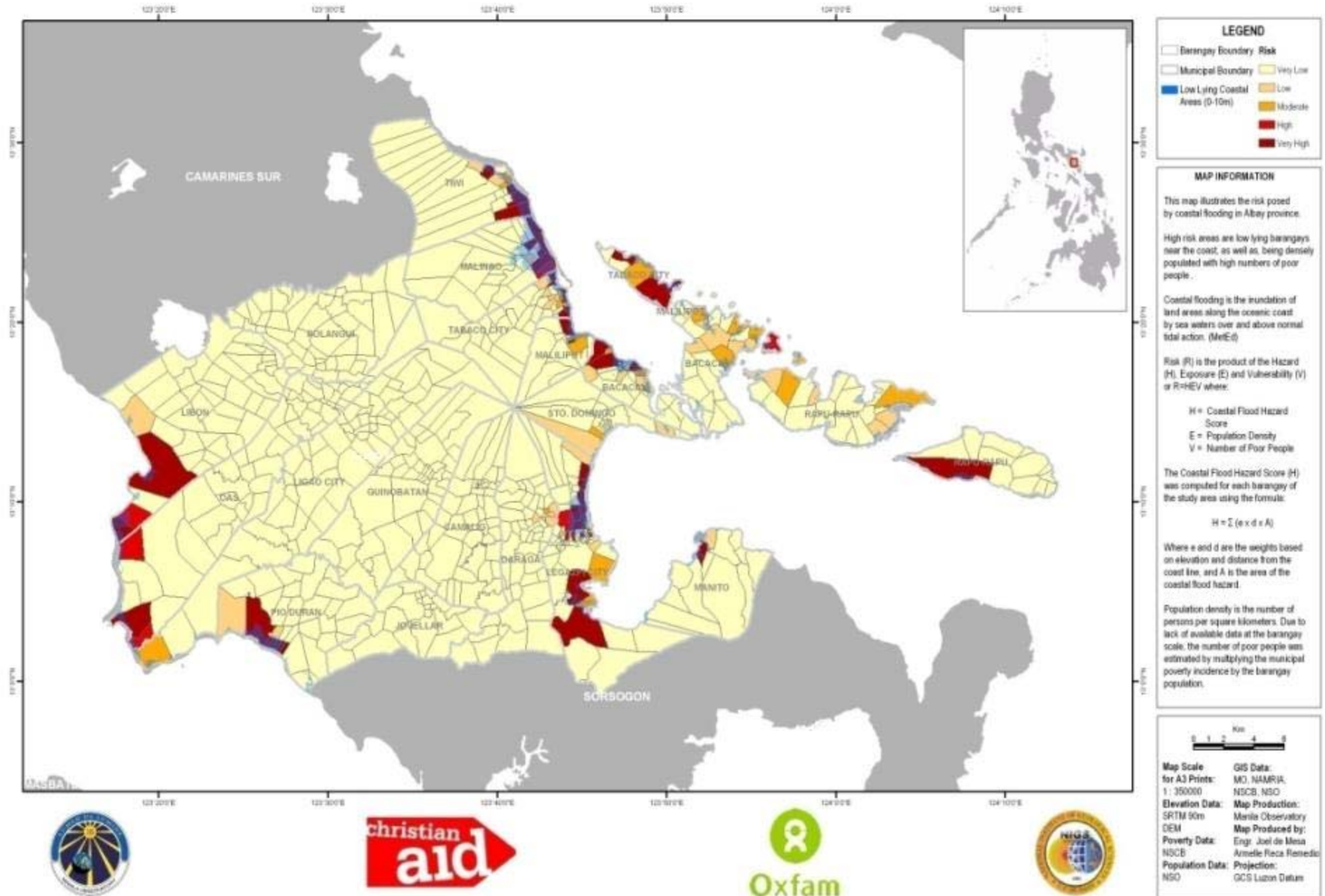
Volcanic Hazard Map



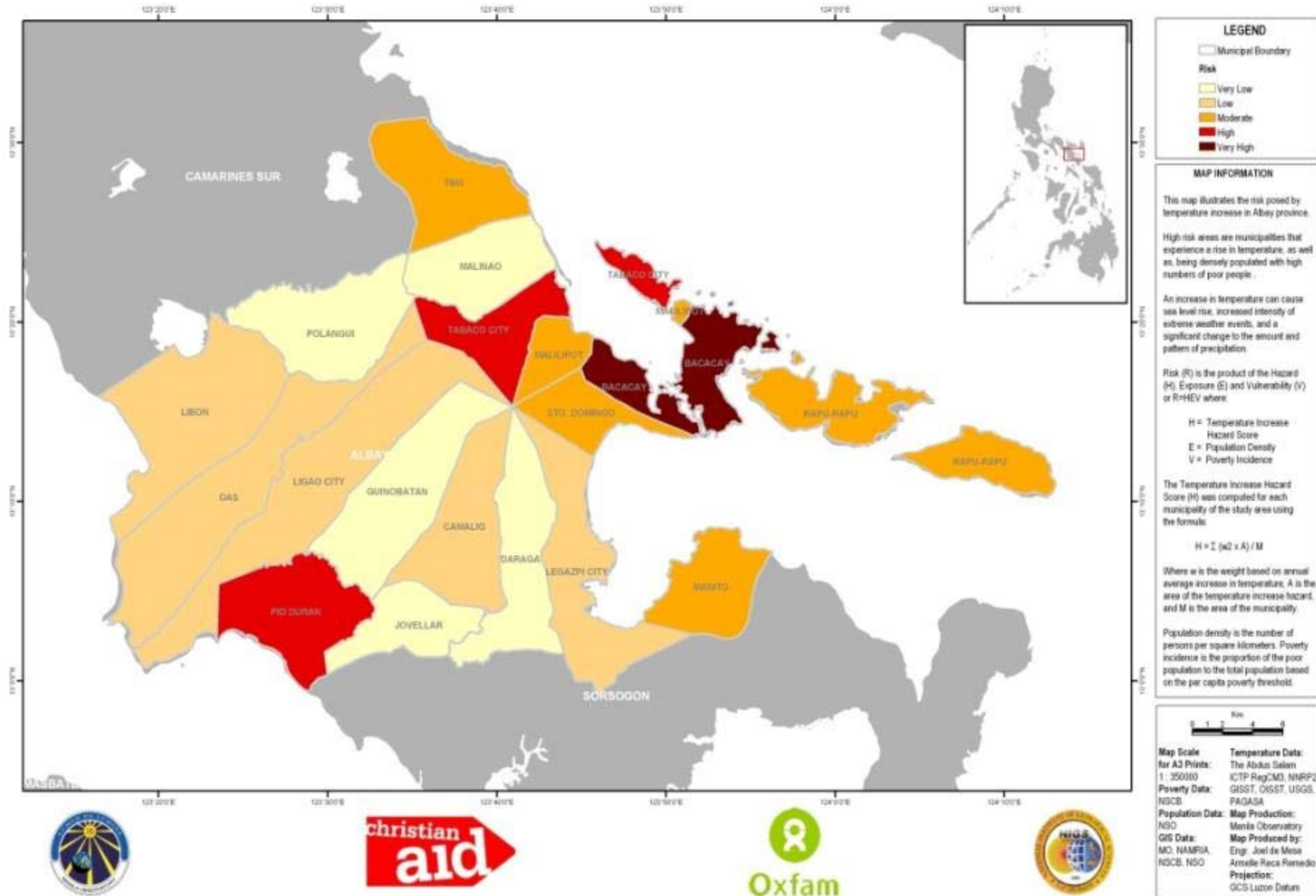
Typhoon Risk Map of Albay Province, Philippines



Coastal Flooding Risk Map of Albay Province, Philippines



Temperature Increase Risk Map 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 lake flow, landslides, and flood.

Risk (R) is the product of the Hazard (H), Exposure (E) and Vulnerability (V) or $R = H \times E \times V$ 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:

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

Where w_i is the weight based on the 3-monthly average increase in accumulated rainfall, A_i 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.

