

1.4 NATURAL CALAMITIES

The Philippines is a country afflicted with variety of natural calamities. Roads are frequently damaged by natural calamities, and it causes traffic interruptions and the isolation of areas and paralyzes socio-economic activities in the affected area. Also huge amount of national, local and private funds are spent for restoration works yearly. Major natural calamities are tropical cyclones, earthquakes, tsunamis and volcanic eruptions.

1.4.1 Tropical Cyclones

The Philippines situated in the South Pacific Typhoon Belt is hit by an average of about 20 tropical cyclones annually.

Table 1.4-1 shows the number of tropical cyclones which crossed the Philippine Area of Responsibility (PAR) during the past 48 years. A total of 959 tropical cyclone passed PAR in the period. The predominant tropical cyclone season is from July to November and more than two tropical cyclones cross PAR monthly in this season, though the rest of the months are not free from tropical cyclones.

The frequencies of tropical cyclone passage is presented in Figure 1.4-1. Northern Samar and Masbate are the areas where tropical cyclone passes most frequently, followed by northern Mindoro. Mindanao Island excluding northern part of Surigao Provinces and Palawan Island are almost free from tropical cyclones.

Notable destructive tropical cyclones for the period from 1970 to 1995 are listed in Table 1.4-2.

1.4.2 Earthquakes

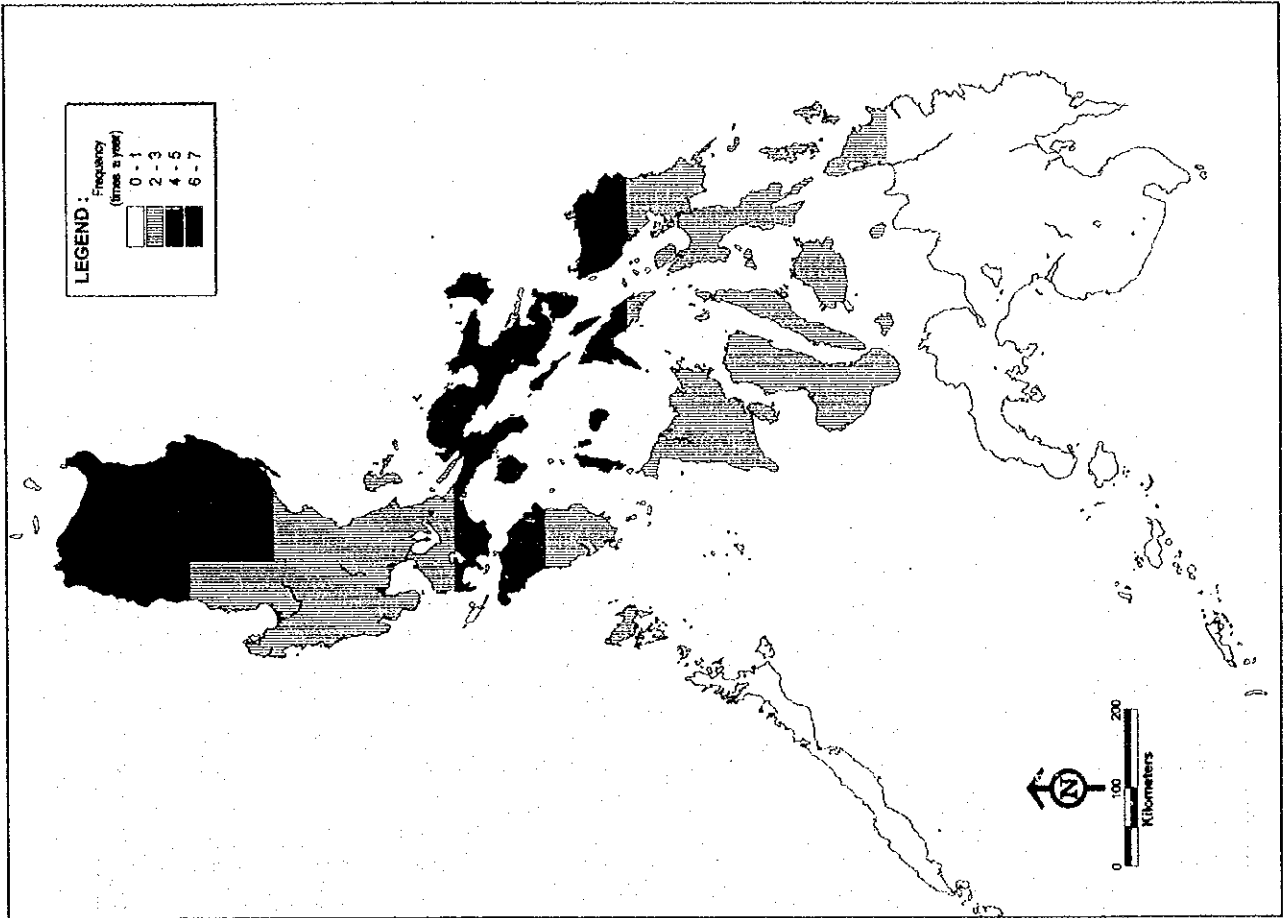
The Philippines experienced numerous destructive earthquakes in the past, the latest of which is the July 16, 1990, Luzon Earthquake, that inflicted extensive damage to lives and properties. In the Study Area, the latest destructive earthquake (Magnitude 7.9) occurred at Moro Gulf, Mindanao on August 17, 1976, claiming the lives of 3,739 people. Major earthquake generators in the Philippines are as follows (see Figure 1.4-2):

- Philippine Trench
- East Luzon Trench
- Manila Trench
- Collisional zone between Palawan and Mindoro
- Negros Trench
- Collisional zone in Zamboanga Peninsula
- Sulu Trench
- Cotabato Trench
- Philippine Fault and its branches
- Active Faults such as Lubang, Tablas, Casiguran and Mindanao Faults

TABLE 1.4-1 FREQUENCY OF TROPICAL CYCLONE in the P.A.R. (1948 to 1995)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	
1948	1	0	0	0	0	1	0	3	1	3	2	6	3	20
1949	1	0	0	0	0	2	5	2	2	4	3	3	2	22
1950	0	0	0	0	1	2	2	1	3	2	2	2	1	14
1951	0	0	0	0	1	1	1	4	2	1	1	2	1	13
1952	0	0	0	0	0	5	2	4	4	4	4	4	4	27
1953	1	1	0	0	1	2	0	5	1	2	3	2	18	18
1954	0	0	1	0	1	0	1	6	2	3	3	1	1	18
1955	1	1	0	1	0	0	2	3	1	4	1	1	1	15
1956	0	0	1	2	0	0	0	4	4	5	1	5	3	25
1957	2	0	0	1	0	2	1	2	3	3	3	1	0	15
1958	1	0	0	0	0	1	4	3	3	2	4	3	0	17
1959	0	1	1	0	1	2	2	6	1	3	0	2	19	18
1960	1	0	0	1	1	2	2	4	4	4	1	1	2	23
1961	1	1	1	0	1	3	4	4	4	1	1	1	2	23
1962	0	1	0	0	2	0	4	6	4	1	3	0	2	21
1963	0	0	0	0	0	1	3	4	2	3	1	0	2	16
1964	0	0	0	0	0	3	1	9	5	5	3	4	1	31
1965	2	1	1	0	2	2	6	2	3	1	1	0	2	21
1966	0	0	0	0	1	3	1	7	1	3	2	2	2	22
1967	0	1	1	1	1	2	4	5	0	2	3	1	2	21
1968	0	0	0	0	0	2	2	4	2	4	1	2	0	15
1969	0	0	0	0	1	1	0	4	2	4	1	2	1	21
1970	0	1	0	0	0	0	3	2	4	4	4	2	0	27
1971	1	0	1	3	3	2	5	2	3	5	2	0	2	27
1972	2	0	0	0	0	2	4	2	4	1	1	1	1	17
1973	0	0	0	0	0	1	2	4	1	3	1	0	12	12
1974	1	0	0	0	0	3	4	4	2	5	2	2	2	23
1975	1	0	0	0	0	0	1	3	4	3	2	1	1	15
1976	1	1	0	1	1	3	3	3	4	0	2	3	2	22
1977	1	0	0	0	1	1	4	2	4	2	2	1	1	19
1978	0	0	0	0	1	0	3	1	7	6	4	2	1	26
1979	0	0	0	1	1	2	1	3	3	4	2	2	2	22
1980	0	1	1	1	3	2	4	3	2	2	3	1	2	23
1981	0	1	0	0	0	3	5	4	3	2	3	2	2	23
1982	0	0	2	0	1	0	5	4	4	2	0	2	0	20
1983	0	0	0	0	0	0	3	3	4	6	4	3	2	23
1984	0	0	0	0	0	1	2	8	1	4	3	1	2	20
1985	1	0	0	0	1	2	2	3	4	3	0	1	1	17
1986	0	1	0	1	1	2	3	2	1	4	3	3	2	21
1987	1	0	0	0	0	1	4	3	2	2	2	1	1	16
1988	1	0	0	0	1	3	3	0	3	6	2	1	2	20
1989	1	0	0	0	1	2	6	1	2	3	2	1	1	19
1990	0	0	0	0	3	3	2	3	4	1	3	1	2	20
1991	0	0	1	1	1	1	4	2	4	2	3	0	1	19
1992	0	0	0	0	0	2	3	5	1	3	2	0	0	16
1993	0	1	0	2	1	2	5	6	4	2	4	2	4	32
1994	1	0	0	1	2	3	5	5	3	3	1	1	2	25
1995	0	0	0	0	0	1	0	2	3	4	4	0	2	16
TOTAL	23	14	12	20	43	77	159	163	146	129	105	68	959	
RANK	9	11	12	10	8	6	2	1	3	4	5	7		
MEAN	0.5	0.3	0.2	0.4	0.9	1.6	3.3	3.4	3.1	2.6	2.2	1.4	19.9	

SOURCE: PAGASA (1995)



Source : PAGASA

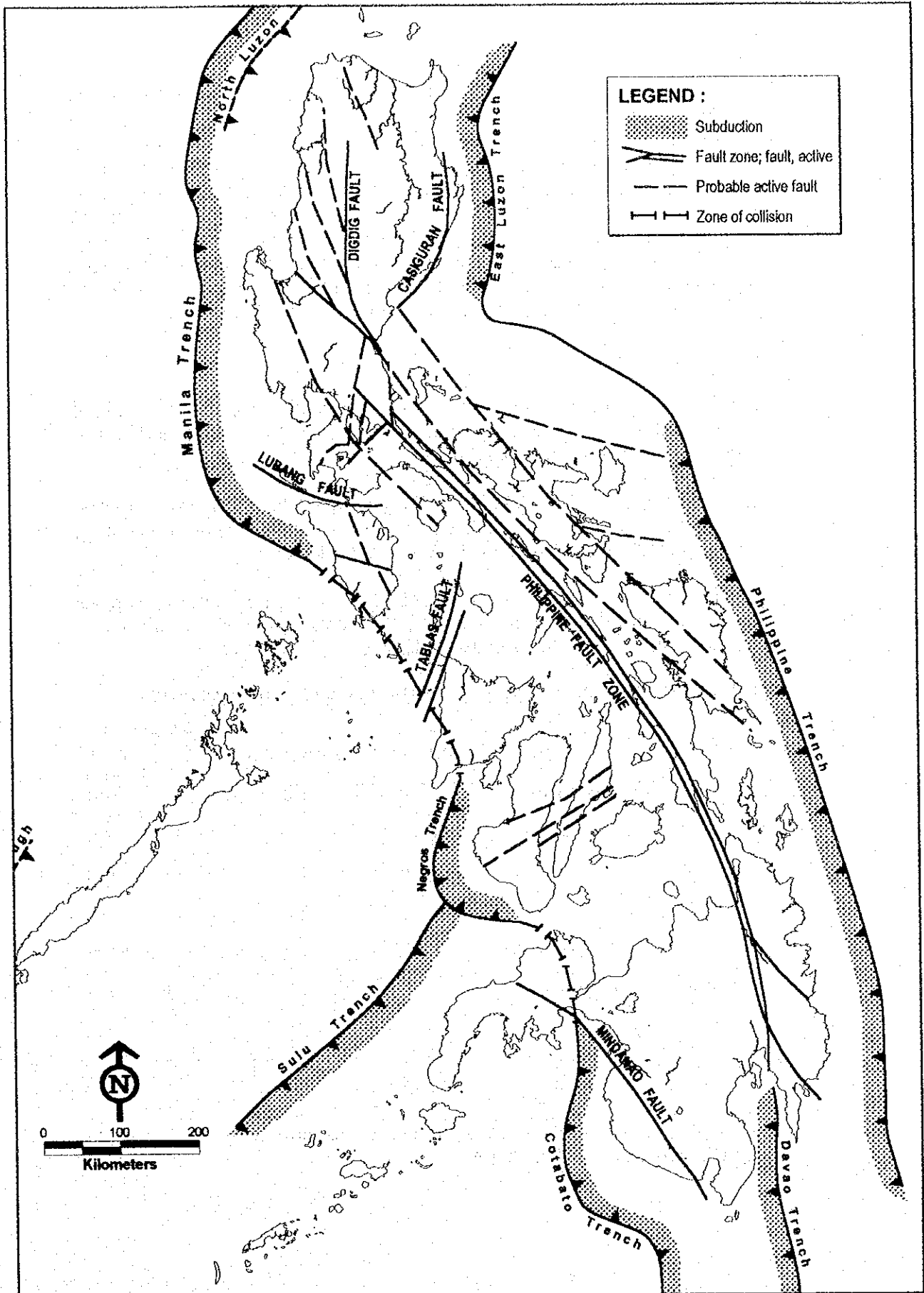
FIGURE 1.4-1 FREQUENCIES OF TROPICAL CYCLONE PASSAGE

TABLE 1.4-2 NOTABLE DESTRUCTIVE TROPICAL CYCLONES (1970 TO 1995)