Map Scale
for A3 Prints:
1 : 350000

Rainfall Data:
The Abbot Salem
ICTP RegCM3, NHRP2
GISST, GISST, USGS,
PAGASA

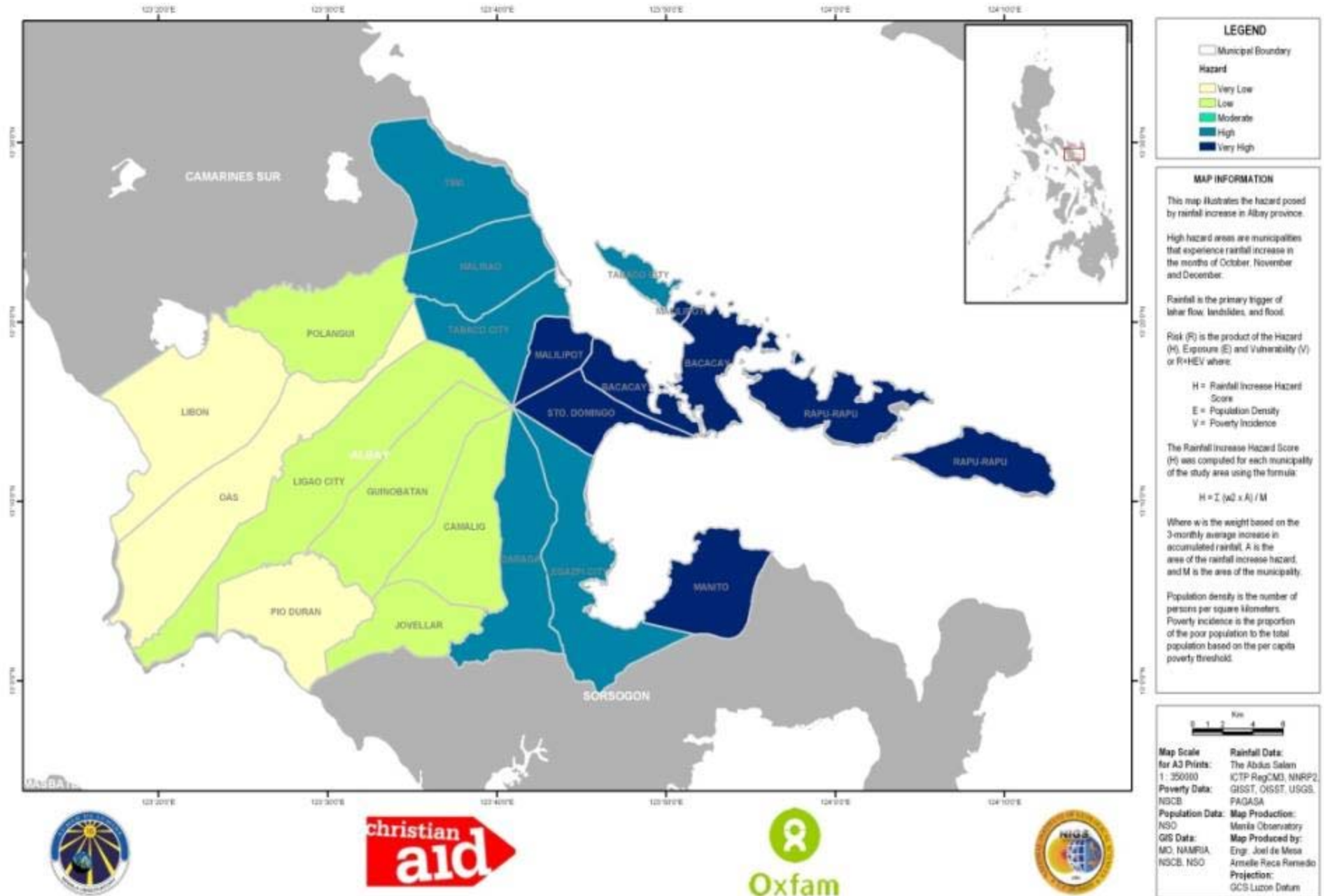
Poverty Data:
NSCB

Population Data:
NSO

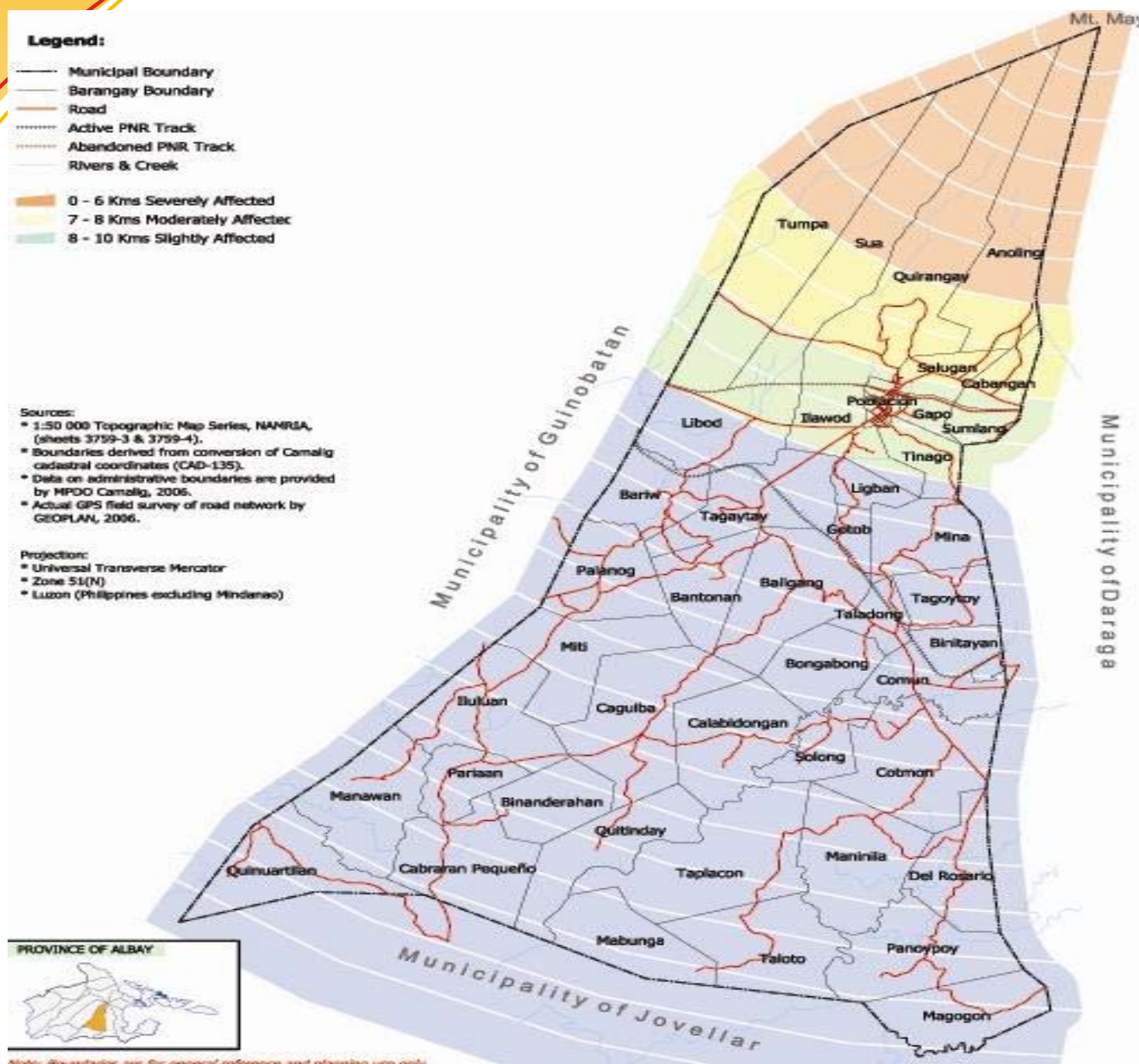
Map Production:
Mapa Observatory
Map Produced by:
Engr. Joel de Mesa
Armede Reza Remede
Projection:
GCS Luzon Datum