YEAR	NAME	MAX. WIND (kph)	STATION	MAX. 24-HR. RF (MM)	STATION	DAMAGES (million P)	CASUALTIES		
							DEAD	INJURED	MISSING
1970	SENING	275	VIRAC	234.8	CATBALOGAN	469.0	575	1,593	193
	YOLING	200	MIA	204.6	DAET	115.8	230	1,756	381
1971	KRISING	100	APARRI	274.2	VIRAC	13.4	90	8	80
1972	ASIANG	104	TACLOBAN	189.2	ROXAS	145.0	204	28	5
	KONSING	205	LEGASPI	236.6	LEGASPI	100.0	131	-	-
1973	NARSING	101	CASIGURAN	311.5	CABANATUAN	38.7	27	-	30
1974	SUSANG	175	APARRI	781.4	BAGUIO	55.4	26	-	3
	WENING	269	APARRI	817.8	BAGUIO	126.0	23	-	-
1975	AURING	110	MACTAN	102.2	ILOILO	16.6	40	-	8
1976	DIDANG	150	IBA	605.2	BAGUIO	624.7	200	-	147
	ARING	95	ROXAS	166.8	LEGASPI	69.3	100	-	15
1977	UNDING	175	BAGUIO	320.9	DAET	477.2	40	-	-
1978	ADANG	180	ROMBLON	222.2	MASBATE	245.0	66	47	45
	KADING	125	VIRAC	304.4	INFANTA	1,021.3	444	749	260
1979	BEBENG	185	TACLOBAN	259.6	SURIGAO	287.2	30	73	63
1980	ARING	210	CASIGURAN	698.7	BAGUIO	135.5	103	-	25
1981	ANDING	260	DAET	287.1	BALER	649.9	280	116	129
	DINANG	165	CATARMAN	179.3	MASBATE	592.5	18	1,838	167
1982	BISING	185	MAASIN	176.4	CATARMAN	587.5	112	85	91
	WELING	135	BAGUIO	175.1	ITBAYAT	626.6	96	183	30
1983	BEBENG	165	MIA	254.1	VIRAC	44.8	18	8	21
1984	NITANG	220	SURIGAO	221.6	CUYO	4,100.0	1,028	2,861	464
	UNDANG	230	TACLOBAN	255.6	ILOILO	1,540.0	895	2,526	272
1985	DALING	165	RECON	344.5	BAGUIO	351.7	55	-	4
	SALING	240	DAET	262.4	BALER	2,132.1	88	224	13
1986	GADING	220	VIGAN	709.6	BAGUIO	620.9	89	16	20
	MIDING	140	CALAYAN	313.2	CALAYAN	263.0	151	17	4
1987	HERMING	185	MASBATE	237.6	MASBATE	2,000.0	94 *	468	-
	SISANG	240	LEGASPI	235.6	CATARMAN	1,119.0	979 *	927	-
1988	UNSANG	215	VIRAC	282.7	INFANTA	5,635.9	157	316	60
	YONING	175	BORONGAN	297.5	ROXAS	2,748.0	217	147	133
1989	GORING	155	TUGUEGARAO	368.8	BAGUIO	1,373.3	94	382	3
1990	ILANG	-	-	224.4	LAOAG	1,502.2	50	53	-
	RUPING	205	MACTAN	344.6	SURIGAO	10,276.5	508	1,274	240
1991	IRINING	150	TUGUEGARAO	760.0	BAGUIO	3,612.3	83	58	22
	URING	95	TACLOBAN	140.2	TACLOBAN	975.2	5,080	292	1,264
1992	MARING	130	BASCO	370.0	BAGUIO	2,155.3	27	13	18
1993	GORING	110	TUGUEGARAO	533.6	BAGUIO	2,774.4	51	109	5
	KADIANG	110	IBA	232.4	BAGUIO	8,752.3	126	37	26
	HUSING	165	CASIGURAN	249.6	VIRAC	1,585.2	25	7	5
	MONANG	185	CALAPAN	206.0	INFANTA	2,463.6	273	607	90
	NANING	160	MASBATE	407.5	MASBATE	1,329.5	93	579	10
	PURING	150	MACTAN	171.0	ROXAS	2,755.9	167	280	52
1994	KAIRING	185	INFANTA	187.6	BALER	1,433.2	45	24	1
1995	MAMENG	115	SANGLEY PT.	209.0	TAYABAS	4,189.4	133	108	130
	PEPANG	100	GUIUAN	225.0	ILOILO	1,406.9	128	165	41
	ROSING	255	VIRAC	334.3	DAET	9,333.4	722	2,369	160

Note: * total number of dead and missing person

SOURCE: PAGASA (1970-1995)



Source : PHIVOLCS. Earthquake and Tsunami

FIGURE 1.4-2 DISTRIBUTION OF EARTHQUAKE GENERATORS

Philippine Fault Zone

The Philippine Fault Zone (PFZ) is 1,200 kilometers long, fairly continuous fault structure transecting the entire Philippine Archipelago. It is divided into three (3) major segments: the Northern Segment, which comprises traces of the PFZ as if transects the northern portion of Luzon; the Central Segment, as defined by the trace of the PFZ following a northwesterly trend cutting across the islands of Leyte, Masbate, Burias and Alabat and between the Bicol and Bondoc Peninsula and the Southern Segment, as characterized by the trace of the PFZ passing through the Agusan-Davao Basin and exits in Davao Gulf in eastern Mindanao. However, the PFZ splits into several fault zones in the northern terminus namely: Digdig, Lupao and San Manuel Faults.

Other Major Faults

Tablas Fault extends for about 350 kilometers starting at the trough located at western off-shore of Panay Island, then running towards the north and ending at the eastern off-shore of Tablas Island.

Mindanao Fault starts at Davao Gulf, runs towards north-west direction crossing Mt. Apo and Mt. Makaturing and ends at northern coast of Zamboanga Peninsula. It extends for about 400 kilometers.

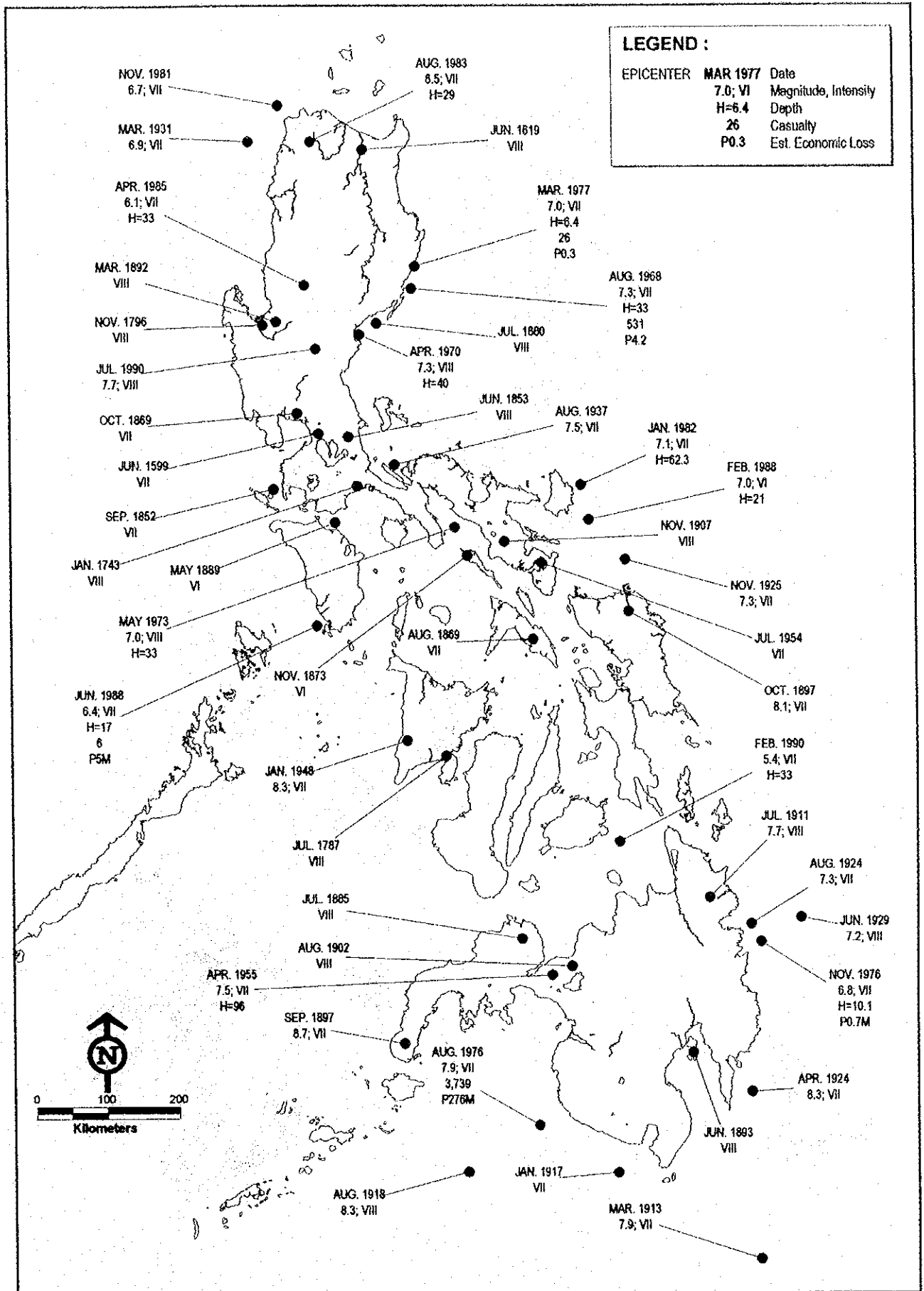
Past epicenters of earthquakes are widely distributed all over the Philippines except Palawan as shown in Figure 1.4-3. Tables 1.4-3 shows the list of major destructive earthquakes in the Philippines.