Logos:
Christian Aid, Oxfam, NSO, NDRRMC

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



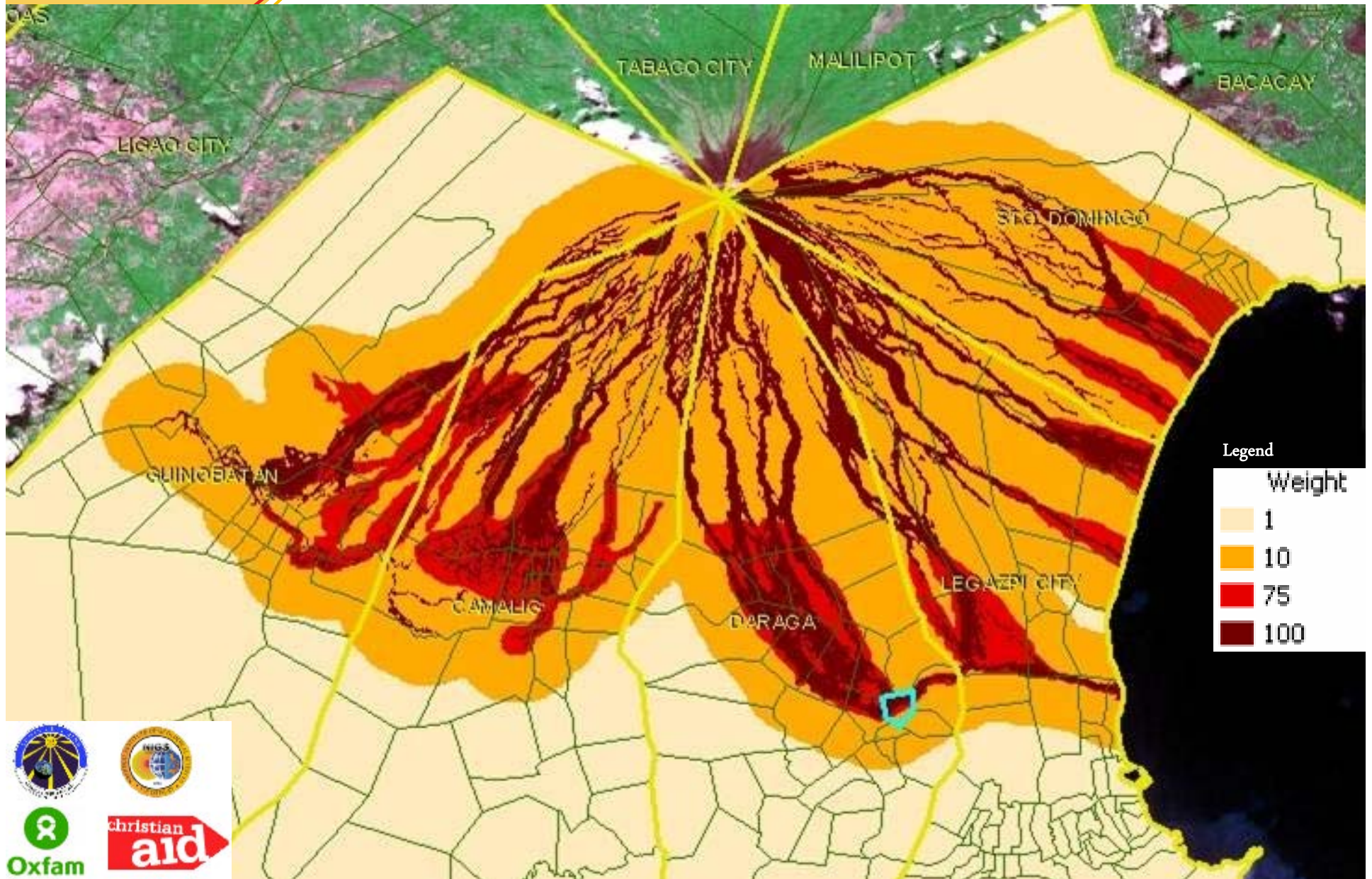
Risk Mapping



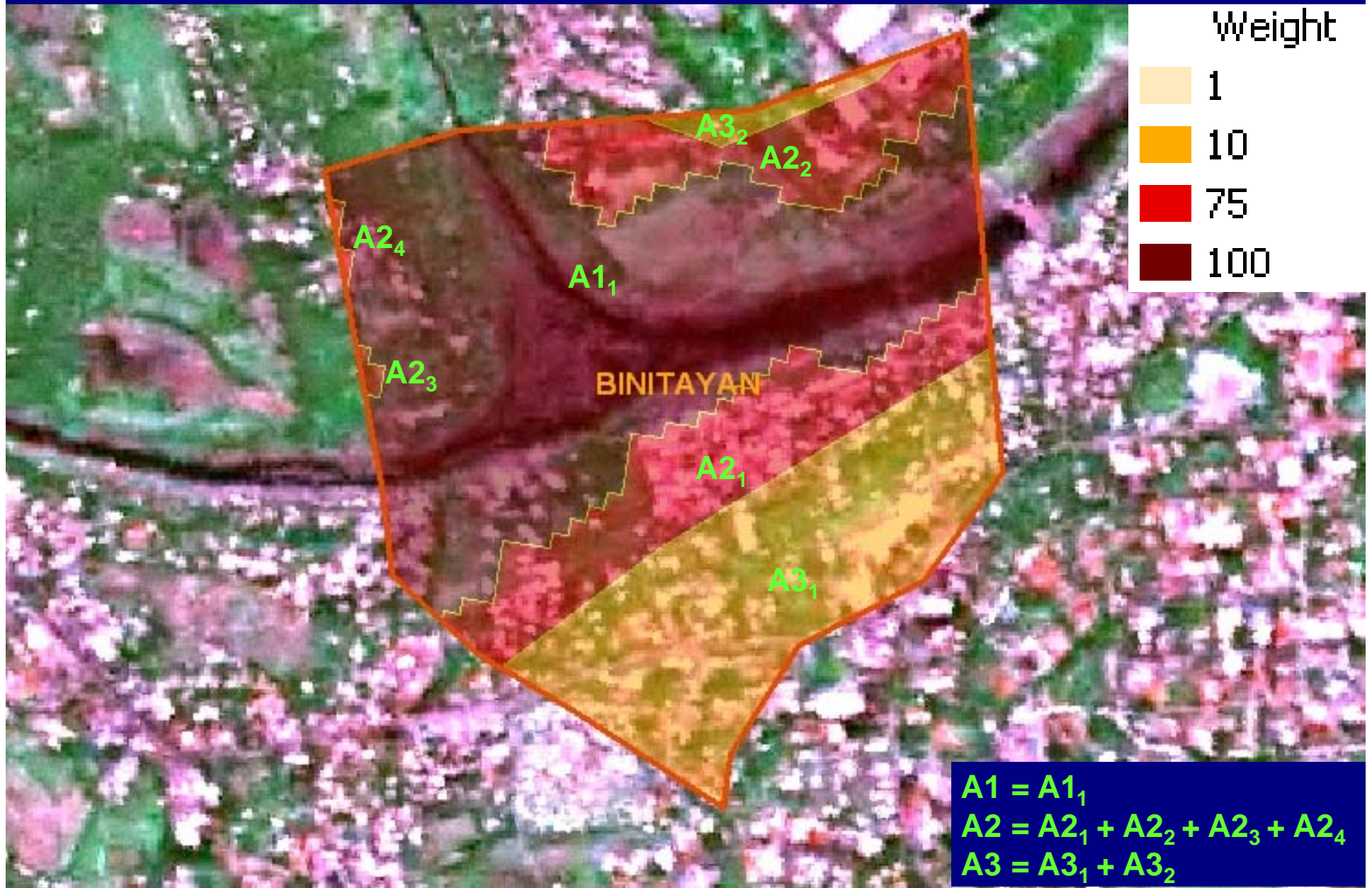
Lahar Hazard Map



Lahar Hazard Map

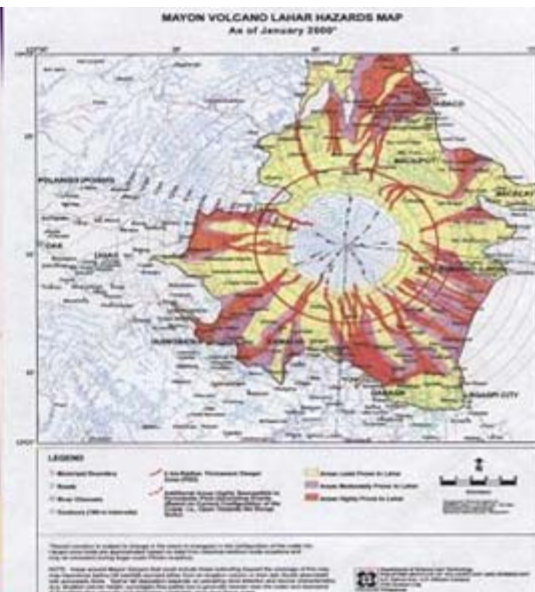
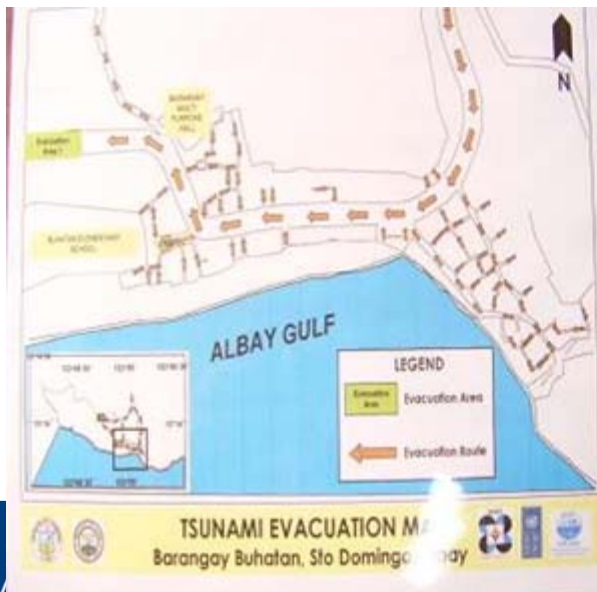
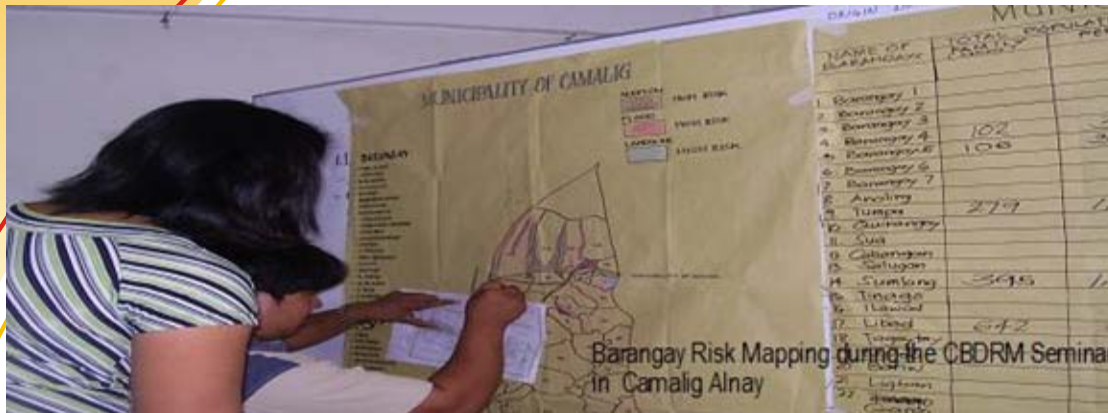


$$\text{HAZARD SCORE} = \Sigma(w^2 \times \text{Area})$$



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

Community-based Risk Mapping



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 analysis now complete (vulnerability assessment) / socioeconomic impacts*
- Integration of climate and disaster risks into zoning ordinance remains a continuing task
- 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

Albay Prov'l Devt Investment Plan 2011-16

NAME OF PROJECT/PROGRAM	TOTAL PROJECT COST
DRR/CCA Receptive Infrastructure PPAs	
1. GUICADALE ROAD PROJECTS	2,893,657,402.71
2. SOUTHERN LUZON INTERNATIONAL AIRPORT	3,400,000,000.00
3. ALBAY WEST COAST ROAD	663,520,000.00
4. BICOL ALTERNATIVE HIGHWAY - DARAGA - OAS SECTION	250,000,000.00
5. OAS -CAGMANABA ROAD	250,000,000.00
6. COMPREHENSIVE DISASTER PREVENTION AROUND MAYON VOLCANO	39,257,300,000.00
7. SAFE SCHOOLS	592,195,000.00
8. SAFE HOSPITALS	100,000,000.00
9. ALBAY TRES or Albay section of Bicol River Basin Development Plan	1,499,011,800.00
10. ALBAY DOS or Donsol River Watershed Plan	427,000,000.00
11. CRaBS++	1,253,020,000.00
SUB-TOTAL	50,585,704,202.71
Non-infra DRR/CCA Receptive PPAs	17,746,782,237.17
Non-infra/non DRR/CCA receptive PPAs	12,305,513,560.12
GRAND TOTAL	80,638,000,000.00

Resources for Investment Plan: Albay Sustainable Handbook for Tiwi / Malinao

- ▶ Albay Sustainable Handbook is a data-based, science-based and community-based approach to development planning
 - ▶ Limited to towns of Tiwi and Malinao
 - ▶ To be replicated to:
 1. Oas Graben (3rd District)
 2. Guinobatan-Sto. Domingo (lahar zone), and
 3. CRAB Islands (Cagraray, Rapu-Rapu, Batan, San Miguel)
- ▶ Source of Fund: CSR of Chevron – P5m
 - ▶ Future commitments- Shell Foundation for Oas Graben





Resources for Risk Reduction: Geostrategic Intervention

- **Geostrategic Intervention: Guicadale Economic 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- P4.9bn
 - Source of Funding- DOTC national government
 - **Road networks**
 - Cost- P1.3bn
 - Source of Funding- Organic annual budget of DPWH, national transfers, JICA, multi-year from 20% economic development fund of the province
 - **New government center**
 - Cost- P176m
 - Source of Funding- province to acquire via long term loan from Philippine Veterans Bank

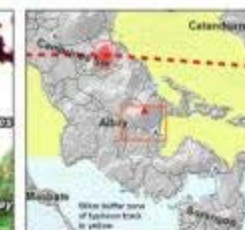
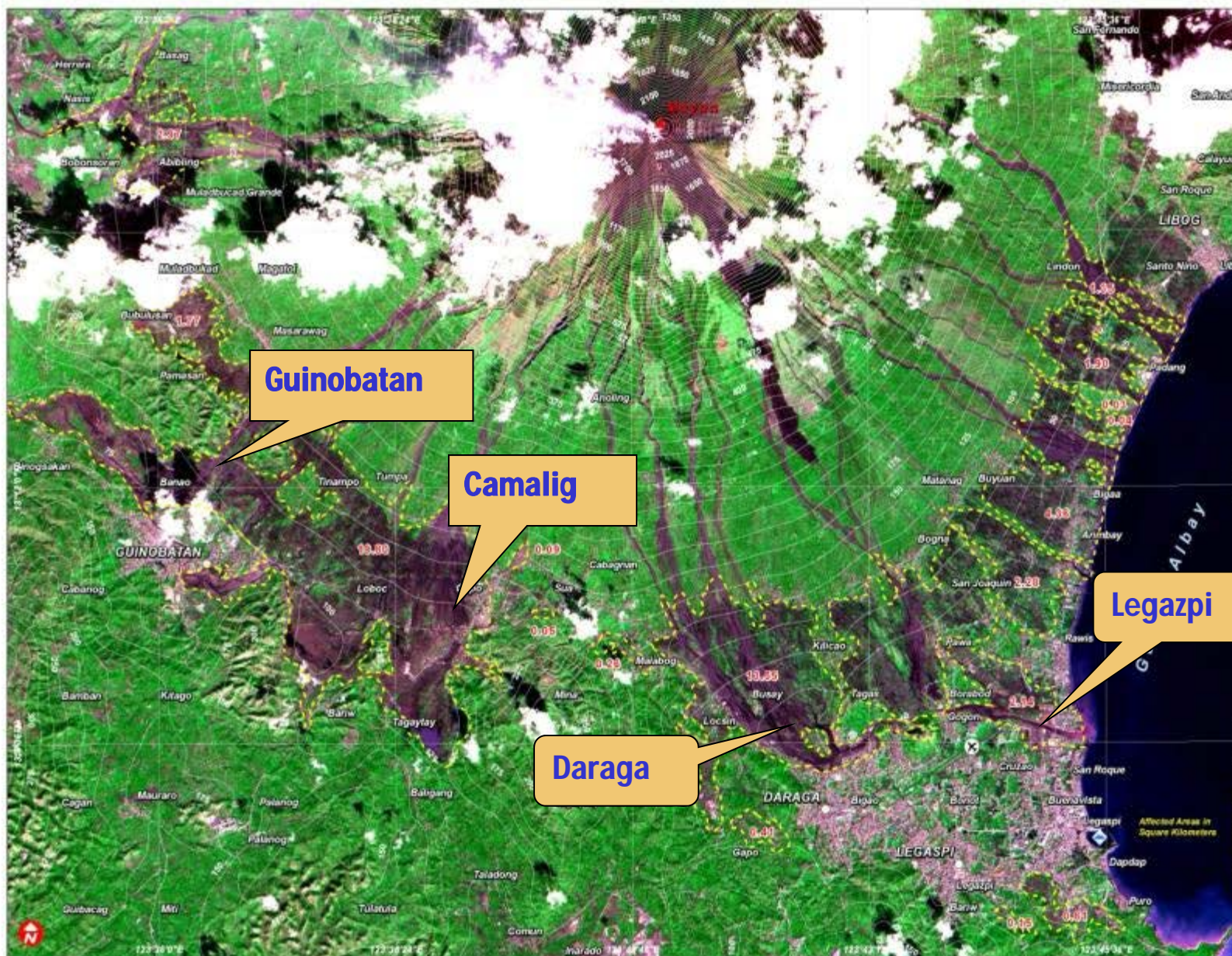
Overview of Flooding & Mudslide Damage Surrounding Mt. Mayon Volcano, Albay Province, Philippines

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



Map Information

This map illustrates the approximate areas of flooding and mudslide damage resulting from Typhoon Durian ("Reming") 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 use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. This map was produced 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



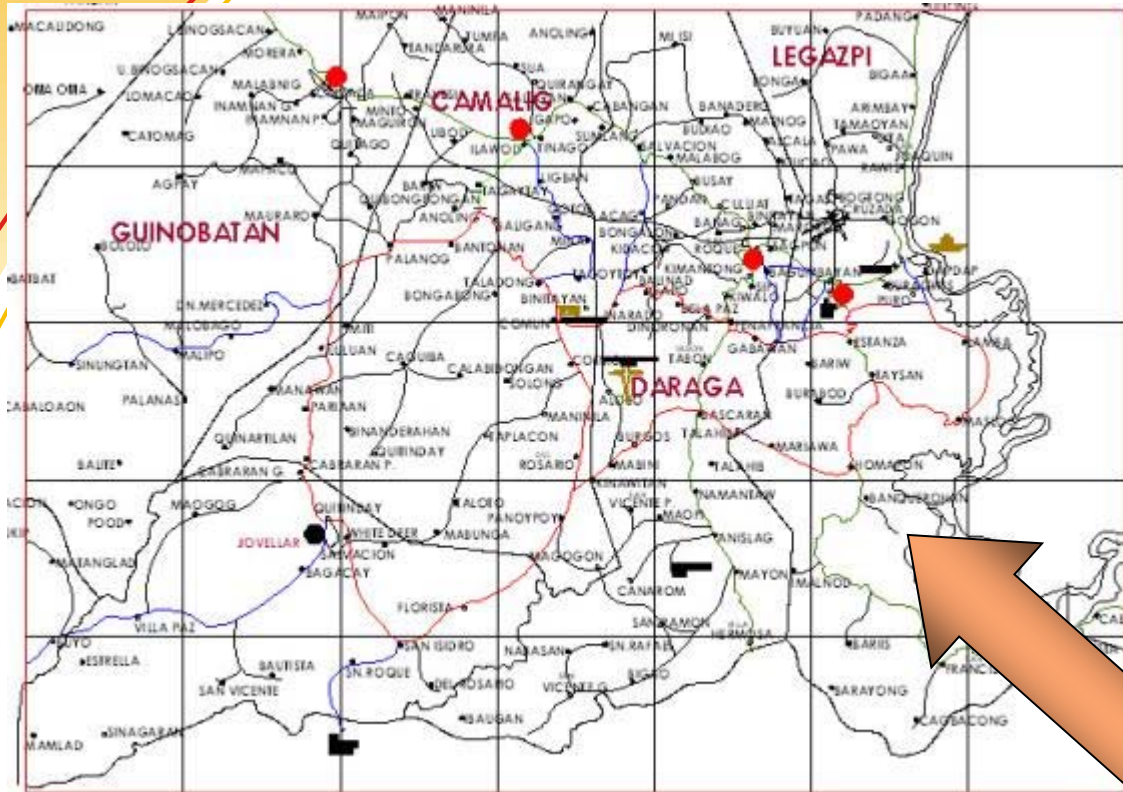
Map Scale for A3

Prints 1:65,000

Scale 0 200 400 600 800 1,000 Meters
Glide Number: TC-2006-000175-PHL
Satellite Image: SPOT-5 (12 Dec 2006)
Image Copyright: UNOSAT 2006
Distribution By: SPOT-5
GIS Data: GIST, NASA, OCHA
Map Production: UNOSAT (18 December 2006)
Projection: UTM Zone 50N WGS 1984

UNOSAT
satellite imagery for all
Contact Information: info@unosat.org, 547
Washington, DC 20005

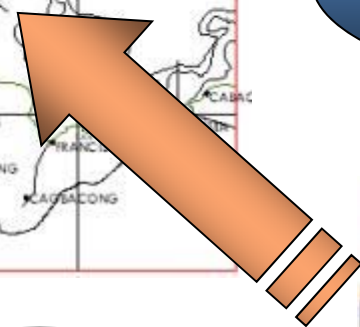
GUICADALE ECONOMIC PLATFORM



**DRR w/o
DISASTER**



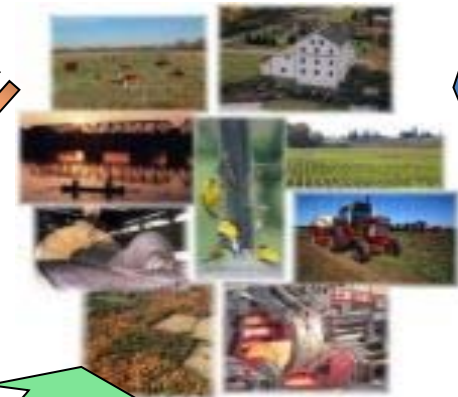
**ECONOMIC
EXPANSION**



**DRR
MEASURES**



INVESTMENTS



Leadership Program

AD

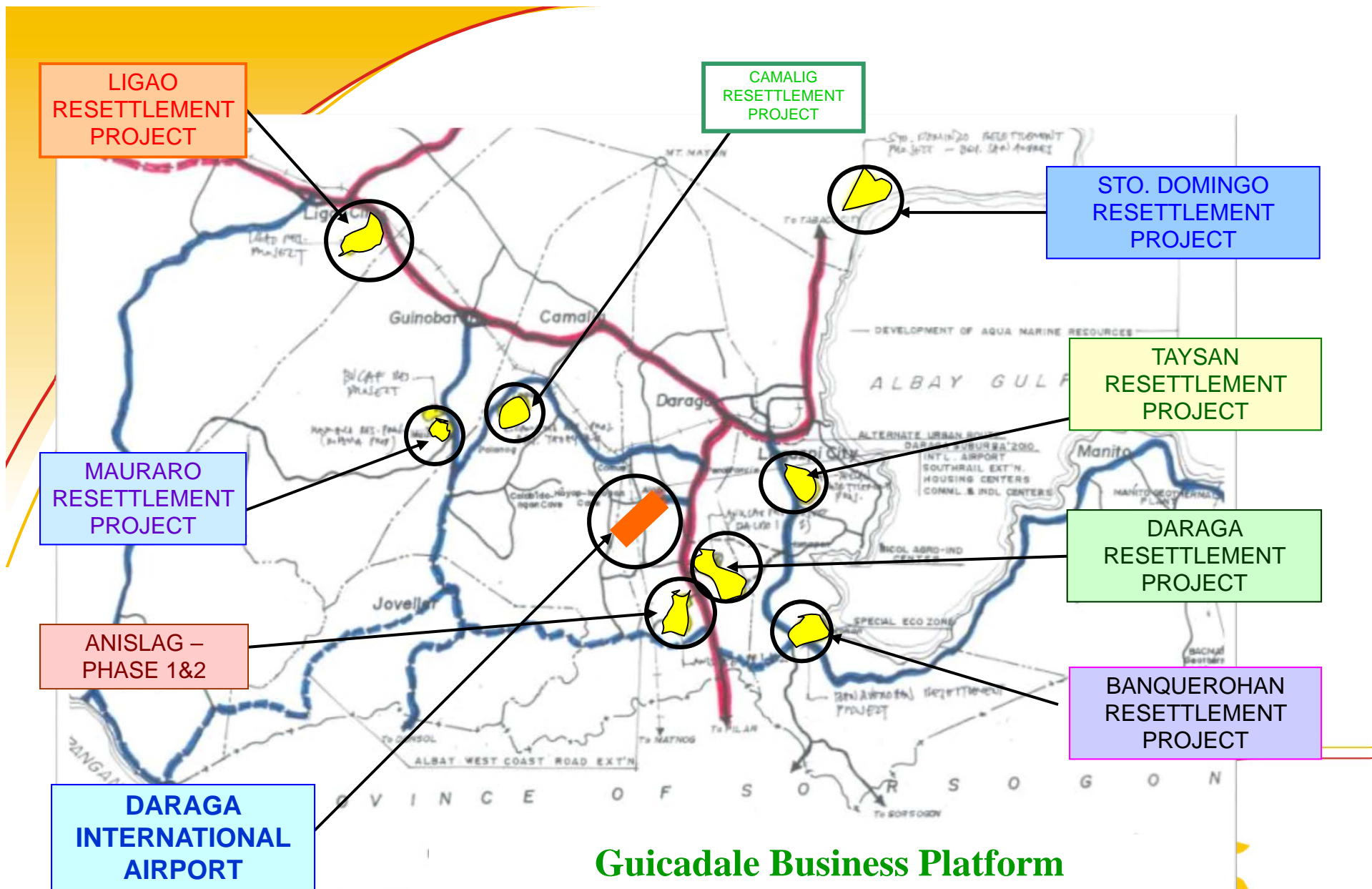
Resources for Risk Reduction: Relocation

- **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

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)





Risk Reduction: Engineering Interventions

- **Engineering Interventions**
 - **Flood Control**
 - Phase 1 of Legazpi Flood Control already approved for DPWH funding in 2012 GAA: P575m out of total P2.1bn
 - **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