TABLE 1.4-3 PHILIPPINE DESTRUCTIVE EARTHQUAKES AND THEIR IMPACTS

DATE	EPICENTER	INTENSITY	MAGNITUDE	CASUALTY	
				DEAD	INJURED
02 Jul. 1954	Bacon, Sorsogon	VII	8.3	13	101
01 Apr. 1955	Lanao, Mindanao	VII	7.5	291	713
02 Aug. 1968	Casiguran, Aurora	VII	7.3	270	600
07 Apr. 1970	Baler, Quezon	VII	7.3	15	200
17 Aug. 1976	Moro Gulf, Mindanao	VII	7.9	3,739	8,000
16 Jul. 1990	Cabanatuan City, Nueva Ecija	VIII	7.7	1,283	2,786

Source: PHILVOLCS

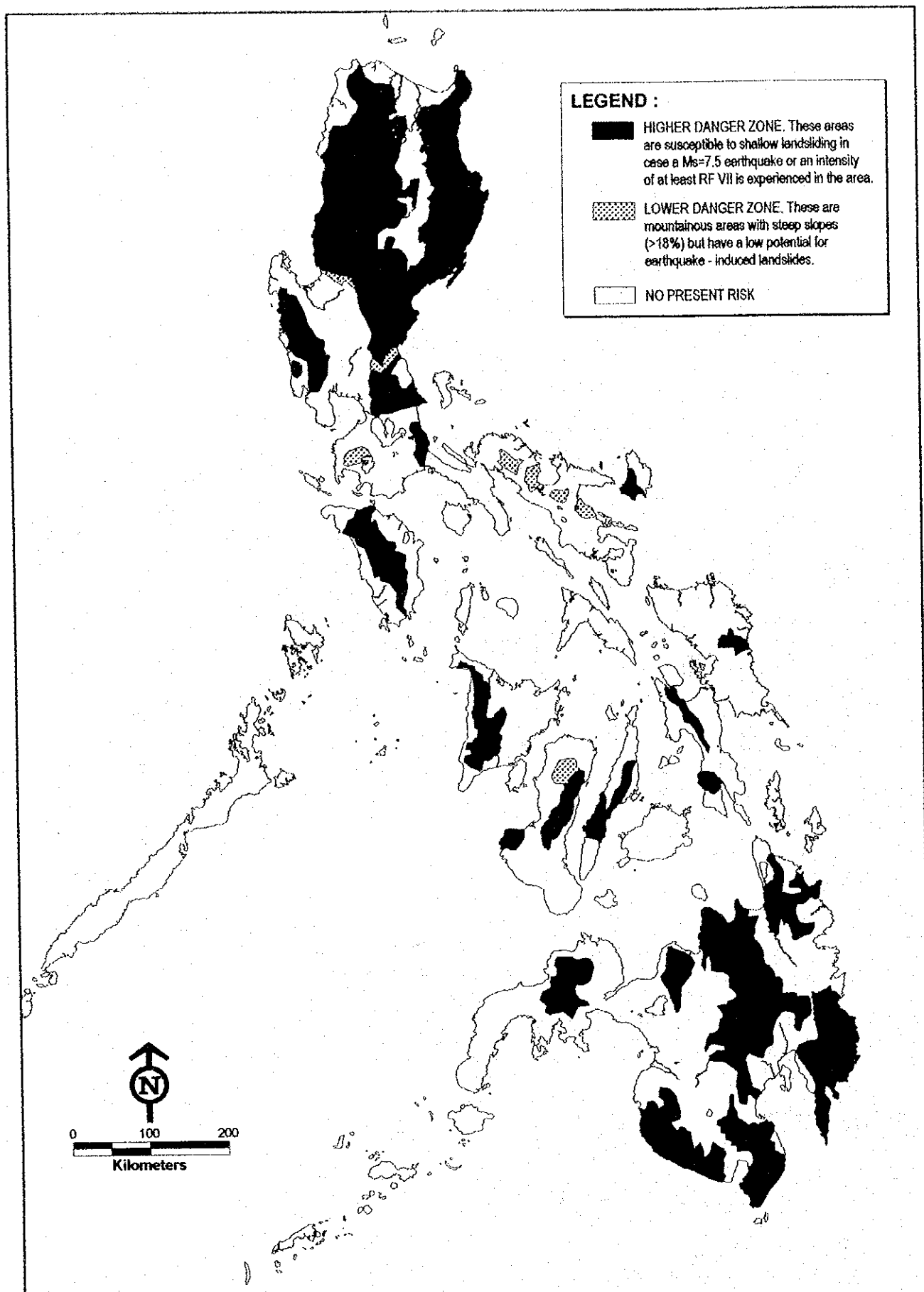
The earthquake-induced shallow landslide hazard map prepared by PHILVOLCS is shown in Figure 1.4-4.



Source : PHIVOLCS. Earthquake and Tsunami

(M>6.0 and/or Intensity>VI) (1599-1988)

FIGURE 1.4-3 DISTRIBUTION OF EPICENTERS OF STRONG AND MAJOR EARTHQUAKES



Source : PHIVOLCS

FIGURE 1.4-4 EARTHQUAKE - INDUCED SHALLOW LANDSLIDE HAZARD MAP

1.4.3 Tsunami

Tsunami-prone areas in the Study Area (see Figure 1.4-5) are the east coast and part of north coast of Mindanao, the south coast and north coast of Negros Island, part of south coast of Panay Island, part of east coast of Cebu Island, part of west coast of Bohol Island, part of north coast of Samar Island, east coast of Tayabas Island and part of east and west coast of Mindoro Island.

1.4.5 Volcanoes

There are eight volcanic belts and two volcanic areas as shown in Figure 1.4-6. The country has 220 Quaternary volcanos, 22 of which are considered still active having erupted within the last 600 years. In the 20th century, 13 volcanoes recorded 144 eruption, of which the most destructive one is Mt. Pinatubo eruption in 1991 (see Table 1.4-4).

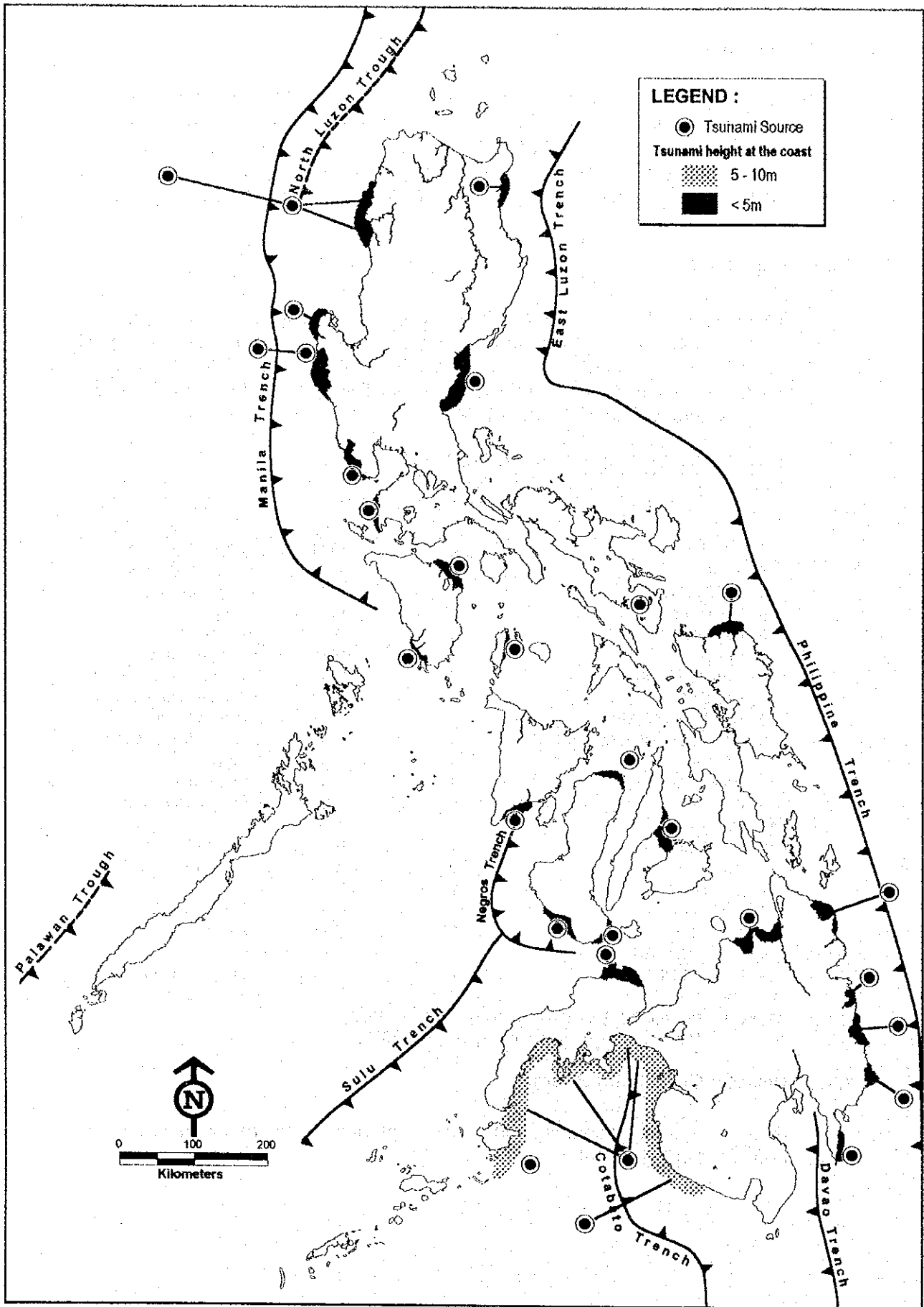
TABLE 1.4-4 LIST OF ACTIVE VOLCANOES

NAME	NO. OF ERUPTIONS	DATE OF LAST ERUPTION	LOCATION
1. MAYON	44	1993	Legaspi City, Albay
2. TAAL	33	1977	Talisay, Batangas
3. CANLAON	24	1988	Negros Oriental
4. BULUSAN	12	1988	Sorsogon
5. RAGANG	9	1915	Cotabato
6. SMITH	8	1924	Babuyan Island
7. HIBOK-HIBOK	6	1953	Mambajao, Camiguin Is.
8. DIDICAS	5	1978	Babuyan Island Group
9. BABUYAN CLARO	1	1913	Babuyan Island
10. CAMIGUIN DE BABUYANES	1	1957	Babuyan Island Group
11. CAGUA	1	1860	Cagayan
12. BANAHAW	1	1780	Lucena City
13. CALAYO	1	1886	Valencia, Bukidnon
14. IRAYA	?	1464	Batanes
15. PINATUBO	1	1991	Zambales
16. IRIGA	?	1641	Iriga, Camarines Sur
17. BILIRAN	?	1939	Biliran
18. BUD DAJO	?	1897	Jolo Island
19. MATUTUM	?	1911	Cotabato
20. KALATUNGAN	?	-	Bukidnon
21. MAKATURING	?	-	Lanao, Mindanao
22. PARKER	?	-	South Cotabato

SOURCE: PHIVOLCS, Volcanoes of the Philippines (1995)
National Disaster Coordinating Council (1995)

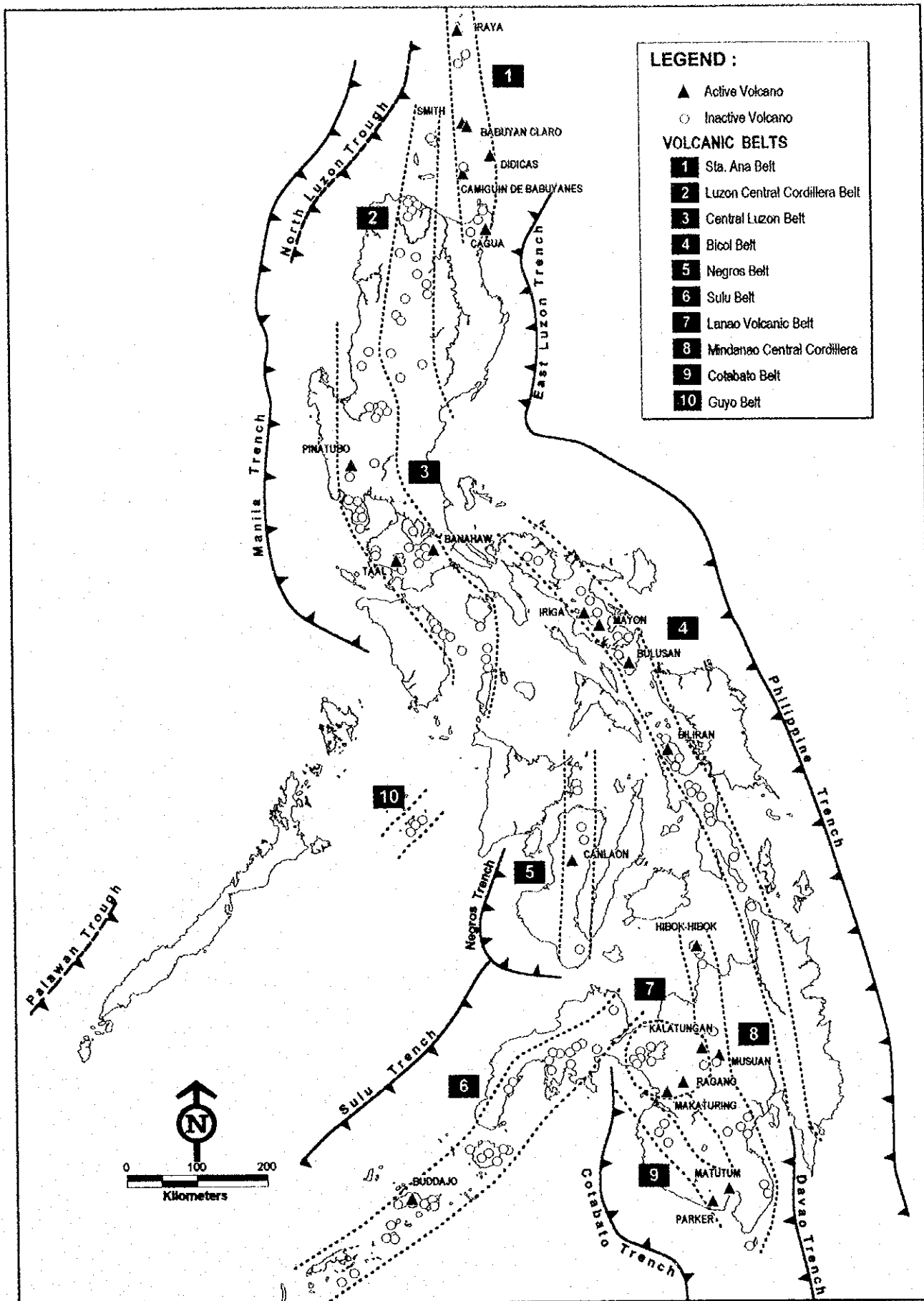
1.4.6 Disaster Generating Sources

Disaster generating sources and disaster potential areas are summarized and presented in Figure 1.4-7.