Bicol River Basin Flood Control

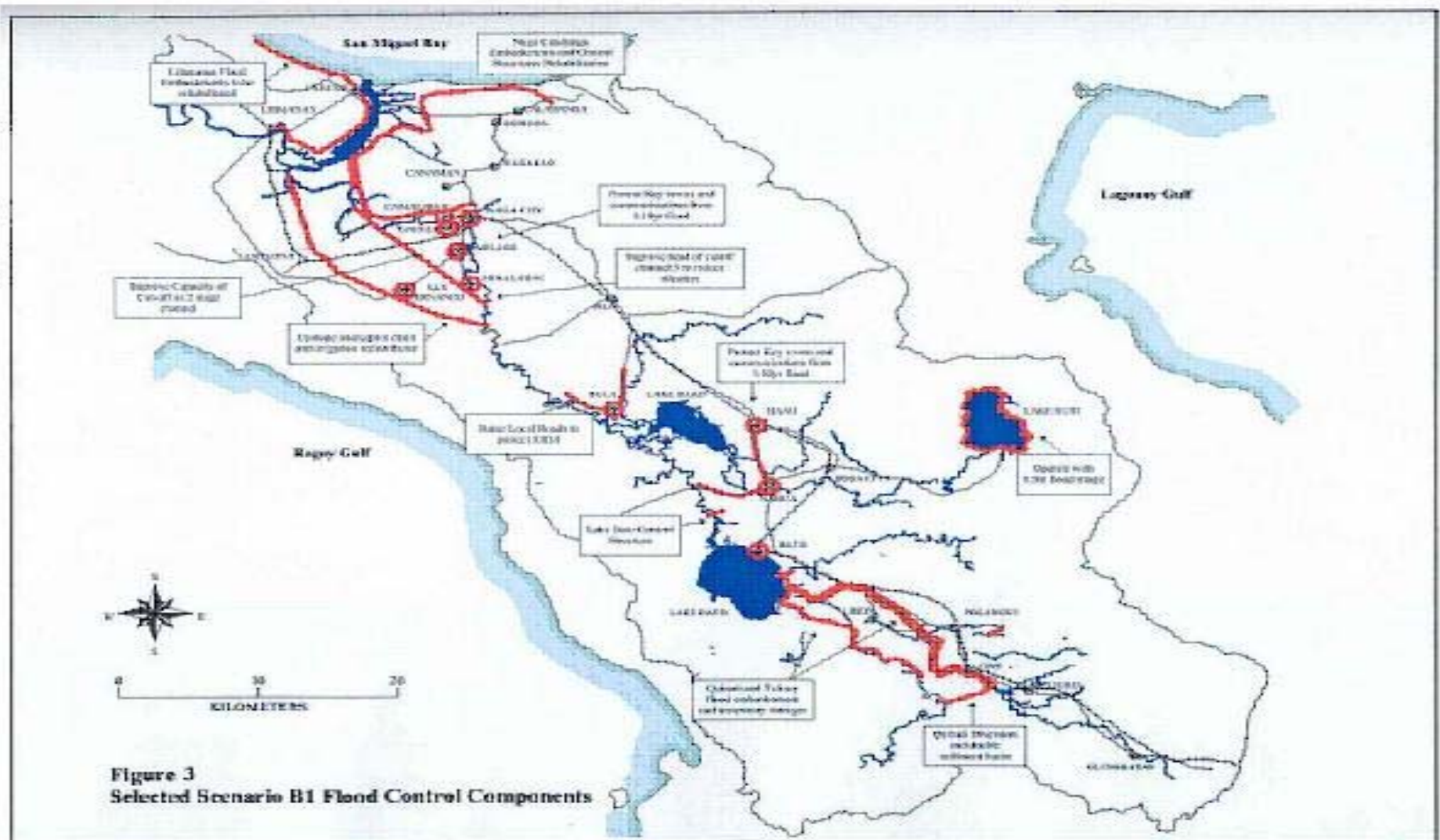


Figure 3
Selected Scenario B1 Flood Control Components

Engineering Interventions: Biggest Gap



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



Community Training and Seminar



TAGAS VULNERABILITY / CAPABILITY ASSESSMENT	
VULNERABILITY	CAPABILITY
1. FLOOD PRONE AREA - YAMA RIVER	1. MOST RESIDENTS HAVE CELLPHONE 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 TYPES OF ESTABLISHMENTS
4. LACK OF STREET LIGHTS	4. NEAR THE TOWN / PROPER
5. INADEQUATE DRAINAGE SYSTEM	5. CENTER OF HEALTH SERVED RESIDENTS PHYSICIAN AND 1 HEALTH WORKERS
6. LACK OF WATER TAPES FOR DRINKING & IRRIGATION	6. CENTER OF RELIGIOUS SET
7. LACK OF ACCESS DUE TO LANDSLIDE	7. NEAR TO THE AIRPORT
8. JUVENILE DELINQUENCY	8. WITH 2 STOREY BARS
9. WITH CASES OF MARIJUANA	9. HAS MOBILE PHONE
10. SOME FARM WITH INADEQUATE IRRIGATION SYSTEM	10. SUFFICIENT IN BREAD

Community Drills



Sustainable Asia
Leadership Program

Training of Emergency Paramedics



Training of Rescue Team



STARTING THEM EARLY



Leadership Program

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

Community-Based Early Warning



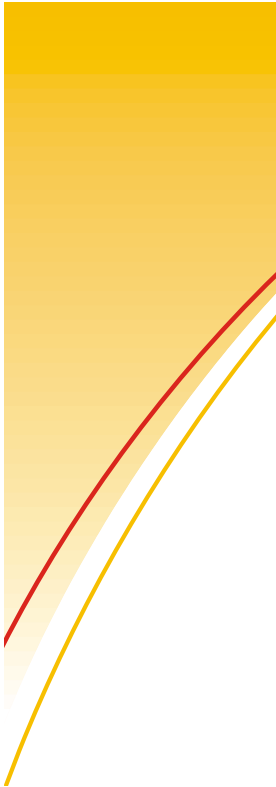
**Warning
Agencies**

APSEMO



**Communities
LGUS**

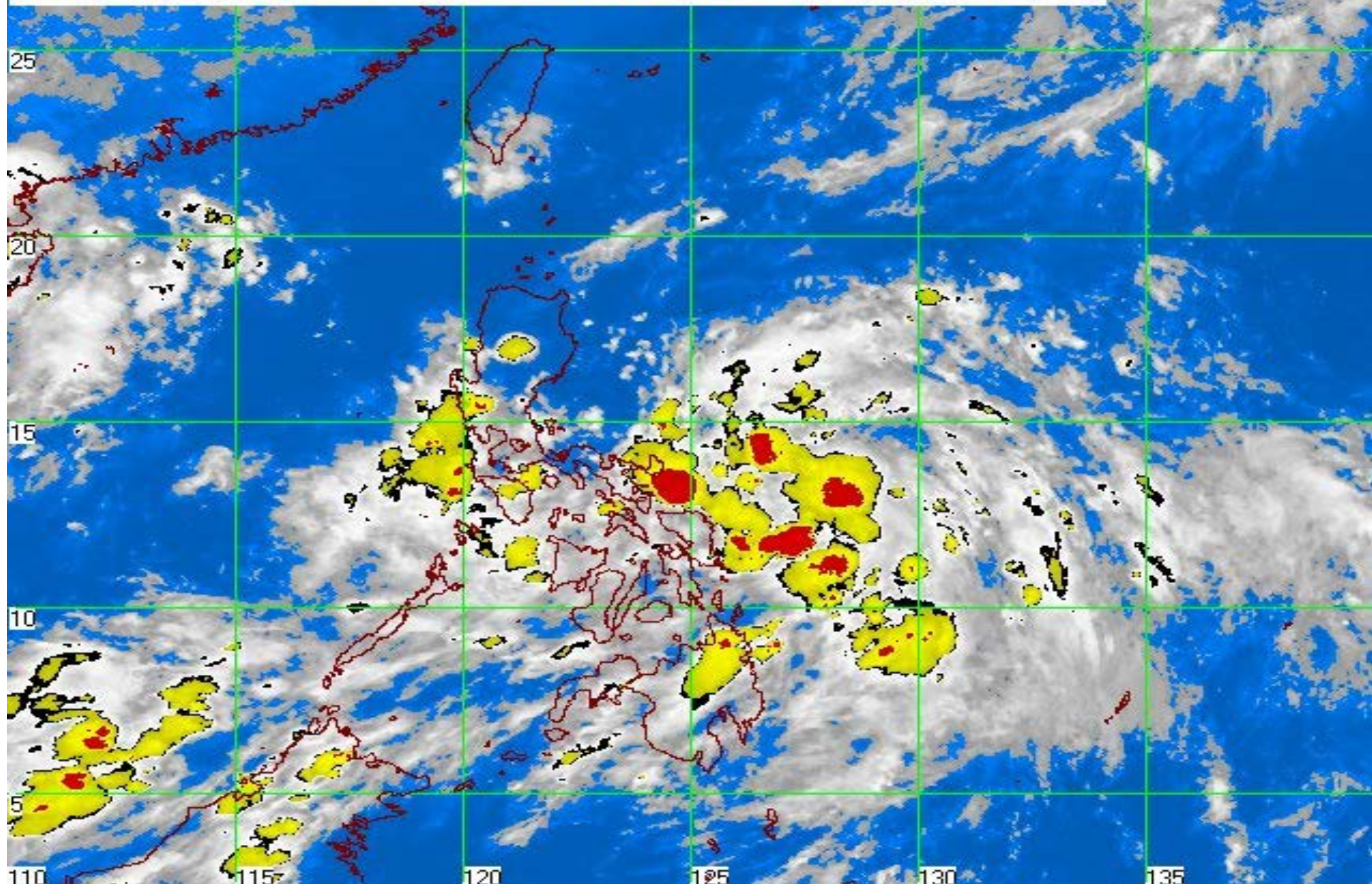




Asia
m



DOST PAGASA MTSAT IR1 11:32 UTC 31/05/2012





VIRAC

Rain Warning Disable
Wind Warning Disable

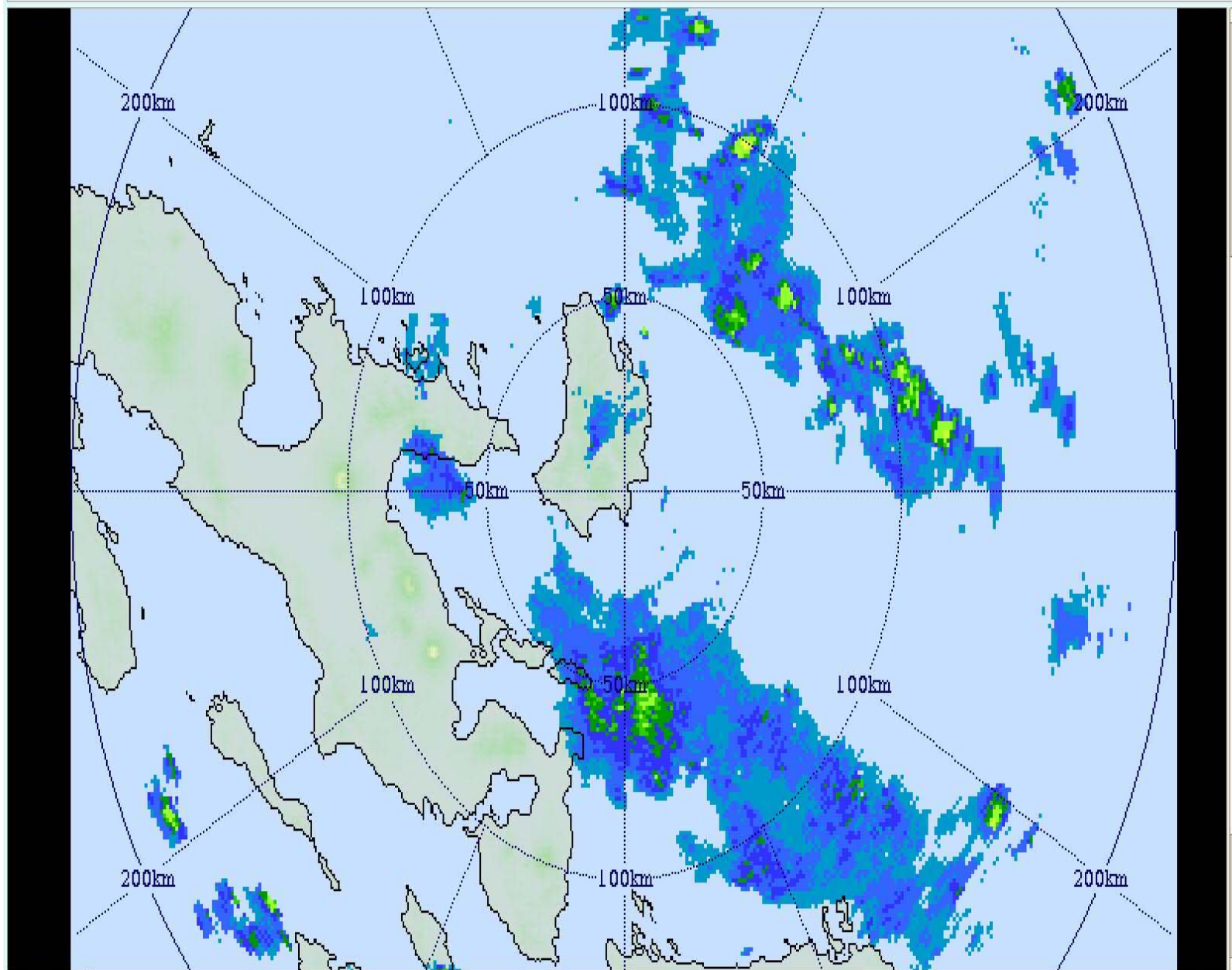
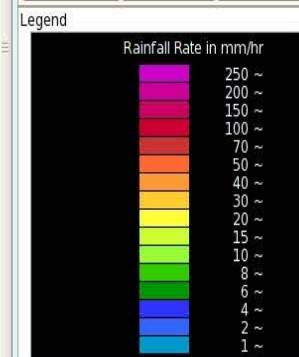
20:10 UTC
31 May 2012 PHT
Height : 4 km
Range : 200 km

Data Select
VIRAC Previous
CAPPI R
4km Select

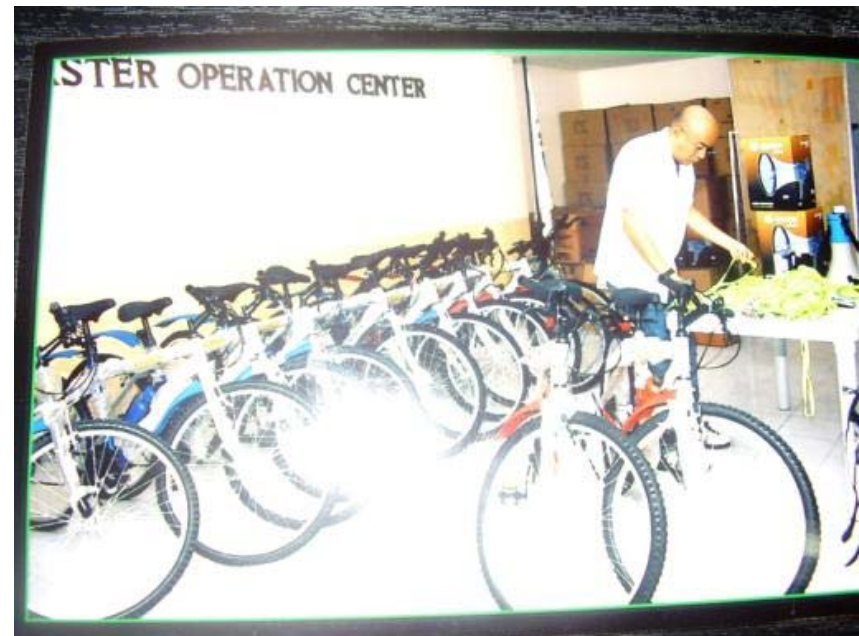
Replay
Manual
Navigation buttons: Previous, Play, Next, Stop, First, Last

Data Assistance
Cursor X-Section Track

Overlay
Map Coast
Range / AZ lat. / lon. Marker
Wind Shear Line Microburst



Community-based Warning Communications



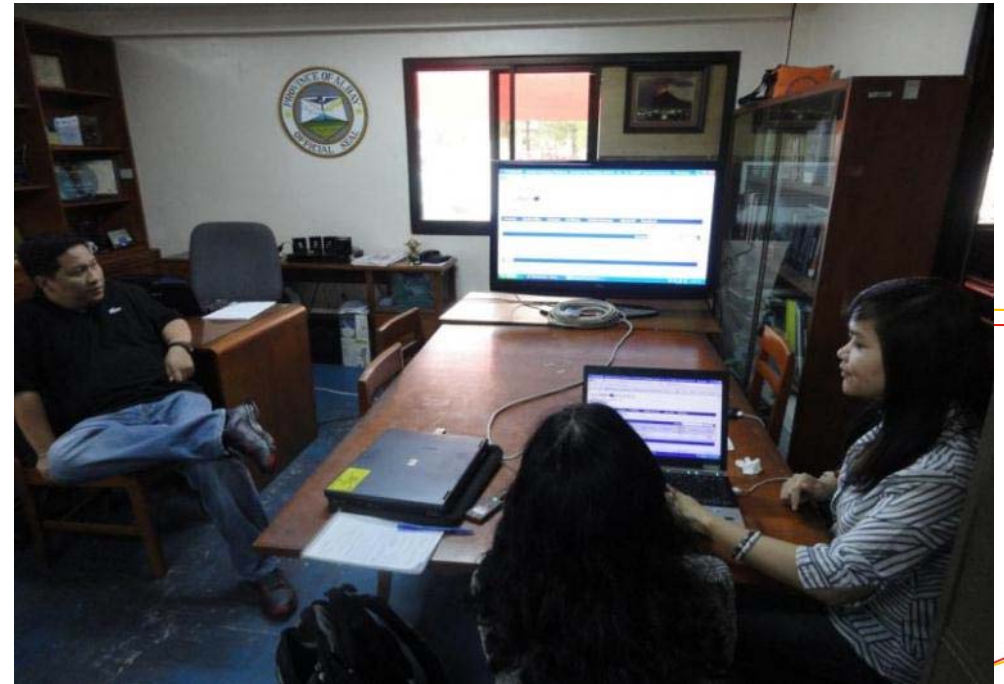
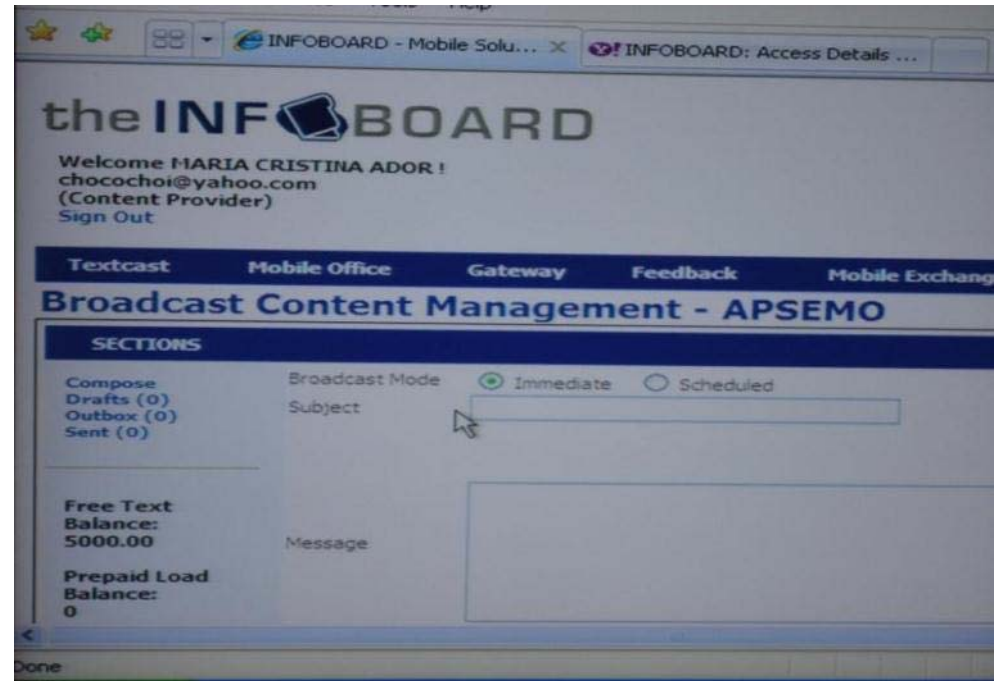
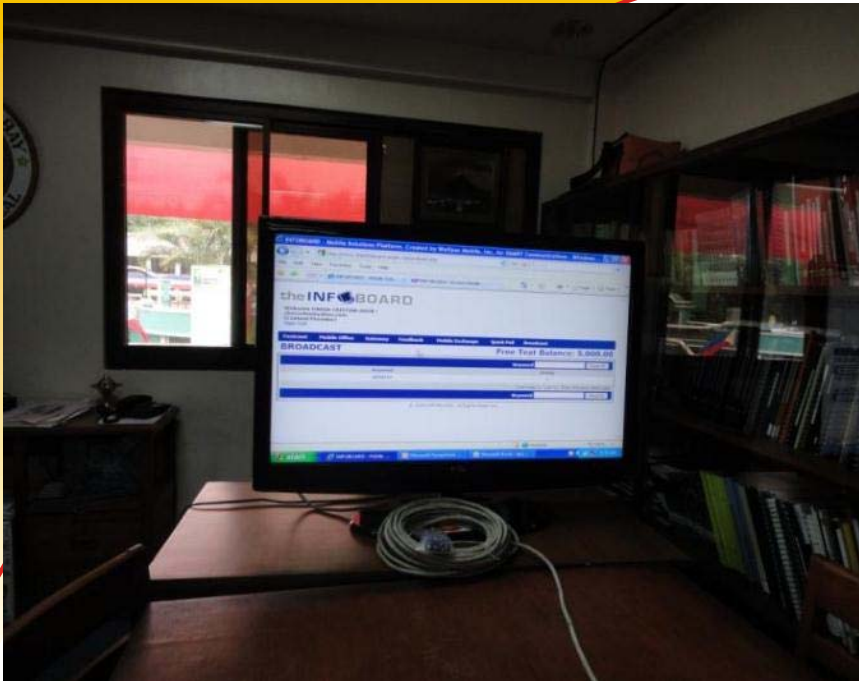
Sustainable Asia
Leadership Program

Community Disaster Preparedness and Response Activities (Organizing, Education and Trainings)

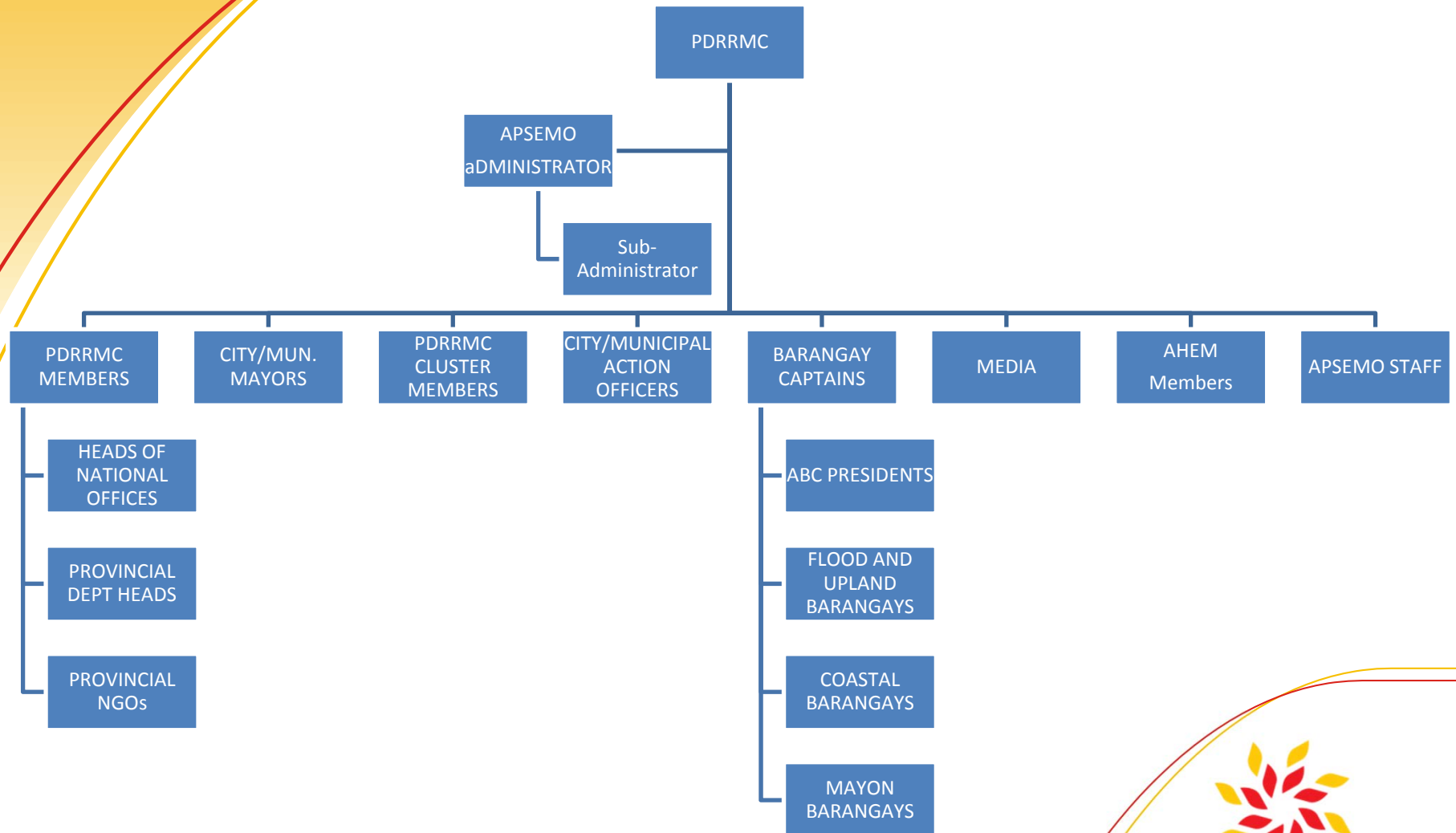


Resources for Warning Communications- INFOBOARD

- ▶ PDRRMC Executive Office/ APSEMO Dept Head– serve as the administrator of the infoboard.
- ▶ APSEMO Selected Staff as Sub-Administrators.
 - Collect and register the cp numbers of all the target recipients in the Province of Albay.
 - Send emergency communications to selected segment.
- ▶ Sectors– recipients of the information sent by the administrator.
- ▶ Source of Funds: Private Sector participation!
 - ▶ **Smart Phil** – provides free initial sending cost of P30,000
 - ▶ PDRRMC may request additional allocation as maybe needed.
 - Feedback will be received by APSEMO by sending “APSEMO space FEEDBACK space (Message) send to 70025229



Operational Structure



Uses of Infoboard

► Sending

- important and emergency communication and information to the concerned recipients like:
 - PAGASA and PHIVOLCS bulletins
 - PDRRMC Advisories
 - Emergency instructions from the governor
 - Public Announcements
 - Other important messages

► Receive

- Feedback from the recipients.
- Distress call from the barangay.