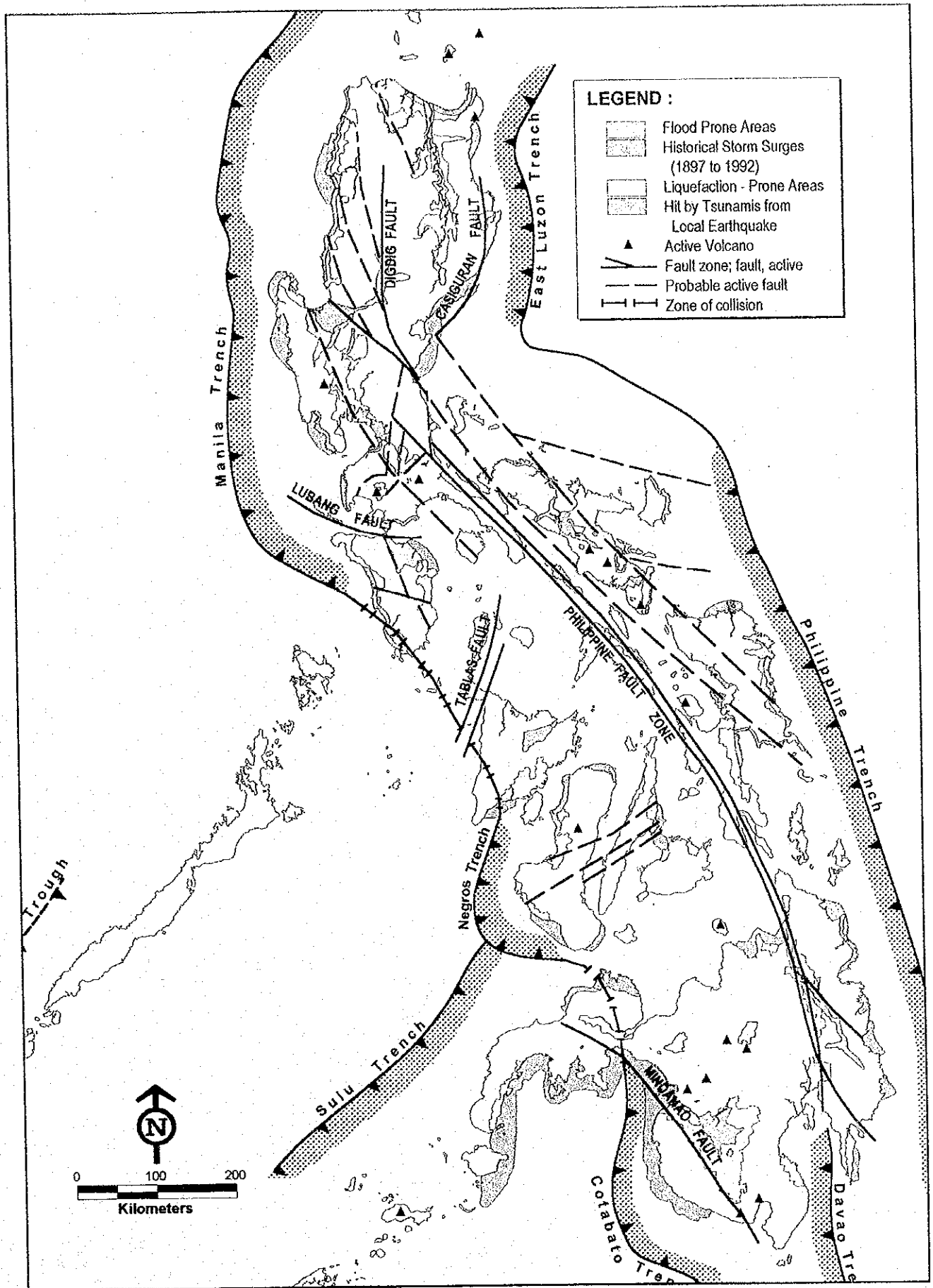
Source : PAGASA

FIGURE 1.4-5 AREAS HIT BY TSUNAMIS FROM LOCAL EARTHQUAKE



Source : PHIVOLCS, Volcanoes of the Philippines

FIGURE 1.4-6 DISTRIBUTION OF VOLCANIC BELTS, ACTIVE AND INACTIVE VOLCANOES



Source : PAGASA

FIGURE 1.4-7 DISASTER GENERATING SOURCES AND DISASTER POTENTIAL AREAS

CHAPTER 2

SOCIO-ECONOMIC PROFILE OF THE STUDY AREA

2.1 POPULATION

2.1.1 Administrative Structure

The Philippines has a hierarchical administrative structure, that is, Region – Province – City – Municipality – Barangay. There are 16 regions including NCR, CAR, ARMM and CARAGA; 78 provinces, 81 cities, 1,526 municipalities and 41,935 barangays. The Study Area consists of 44 provinces, 46 cities and 793 municipalities. (Table 2.1-1).

Region is not a political structure but it functions mainly as a regional development planning unit. Regional Development Councils are formed in cooperation with NEDA, which develop "Medium-term Regional Development Plan" and long-term "Regional Physical Framework Plan". The central government offices have their field offices in each regional center.

Province is the highest unit of the political structure of Local Government Units. Its functions and duties in relation to its component cities and municipalities are generally coordination and supervision.

City is a unit generally with population of more than 150,000. There are three categories of cities as follows:

Highly urbanized city : Minimum population of 200,000 and annual city governments income of more than 50 million pesos. Politically independent of the province.

Independent component city: Politically independent of the province.

Component city : Component of the province.

Municipality is a subsidiary of the province and consists of 20 to 30 barangays. One of municipalities or cities is established as a provincial capital. Barangay is the smallest unit of the Philippine political system and administrated by a set of elective officials headed by a chairman. Although the barangay has autonomous power of itself, it functions mainly as an administrative arms delivering goods and services from an upper-ranked local government to a local community.

Regional Centers, Provincial Capitals and Cities are shown in Figure 2.1-1. The Administrative divisions have been changed from time to time. In 1989, ARMM was established from provinces of Lanao del Sur and Maguindanao (excluding Cotabato City and Marawi City) of Region XII and Sulu, Tawi-Tawi of Region IX. In 1995, CARAGA was established from provinces of Agusan del Norte, Agusan del Sur, Surigao del Norte of Region IX and Surigao del Sur of Region X. Sarangani Province was separated from South Cotabato in 1993.

In order to compare and analyze data, the previous regional boundary (with ARMM, without CARAGA) was mainly adopted in this Report.

TABLE 2.1-1 NUMBER OF PROVINCES, CITIES AND MUNICIPALITIES

(As of June 1998)

Region	No. of Provinces		No. of Cities		No. of Municipalities		No. of Barangay
	Study Area	Outside Study Area	Study Area	Outside Study Area	Study Area	Outside Study Area	
NCR	0	0	11	0	6	0	1,692
CAR	6	0	1	0	76	0	1,172
Region I	4	0	5	0	120	0	3,265
Region II	5	0	1	0	92	0	2,311
Region III	6	0	5	0	117	0	2,947
Region IV	11	5	10	2	213	54	5,615
Region V	6	2	3	0	112	26	3,471
Region VI	6	6	13	13	120	119	4,048
Region VII	4	4	9	9	123	115	3,003
Region XIII	6	6	3	3	140	126	4,390
Region IX	3	2	4	4	74	67	2,112
Region X	4	4	6	6	64	64	1,514
Region XI	7	7	4	3	64	61	1,522
Region XII	2	2	4	4	51	51	1,430
ARMM	4	2	0	0	83	55	2,138
Region XIII (CARAGA)	4	4	2	2	71	55	1,305
TOTAL	78	44	81	46	1,526	793	41,935

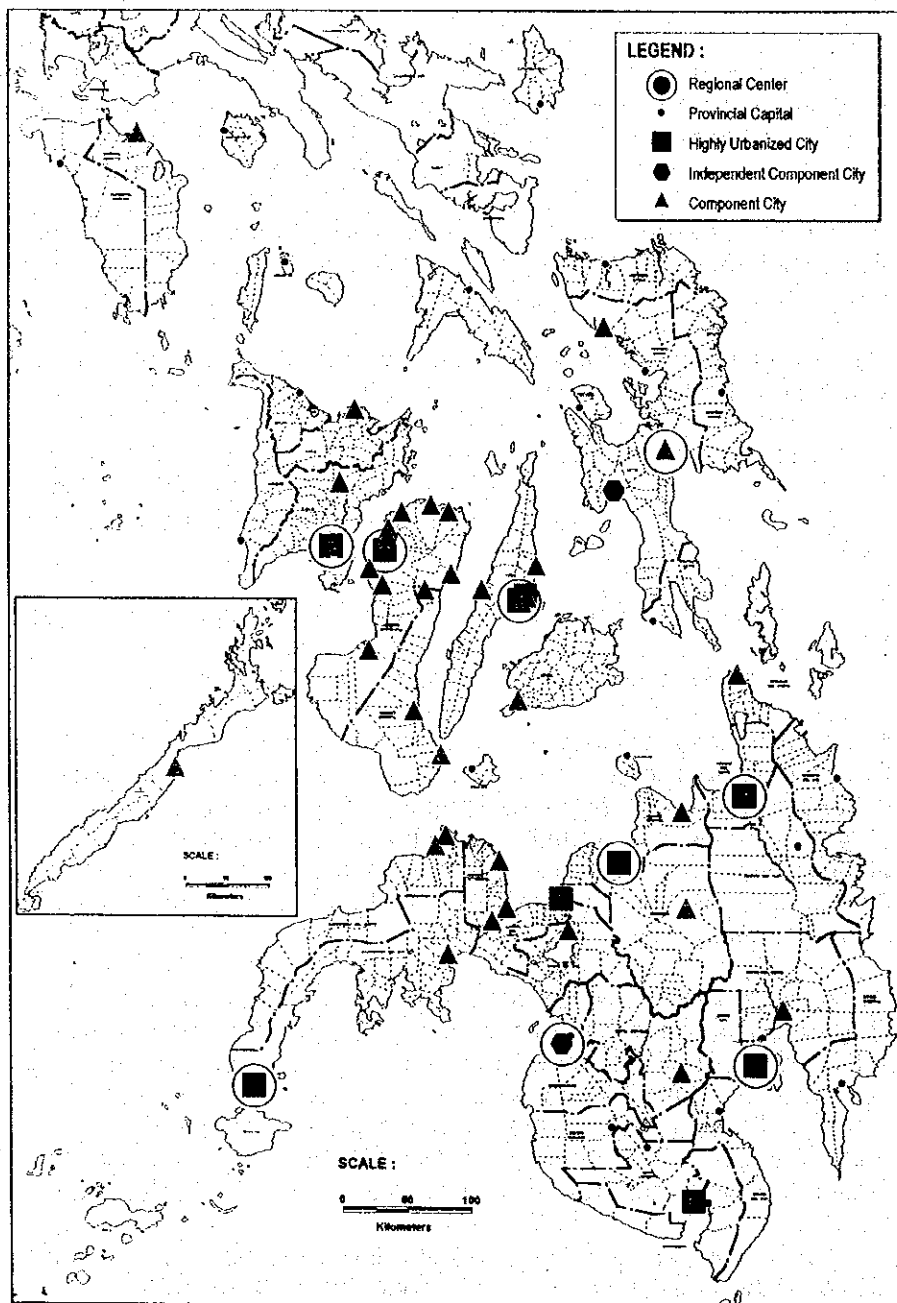


FIGURE 2.1-1 DISTRIBUTION OF REGIONAL CENTERS, PROVINCIAL CAPITALS AND CITIES

2.1.2 Historical Trend and Distribution of Population

The nationwide population in 1995 was 68.6 million which increased from 48.1 million in 1980 and 60.1 million in 1990. The average annual population growth rate was 2.35% (1980-1990) and 2.48% (1990-1995) which has remained at a relatively high level (see Figure 2.1-2).