► Other Uses

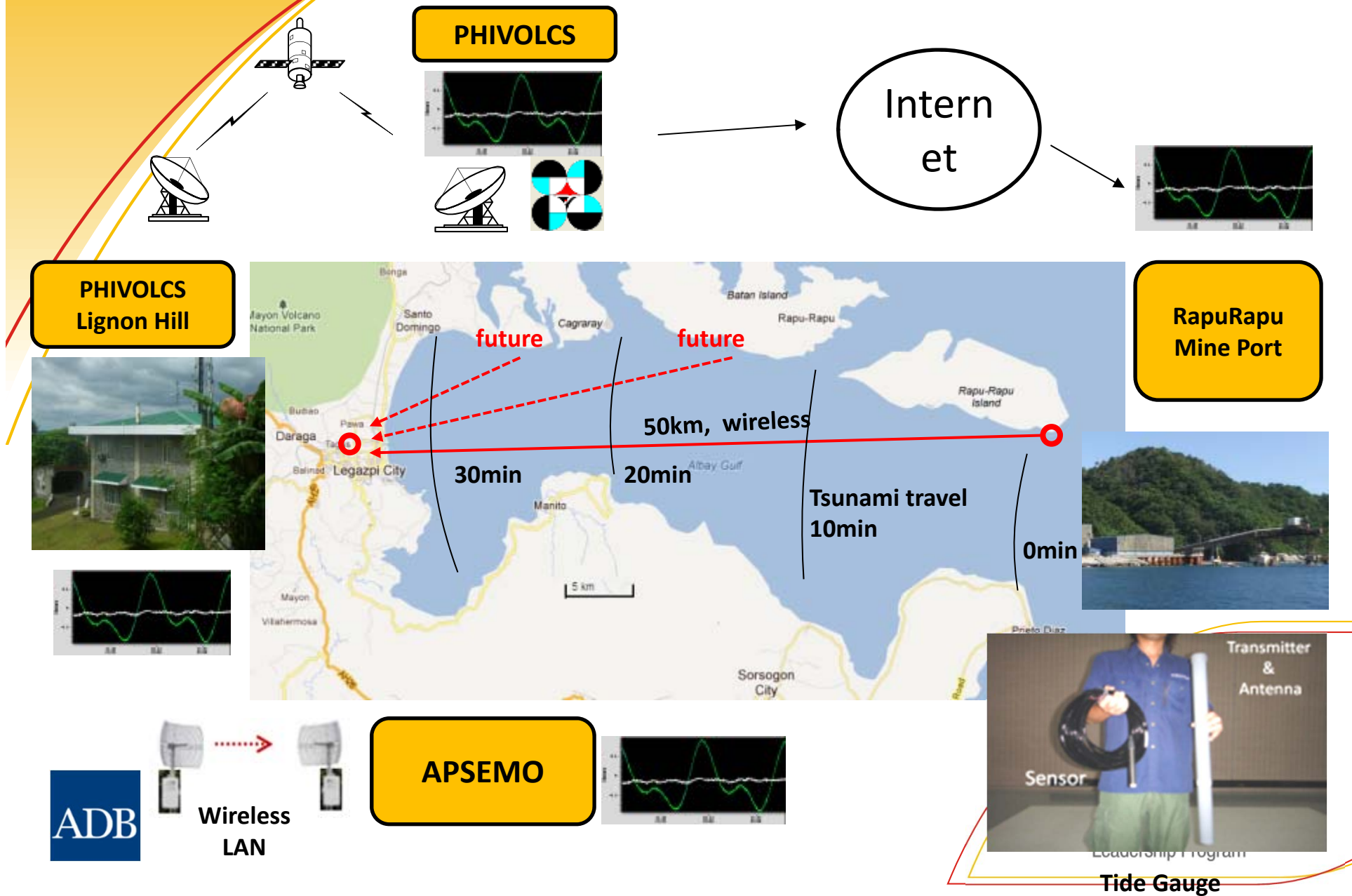
- Data gathering and validation
- Updates of weather, flood and landslide situations from the field.
- Dispatch and monitoring of emergency quick response teams (SAR)
- Media relations.
- DRRMC Coordination
- Invitations for emergency conferences



MAINTENANCE AND SUSTAINABILITY

- Minimal budget allocation from PGA through APSEMO.
- Good SMART communication signal in the field
- Use of mobile phone using SMART sim cards or sim cards of other networks
- Phone numbers recognized are those registered by APSEMO to avoid spam messages.
- Use of computer hardwares existing at APSEMO.
- Operations and maintenance of INFOBOARD are through the organic personnel of APSEMO.

Albay Gulf Tsunami Monitoring System



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

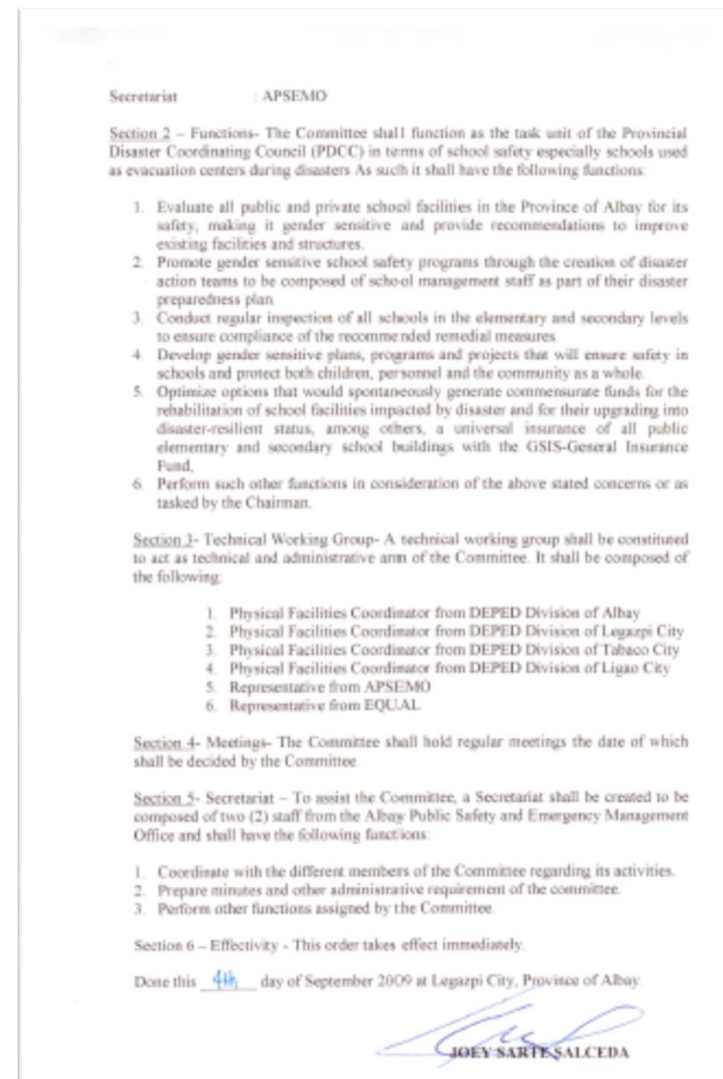
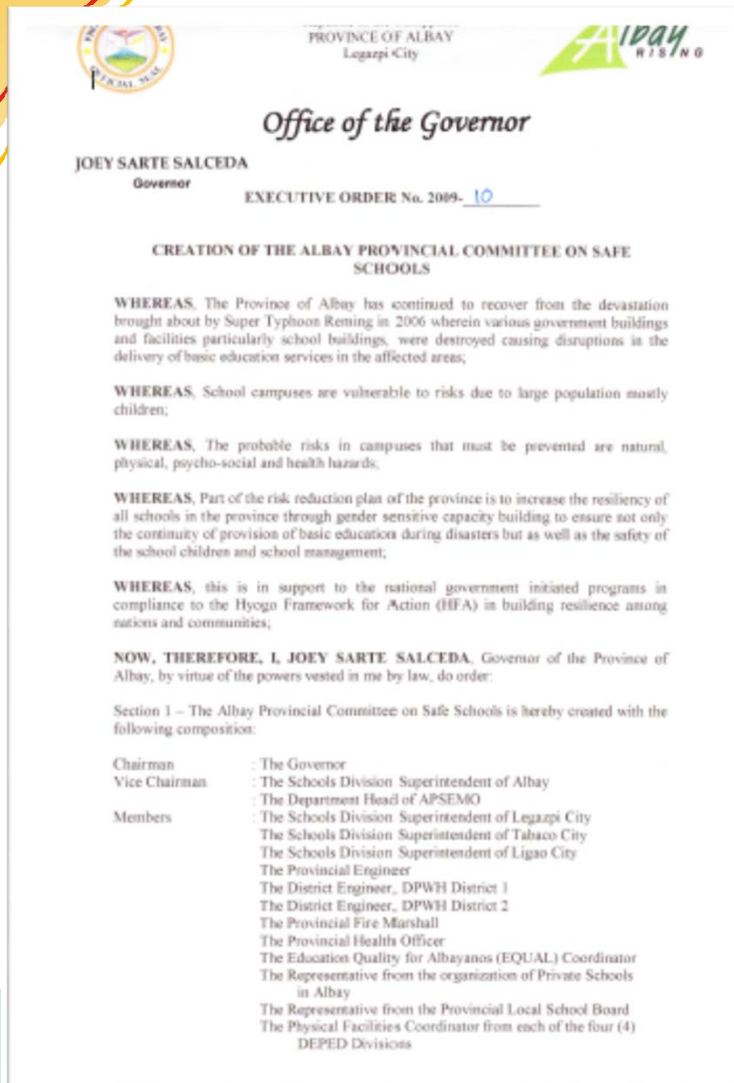
Physical Capacity-Building: Mobility Assets could evacuate 160,000 persons/day