The Population trend by Region is shown in Figure 2.1-3. Demographic characteristics of the Study Area are summarized as follows:

	Philippines	Study Area
Land Area (sq. km)	300,000	187,610 (62.5%)
1995 Population (in 1,000)	68,611	32,169 (46.9%)
1995 Population Density (Persons/Sq.Km)	229	171 (0.75)
Population Growth Rate, 1990-95 (% per annum)	2.48	2.12 (0.85)

The Study Area covers 62.5% of total land area, but population is only 46.9%, resulting in lower population density than the national average. Its Population growth rate is lower than that of the national average.

Regions with higher population density than the national average (1995) were Regions VI and VII and the rest of Regions have lower population density than the national average.

The Population growth rate (1990-95) of Regions IV (or MIMAROPA), XI and XII were higher than the national average. Region X had almost the same population growth rate as the national average. Whereas, the rest of Regions recorded lower population growth rate than the national average.

Figure 2.1-4 shows population density and population (only over 50,000) of each city / municipality in the Study Area.

Provinces with very high and very low population growth rate are as follows:

Region	Provinces with Very High Population Growth Rate (3.00% per annum or more)	Provinces with Very Low Population Growth Rate (1.50% per annum or less)
Region IV (MIMAROPA) and Region V	Occ. Mindoro Palawan	Marinduque Romblon
Visayas	Northern Samar	Antique Capiz Iloilo / Guimaras Bohol Siquijor Southern Leyte
Mindanao	Misamis Oriental South Cotabato Lanao del Norte Sultan Kudarat Agusan del Sur	Camiguin Davao Oriental Maguindanao Surigao del Norte Surigao del Sur

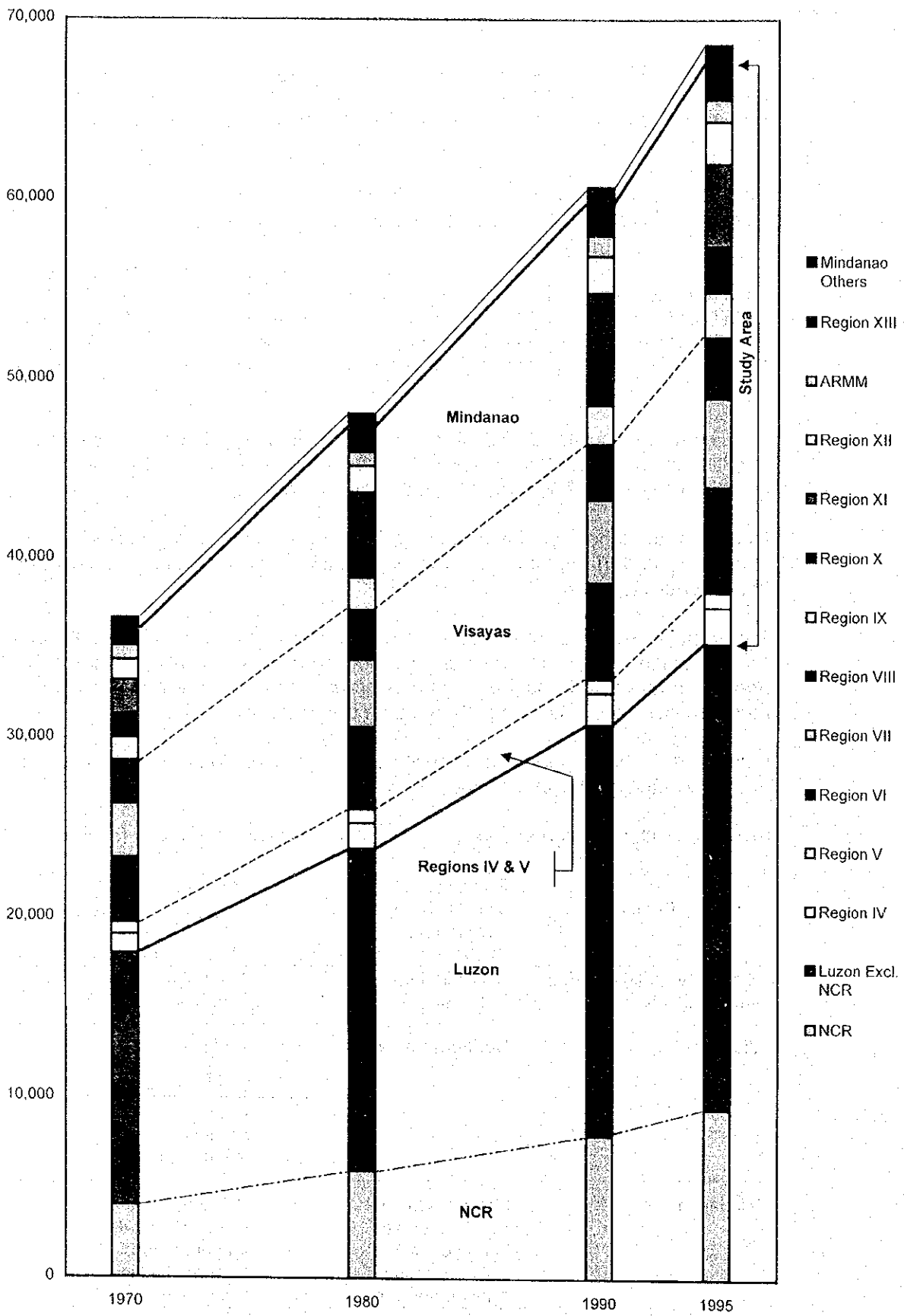


FIGURE 2.1-2 POPULATION GROWTH TREND

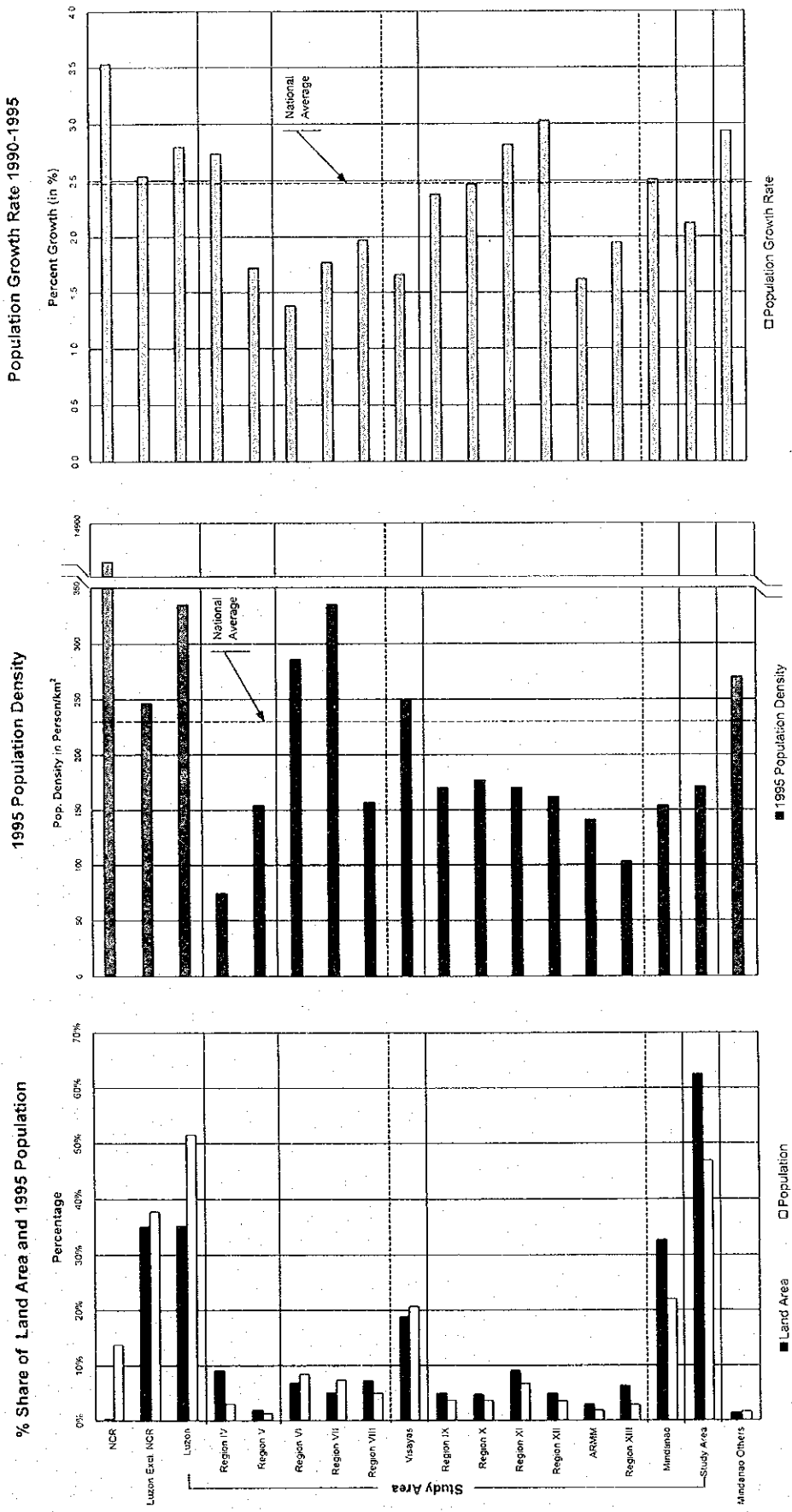


FIGURE 2.1-3 DEMOGRAPHIC CHARACTERISTICS OF EACH REGION

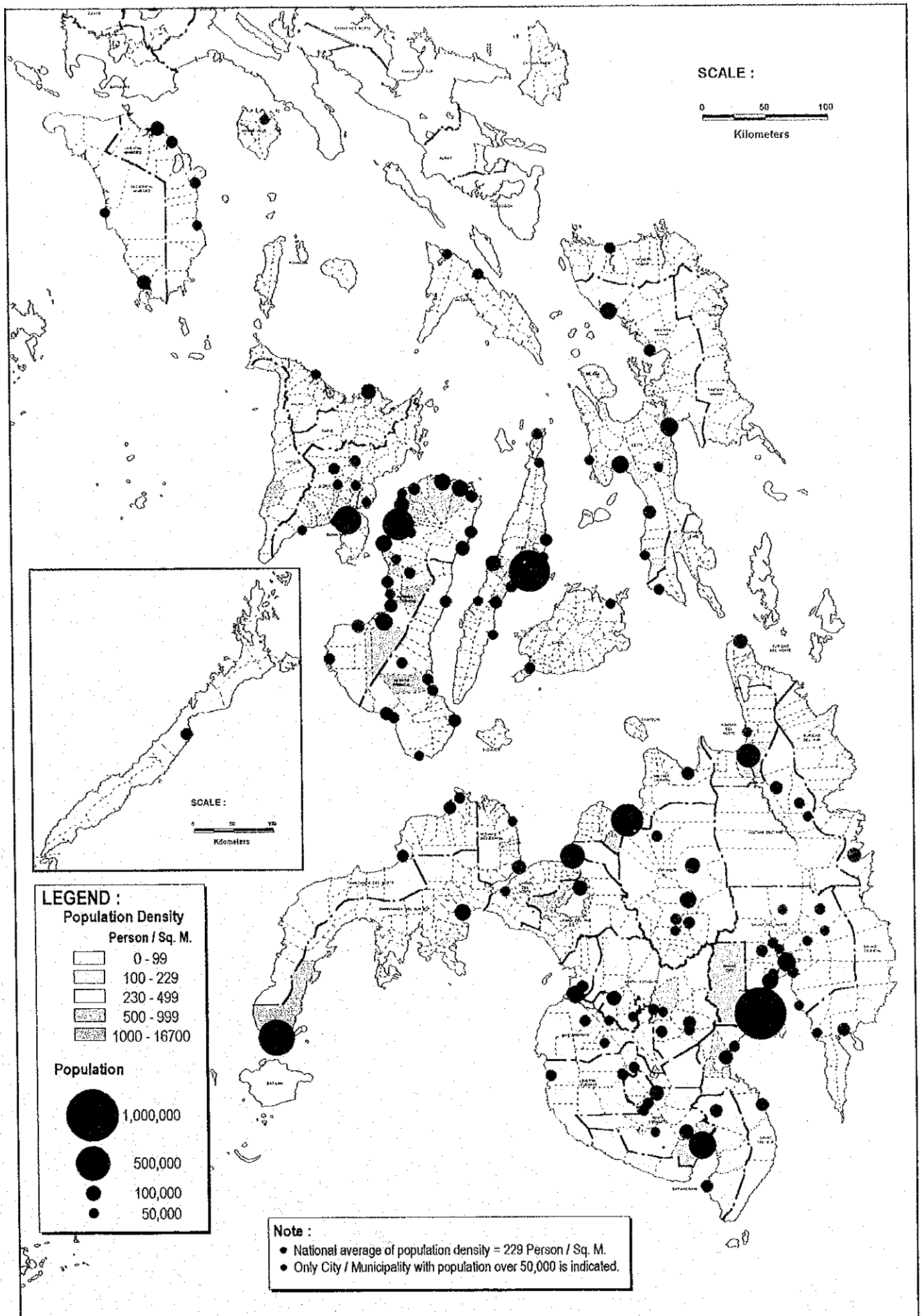


FIGURE 2.1-4 1995 POPULATION DENSITY AND POPULATION BY CITY/MUNICIPALITY

2.1.3 Urban and Rural Population

The available data on the urban and rural population are limited to the census in 1980 and 1990. Table 2.1-2 shows the share of urban population by Region in 1980 and 1990. The share of urban population of the Philippines was 37.4% in 1980 which increased to 48.5% in 1990. In the Study Area, Region XI has the highest in urban population share (47.6%), followed by Region X (45.4%), XIII (41.8%) and VII (40.5%).