	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



Executive Order Creating Albay Provincial Committee on Safe Schools



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

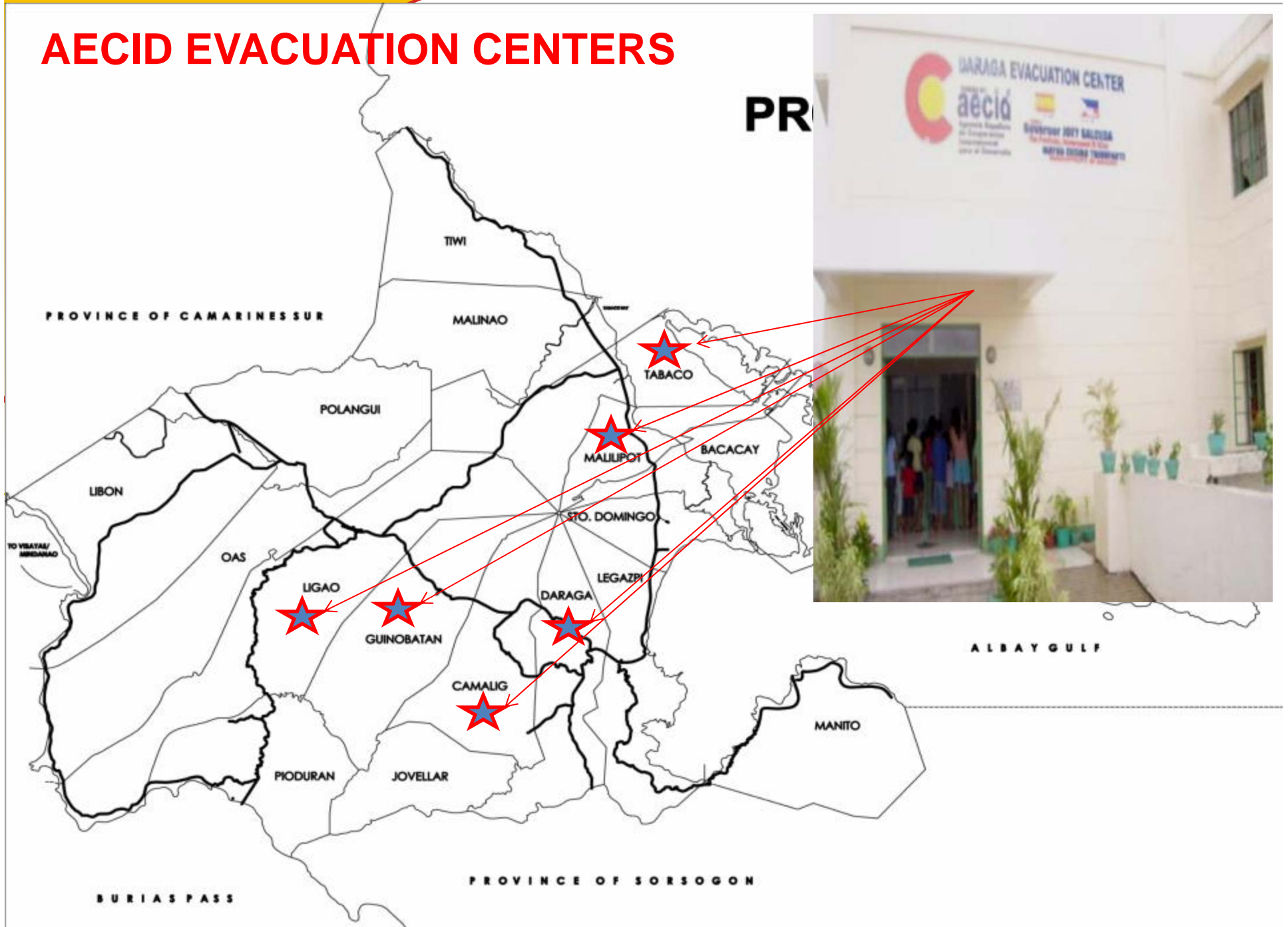
6 Emergency Evacuation Center from AECID:

- Daraga – Completed as of December 2008
- Guinobatan – 95% Completed
- Camalig – 95% Completed
- Malilipot- For Construction
- Tabaco City- For Construction
- Ligao City- For Construction



AECID EVACUATION CENTERS

PR



Permanent Evacuation 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

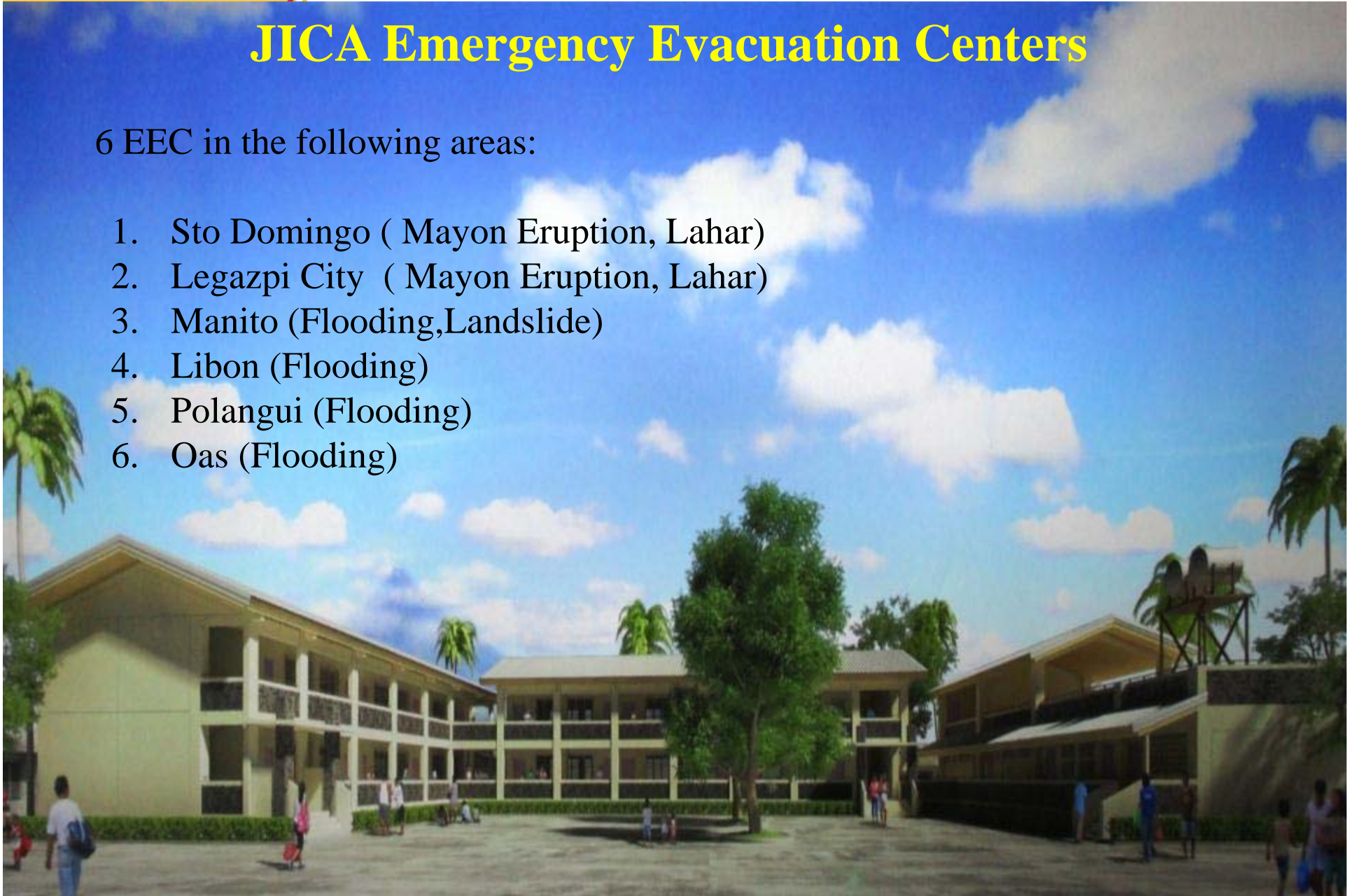


Resources for Preemptive Evacuation

JICA Emergency Evacuation Centers

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)

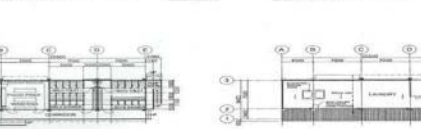
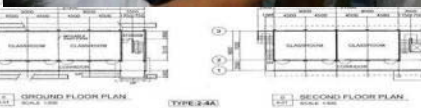
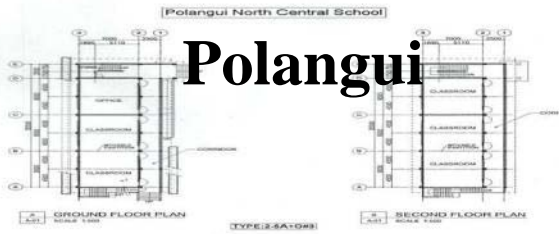


JICA EMERGENCY EVACUATION CENTERS

PROVINCE OF ALBAY



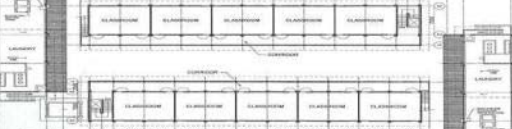
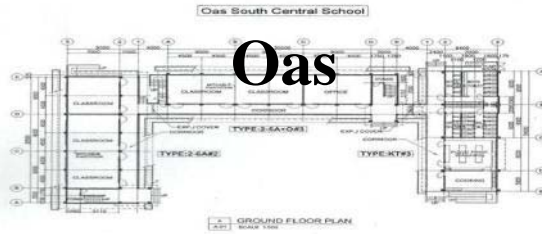
Polangui



Gogon (Legazpi)

- Summary of Building
1. Structure
 2. Construction Floor Area
 3. Building Height
 4. Building Components
- Reinforced Concrete
 - 1,427 sq. m
 - Two Story Building, Three Story Building
 - Two Story 4 Classroom, Two Story Classroom + Office, Water Supply Block

Oas



Manito

- Summary of Building
1. Structure
 2. Construction Floor Area
 3. Building Height
 4. Building Components
- Reinforced Concrete
 - 2,423 sq. m
 - Two Story Building
 - Two Story 9 Classroom + Office, Two Story 10 Classroom, 2 Water Supply Block

Libon



Sto. Domingo

- Summary of Building
1. Structure
 2. Construction Floor Area
 3. Building Height
 4. Building Components
- Reinforced Concrete
 - 1,427 sq. m
 - Two Story Building
 - Two Story 9 Classroom + Office, Water Supply Block

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



Those who have less in life, have more in risks

- Disasters kill poor (mostly young) people, make the poor poorer and breed more poor people. Thus, it hurts the innocent and constitutes a moral failure. Social justice is the fundamental basis of DRR/CCA.
- It is the primordial duty of the state to save the vulnerable from disasters, climate change
 - The more disasters: the higher the rights of the vulnerable, the higher the duties of the state.
 - **Zero casualty goal is a desirably ambitious and a socially desirable goal of the nation** *[Jesuits call it: holy desires]*
- No relocation, if homes are built safely. No evacuation, if vulnerable are relocated. No rescue, if evacuated. No rehab, if homes are built safely.

Those who have less in life, have more in risks

- People have the basic right to the capacity to adapt. Relief, recovery and rehab is essentially a compensation [penalty] of the state for failing to reduce exposure and to increase capacity.
- Given zero casualty goal, socio-economic impacts are the state imperatives as they require inter-class, inter-spatial and inter-temporal risk transfers.



THANK YOU