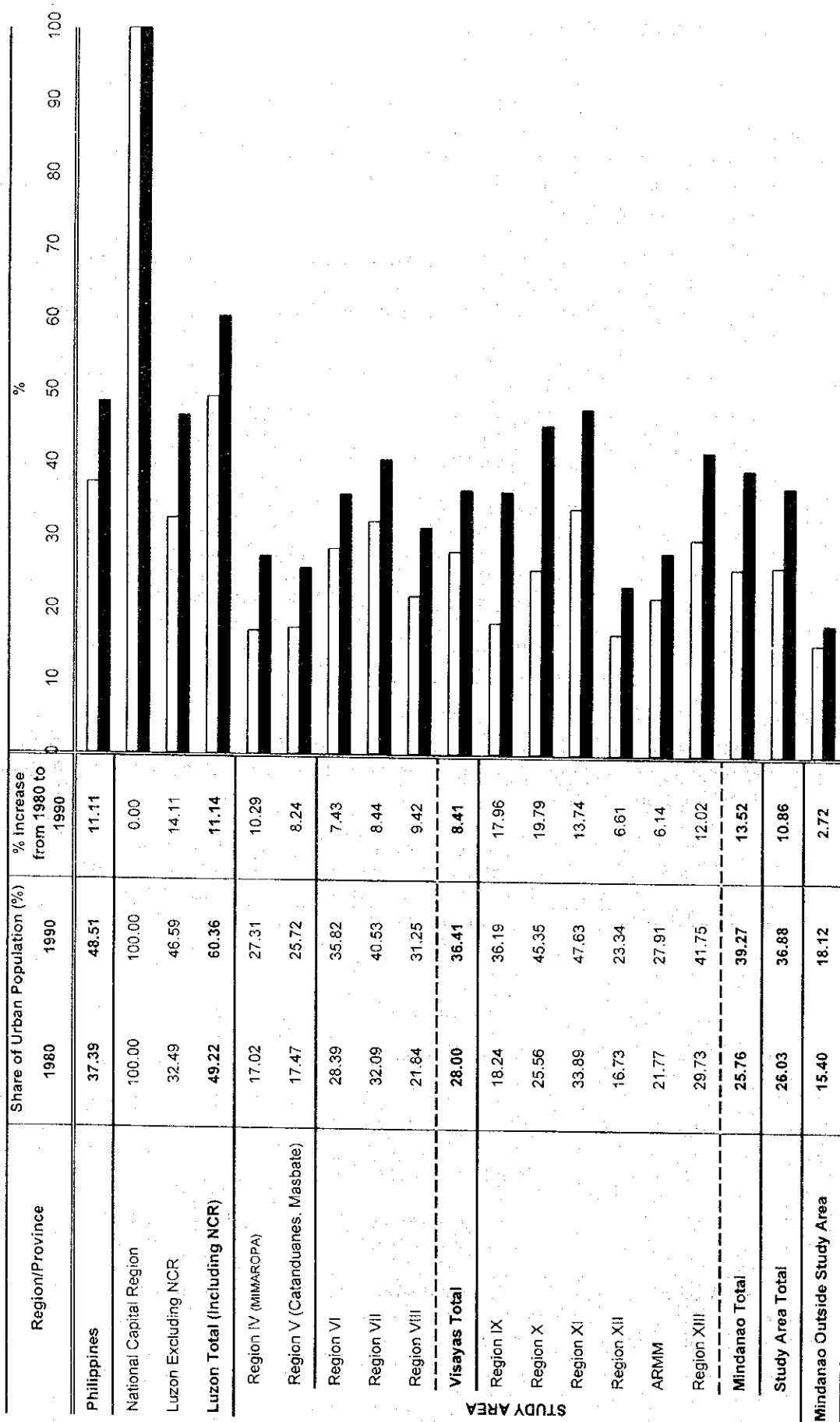
Table 2.1-3 shows share of urban population by province. Provinces with high share of urban population (over 40%) and with high increase in urban population share from 1980 to 1990 (over 15%) in the Study Area are as follows:

Region	High Share of Urban Population (over 40% in 1990)	High Increase from 1980 to 1990 (over 15%)
VI	Negros Occidental	-
VII	Cebu	-
IX	Zamboanga del Sur	Zamboanga del Sur
X	Misamis Oriental	Bukidnon Misamis Oriental
XI	Davao del Sur South Cotabato	Davao Oriental South Cotabato
XIII	Agusan del Norte Surigao del Norte Surigao del Sur	Surigao del Norte Surigao del Sur

Provinces with low share of urban population (less than 25%) and with low increase in urban population share from 1980 to 1990 (less than 5%) in the Study Area are as follows:

Region	Low Share of Urban Population (Less than 25% in 1990)	Low Increase From 1980 to 1990 (Less than 5%)
IV (MIMAROPA)	Marinduque Romblon	Marinduque
V	-	Catanduanes
VI	Aklan	Iloilo / Guimaras
VII	Negros Oriental Siquijor	Siquijor
VIII	Southern Leyte	-
IX	Zamboanga del Norte	-
XII	Lanao del Norte North Cotabato	North Cotabato
ARMM	Lanao del Sur	Lanao del Sur
XIII	Agusan del Sur	-

TABLE 2.1-2 SHARE OF URBAN POPULATION BY REGION



Source: NSO

□ 1980 ■ 1990

TABLE 2.1-3 SHARE OF URBAN POPULATION BY PROVINCE

Region/Province		SHARE OF URBAN POPULATION (%)		% Increase 1980 - 1990
		1980	1990	
Philippines		37.39	48.51	11.12
Luzon	NCR	100.00	100.00	0
	CAR, I, II, III	30.25	44.46	14.21
	IV (Luzon)	43.00	57.65	14.65
	V (Luzon)	22.95	32.63	9.68
	Sub-total	49.22	60.36	11.14
Study Area	IV (MIMAROPA)	10.02	27.31	17.29
	Marinduque	13.83	17.38	3.55
	Occidental Mindoro	18.29	32.99	14.70
	Oriental Mindoro	14.98	25.56	10.58
	Palawan	22.56	31.81	9.25
	Romblon	12.45	22.15	9.70
	V	17.47	25.72	8.25
	Masbate	15.75	25.02	9.27
	Catanduanes	23.22	27.97	4.75
	VI	28.39	35.82	7.43
	Aklan	12.15	24.30	12.15
	Antique	20.65	28.92	8.27
	Capiz	13.50	28.22	14.72
	Iloilo / Guimaras	27.55	29.81	2.26
	Negros Occidental	36.89	45.66	8.77
	VII	32.09	40.53	8.44
	Bohol	15.25	25.37	10.12
	Cebu	44.41	52.52	8.11
	Negros Oriental	19.00	24.06	5.06
	Siquijor	11.27	12.12	0.85
	VIII	21.84	31.25	9.41
	Eastern Samar	26.20	39.08	12.88
	Leyte / Biliran	24.55	32.75	8.20
	Northern Samar	23.40	35.44	12.04
	Western Samar	14.71	25.72	11.01
	Southern Leyte	15.26	20.56	5.30
	Visayas Total (VI, VII, VIII)	28.00	36.41	8.41
	IX	18.24	36.19	17.95
	Zamboanga del Norte	15.43	21.72	6.29
	Zamboanga del Sur	19.63	42.53	22.90
	X	25.56	45.35	19.79
	Bukidnon	15.59	31.45	15.86
	Misamis Occidental	17.13	31.99	14.86
	Misamis Oriental	39.32	66.31	26.99
	Comiguin	26.59	33.93	7.34
	XI	33.89	47.63	13.74
	Davao del Norte	24.77	34.73	9.96
	Davao del Sur	44.94	52.21	7.27
	Davao Oriental	22.53	39.43	16.90
	South Cotabato	31.15	57.00	25.85
	XII	16.73	23.34	6.61
	Lanao del Norte	15.41	24.42	9.01
North Cotabato	15.54	18.09	2.55	
Sultan Kudarat	20.93	31.04	10.11	
Cotabato City	-	-	-	
Marawi City	-	-	-	
ARMM	21.77	27.91	6.14	
Lanao del Sur	18.65	22.45	3.80	
Maguindanao	24.12	32.23	8.11	
XIII	29.73	41.75	12.02	
Agusan del Norte	36.50	47.40	10.90	
Agusan del Sur	19.38	24.47	5.09	
Surigao del Norte	30.11	48.09	17.98	
Surigao del Sur	30.08	46.04	15.96	
Mindanao Total	25.76	39.27	13.51	
Study Area Total	26.03	36.88	10.85	
Mindanao Western Islands (Basilan, Sulu, Tawi-Tawi)	15.40	18.12	2.72	

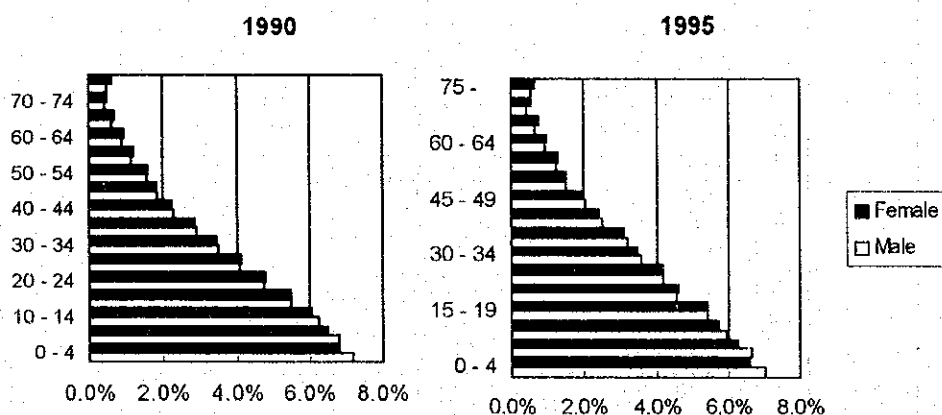
Source: NSO

2.1.4 Age Structure and Natural Growth

The age structure shows the pyramid type, the younger the more, which is typical in society with high birth rate (Figure 2.1-5). The ratio of male population to female population was 0.957 in 1995. That of 0 - 4 age group was 1.065 and it gradually decreases from the age groups of over 40.

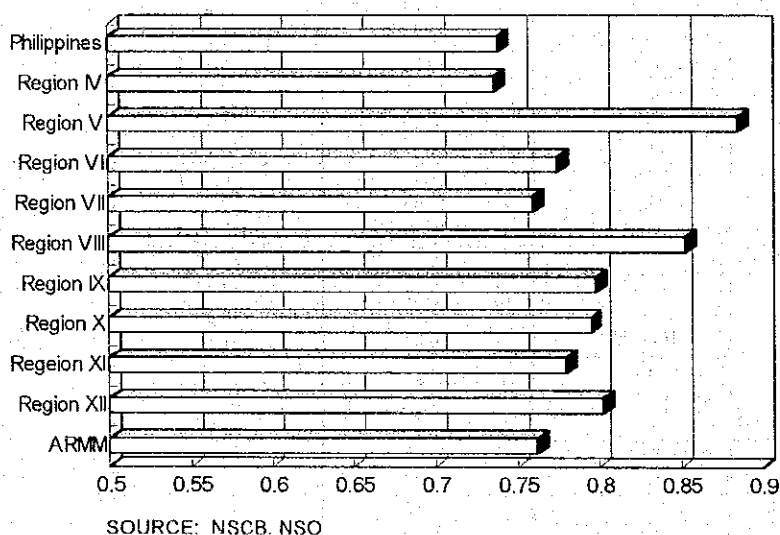
The ratio of the dependent population to the productive age (working age : not less than 15 year old and less than 65) population was 72.0%, which decreased from 73.8% in 1990. The ratio of Region V to XII and ARMM was more than the national average, and it implies economic handicap (Figure 2.1-6).

The birth rate, the death rate and the natural growth shows the trend of decreasing. The recent natural growth was about 21 per 1,000 population (Figure 2.1-7).



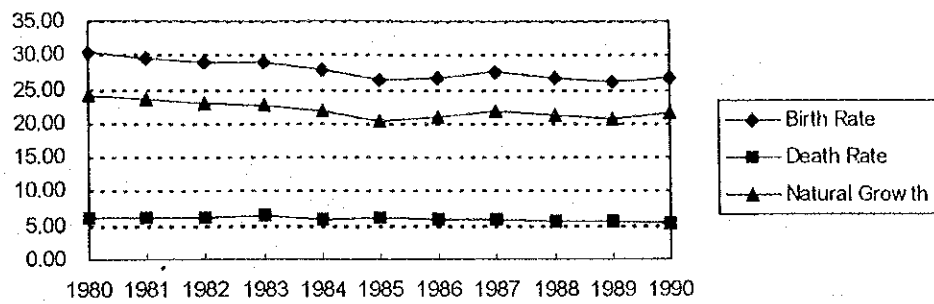
SOURCE: NSO

FIGURE 2.1-5 AGE AND SEX STRUCTURE IN 1990 AND 1995



SOURCE: NSCB, NSO

FIGURE 2.1-6 RATIO OF DEPENDENT POPULATION TO WORKING AGE POPULATION (15-65)



SOURCE: NSO

FIGURE 2.1-7 BIRTH RATE, DEATH RATE AND NATURAL GROWTH

2.1.5 Inter-regional Migration

The inter-regional migration matrix is available only for the period from 1975 to 1980 and is shown in Table 2.1-4. The greatest movement was made between NCR and Region IV. The migration from Region VIII to NCR was 50 thousands.

According to "1995-based National and Regional Population Projections", the net migration rates 1985 - 1990 show that the Regions of emigration are CAR, R-I,II,V,VI,VII,VIII,IX,XII and ARMM, and the Regions of immigration, NCR, R-III,IV,X and XI. The largest migration was in NCR, Region IV and Region VIII (Figure 2.1-8).

TABLE 2.1-4 INTER-REGIONAL MIGRATION (1975-1980)

Origin	All	NCR	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Desti- nation														
All	1,148,297	204,778	87,578	36,208	92,257	114,683	89,285	105,536	114,987	98,489	37,205	56,639	62,080	38,572
NCR	378,878		42,882	16,002	51,246	75,386	51,573	44,158	22,990	48,999	4,933	6,944	8,612	5,353
I	35,588	12,447		6,567	6,761	3,597	1,156	867	871	936	538	581	748	519
II	33,259	4,881	13,004		8,418	2,093	1,317	826	548	673	317	484	481	217
III	101,844	42,388	12,937	3,908		13,664	8,708	4,509	3,506	6,162	813	1,423	1,191	835
IV	183,095	90,817	9,400	3,596	16,001		27,772	11,370	5,706	10,790	1,914	2,134	2,404	1,191
V	36,939	15,957	1,195	568	3,284	9,648		1,009	1,773	1,846	326	472	604	257
VI	33,523	11,128	779	465	1,436	3,154	1,544		7,391	857	979	1,339	2,943	1,508
VII	51,757	6,181	975	1,079	721	1,765	2,281	7,730		7,215	4,148	8,639	8,721	2,322
VIII	27,605	9,560	477	255	839	1,547	1,403	785	6,005		564	2,499	2,999	672
IX	28,143	1,213	588	726	501	432	313	3,139	8,943	869		6,658	2,278	2,483
X	92,323	3,990	1,333	1,049	929	1,171	1,639	8,485	24,978	8,439	10,951		18,191	11,168
XI	89,017	4,383	2,002	1,287	1,051	1,477	1,121	12,248	23,791	8,565	5,718	15,127		12,247
XII	56,326	1,833	2,206	706	1,070	749	478	10,410	8,485	1,138	6,004	10,339	12,908	
Increase -decrease		174,100	-51,990	-2,949	9,587	68,412	-62,346	-72,013	-63,230	-70,884	-9,062	35,684	26,937	17,754

SOURCE: NSO

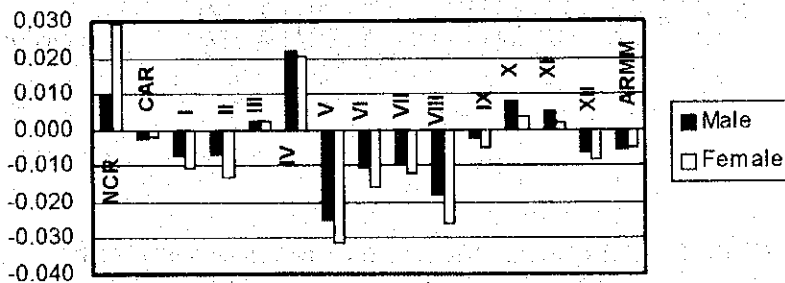
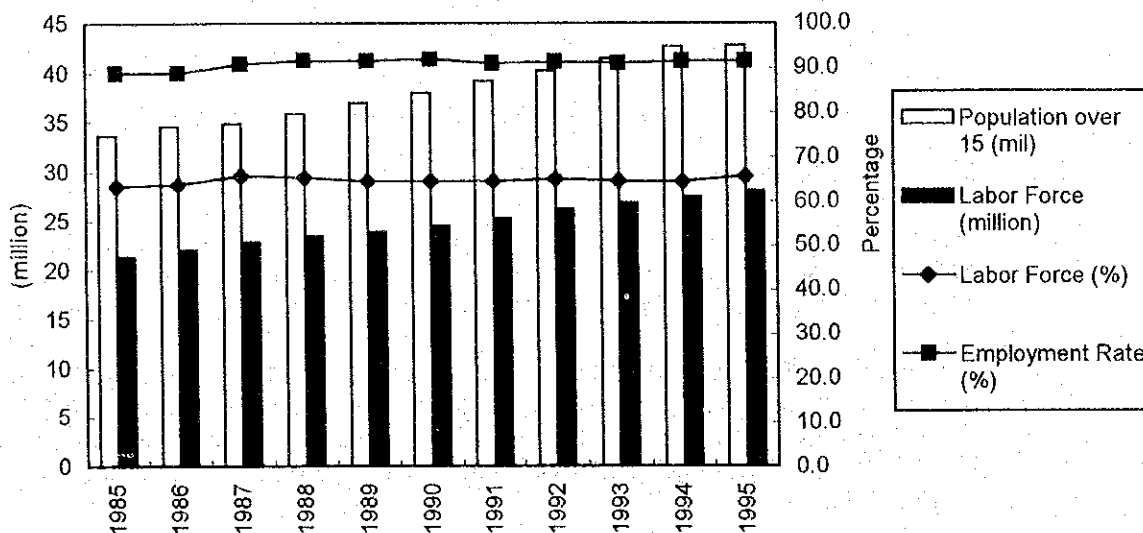


FIGURE 2.1-8 NET MIGRATION RATE (1985 - 1990)

2.2 ECONOMY

2.2.1 Labor Force and Employment

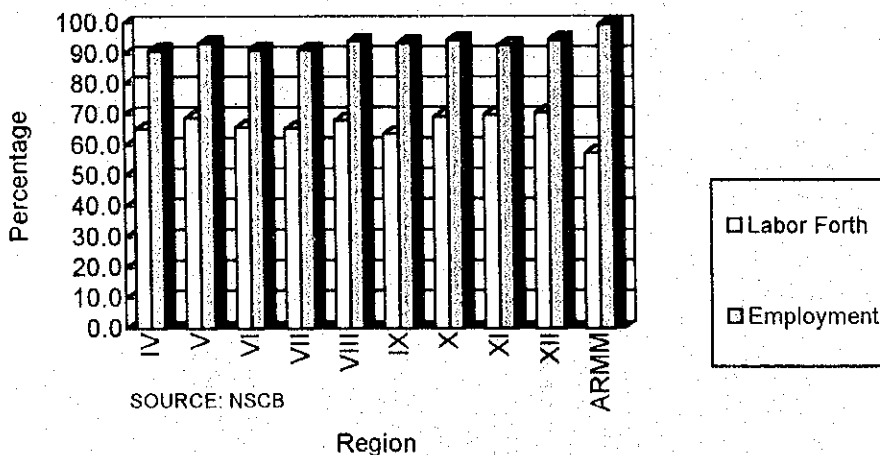
The population in labor force or economically active population increased from 21 million in 1985 to 28 million in 1995. The labor force participation rate was about 65% in constant with small fluctuation. The employment rate increased during 1986 and 1988 and kept same level of 91 - 92% (Figure 2.2-1).



SOURCE: NSCB

FIGURE 2.2-1 TREND OF LABOR FORCE AND EMPLOYMENT RATE

The employment rates of all regions exceeded 91% in 1995. That of ARMM was as high as 99% although the labor force participation rate was as low as 57%.



SOURCE: NSCB

FIGURE 2.2-2 LABOR FORCE PARTICIPATION RATE AND EMPLOYMENT RATE BY REGION (1995)

The employed persons in Region IV and NCR were high with more than 3 million. The employed persons in Regions VI, VII, VIII, X and XI ranged 1.5 million to 2.3 million.

The employed persons of agriculture slightly increased, however the share decreased to 44.1% in 1995. The employment of industries increased while the share reduced a little to 15.6% during 1992 - 1995. The employment of services increased steadily and the share accounted for 40.3% in 1995.

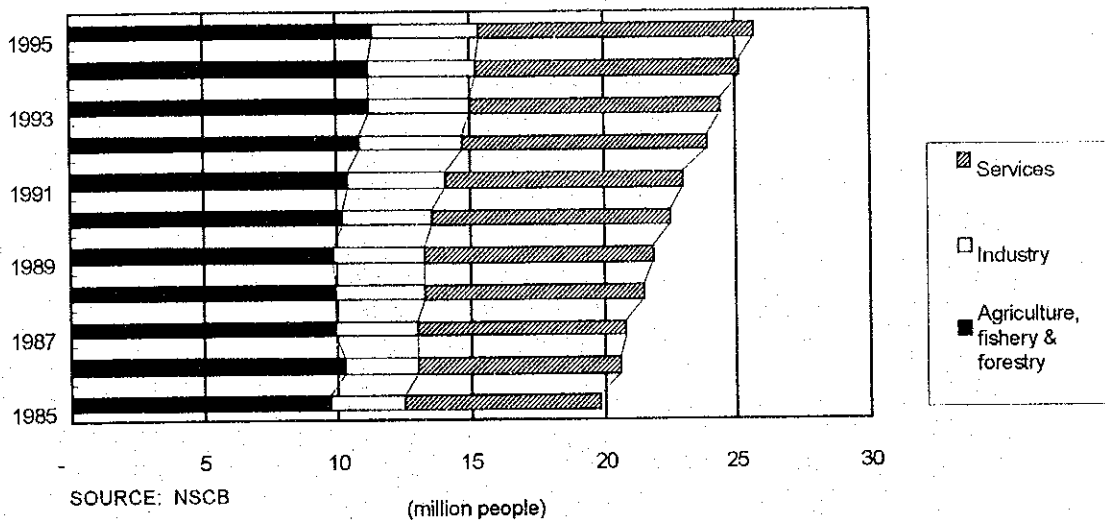
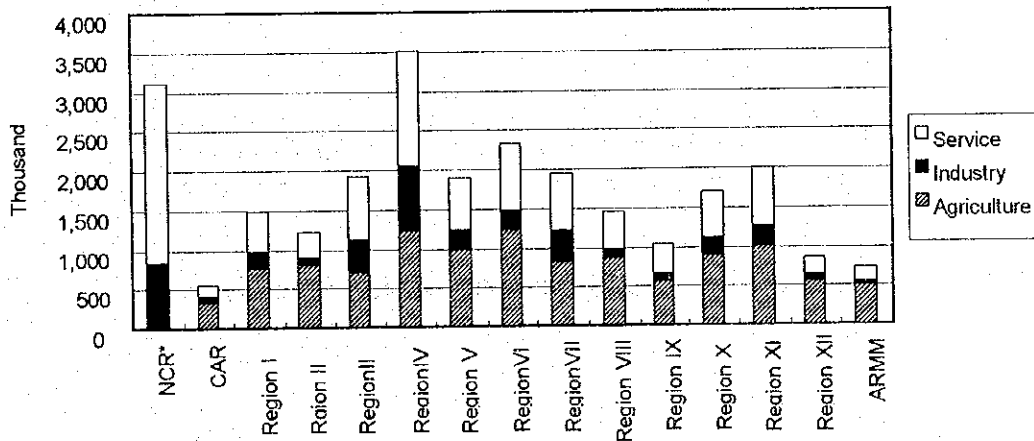


FIGURE 2.2-3 EMPLOYED PERSONS BY SECTOR

The composition of employed persons by sector in Regions V, VI, VIII, X and XI shows almost same characteristics of agriculture domination (agriculture : 53-60%, industries : 7-13%, services : 33-37%). The employed persons of industries in Region VII accounted for as high as 20% and conversely those of agriculture shared 43%.



SOURCE: NSCB, NSO

FIGURE 2.2-4 EMPLOYED PERSONS BY REGION AND BY SECTOR (1995)

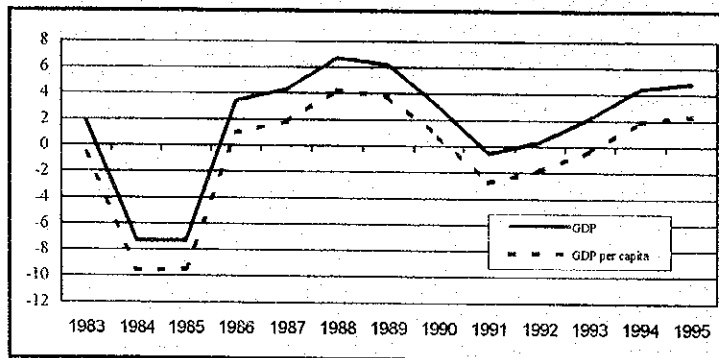
2.2.2 Trend of Economic Growth

Historically, the Philippine economy has repeated a cycle of growth and stagnancy as shown in Table 2.2-1 and Figure 2.2-5. The Philippines experienced the severe economic recessions during the period of 1983-1985 and 1991-1993. An average economic growth rate per annum in terms of GDP from 1982 to 1995 was 1.6%. The economic growth could not catch up with the population growth, thus per capita GDP of 1995 was still lower than that of 1985 and remained at about 89% of 1985 level.

**TABLE 2.2-1 TREND OF GDP AND PER CAPITA GDP
(at 1985 price)**

Year	GDP		Per capita GDP	
	million pesos	growth (%)	pesos	growth (%)
1982	653,467	3.62	12,869	1.09
1983	665,717	1.87	12,787	-0.64
1984	616,962	-7.32	11,564	-9.56
1985	571,883	-7.31	10,461	-9.54
1986	591,423	3.42	10,561	0.96
1987	616,923	4.31	10,755	1.84
1988	658,581	6.75	11,216	4.29
1989	699,448	6.21	11,638	3.76
1990	720,690	3.04	11,722	0.72
1991	716,522	-0.58	11,397	-2.77
1992	718,941	0.34	11,003	-3.46
1993	734,156	2.12	10,961	-0.38
1994	766,450	4.40	11,169	1.90
1995	803,450	4.83	11,434	2.37

SOURCE: Philippine Statistical Yearbook, 1997



SOURCE: NSCB

FIGURE 2.2-5 ECONOMIC GROWTH TREND, 1983-1995

2.2.3 Industrial Structure

Historically, the Philippine economy changed its structure, decreasing the share of the primary sector and expanding the secondary and tertiary sector. The decrease of the primary sector resulted mainly from the deadly decay of forestry industry due to the recent excessive deforestation. In long-term trend, agriculture has grown and expanded its share in some years. The growth of agriculture is attributed to the expansion of cultivated area and improvement of yield. The primary sector accounts for about 22% of total GDP in 1995.

In 1970s, the GVA of the secondary sector accounted for 30% of GDP, which was the same level as of the primary sector. During the following decade, manufacturing, construction and utilities were the leading sector and the secondary sector expanded the share up to 35% by 1980. However, throughout 1980s and early 1990s, the secondary sector was stagnant by the two time oil crises, natural calamities and shortage in power and water. In 1995, the share of the sector fall down to 32%. Manufacturing sector contributed more than 70% of the GVA of the secondary sector.

The tertiary sector (service sector) raised the share from 40% in 1985 to 46% in 1995. Government and private service sectors as well as real estate and finance sector are expanding the shares, on the other hand, transportation and communication and trading (commercial) sectors were slightly losing the share.

TABLE 2.2-2 GROSS NATIONAL PRODUCT AND GROSS DOMESTIC PRODUCT BY ORIGIN
(GVA in Million Pesos at Current Prices)

INDUSTRY	1985		1990		1995	
	GVA	%	GVA	%	GVA	%
1. AGRI., FISHERY & FORESTRY	140,554	24.6	235,956	21.9	412,965	21.7
Agriculture and fishery	131,557	23.0	227,049	21.1	410,219	21.5
Forestry	8,997	1.6	8,907	0.8	2,746	0.1
2. INDUSTRY SECTOR	200,548	35.1	371,347	34.5	612,540	32.1
Mining & Quarrying	11,893	2.1	16,659	1.5	18,244	1.0
Manufacturing	143,851	25.2	267,485	24.8	438,247	23.0
Construction	29,037	5.1	64,903	6.0	106,639	5.6
Electricity, Gas and Water	15,767	2.8	22,300	2.1	49,410	2.6
3. SERVICE SECTOR	230,781	40.4	469,934	43.6	880,925	46.2
Transportation, Communication and Storage	31,666	5.5	53,191	4.9	88,929	4.7
Trade	82,835	14.5	154,592	14.4	261,862	13.7
Finance	17,123	3.0	42,531	3.9	78,232	4.1
Ownership of Dwellings and Real Estate	32,132	5.6	61,673	5.7	130,491	6.8
Private Services	39,121	6.8	80,916	7.5	169,290	8.9
Government Services	27,904	4.9	77,031	7.2	152,121	8.0
GROSS DOMESTIC PRODUCT	571,883	100.0	1,077,237	100.0	1,906,430	100.0
Net factor income from abroad	-15,809	-2.8	5,320	0.5	61,313	3.2
GROSS NATIONAL PRODUCT	556,074	97.2	1,082,557	100.5	1,967,743	103.2

SOURCE: National Statistical Coordination Board

2.2.4 Regional Economy

About 20% of the Philippine population concentrated in the capital region, NCR in 1995, while they produced 33% of GDP (38% of GVA in the industry sector and 42% of the service sector), followed by 16% in Region IV (Southern Tagalog) and 10% of Region III (Central Luzon). Altogether these three regions produced indeed a half of the nation's GDP. Among other regions, four regions of VI (Western Visayas), VII (Central Visayas), X (Northern Mindanao) and XI (Southern Mindanao) produced comparatively the large portion (5-7%) of GDP and the rest only 1-3% (Figure 2.2-6).

Comparing per capita GRDP in 1995 by region, it widely ranged from the highest, 67,894 pesos of NCR to the lowest, 8,630 pesos of ARMM. The former was as high as 2.5 times of the national average, 27,131 pesos and the latter was only 32% of the average. Regions with GRDP higher than the average were only three: NCR, CAR and Region IV. Other regions fell in the range of 60 - 90% of the national average.

As shown in Table 2.2-3, it is obvious that most regions with higher GRDP had comparatively higher share of the secondary sector and on the contrary, primary sector was generally dominant in regions with lower GRDP.

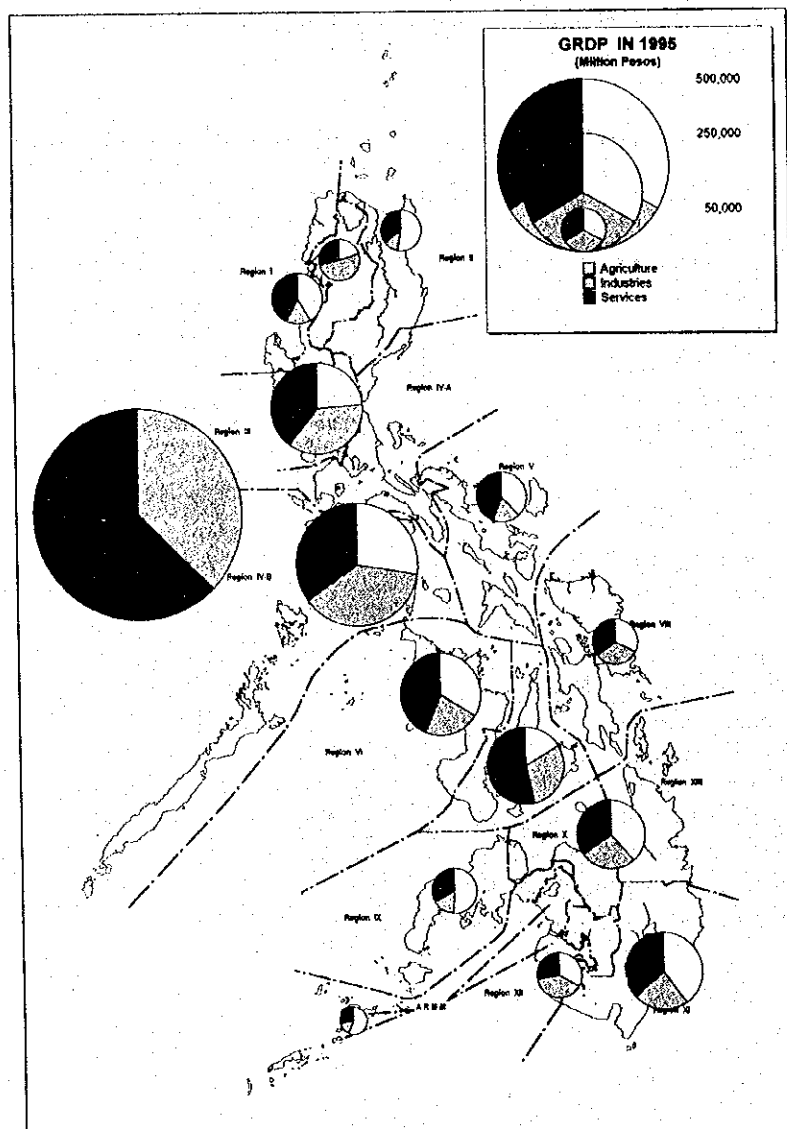


FIGURE 2.2-6 REGIONAL ECONOMY

TABLE 2.2-3 GRDP AND PER CAPITA GRDP BY REGION (1995)

Region	GRDP		Per Capita GRDP		Industrial Composition(%)			
	million pesos	%	pesos	Rank	Primary	Secondary	Tertiary	Total
NCR	619,061	32.5	67,894	1	0.0	37.4	62.6	100.0
CAR	38,790	2.0	29,166	2	20.1	50.9	29.0	100.0
I	58,252	3.1	14,451	12	41.6	15.7	42.7	100.0
II	41,158	2.2	15,170	11	52.6	12.3	35.1	100.0
III	158,271	8.3	22,083	7	23.5	37.3	39.3	100.0
IV	274,480	14.4	28,303	3	27.5	37.8	34.8	100.0
V	55,823	2.9	12,433	14	37.7	18.4	43.9	100.0
VI	134,832	7.1	21,906	9	33.7	22.7	43.6	100.0
VII	124,335	6.5	23,557	6	16.3	30.3	53.4	100.0
VIII	50,106	2.6	14,206	13	32.5	32.7	34.8	100.0
IX	52,155	2.7	18,047	10	50.7	16.6	32.8	100.0
X	101,152	5.3	24,605	4	38.5	26.8	34.7	100.0
XI	127,395	6.7	24,164	5	40.0	23.5	36.5	100.0
XII	52,510	2.8	21,989	8	32.8	39.4	27.8	100.0
ARMM	18,113	1.0	8,630	15	56.4	15.6	28.0	100.0
Philippines	1,906,433	100	27,131	-	21.7	32.1	46.2	100.0

SOURCE: NSCB

2.2.5 Labor Productivity

In Table 2.2-4, the labor productivity is shown for the past 15 years by industrial sector. The average labor productivity of all sectors in 1995 was 30,797 pesos at 1985 prices which was equivalent to 73,076 pesos (2,758 US\$)at 1995 prices. This corresponded to 2.7 times of per capita GDP.

It should be noted that the labor productivity in the Philippines has not grown in 15 years in any sector, worsened by 10 - 16%. The drop of productivity was remarkable especially in the tertiary sector, which is prospected to expand its employment share in the future. It would be a key issue for the future economic growth how to improve the labor productivity.

TABLE 2.2-4 EMPLOYMENT AND PRODUCTIVITY BY SECTOR
(GVA million pesos at 1985 constant prices)

Industrial Sector	1980	1985	1990	1995
1. Primary Sector				
a) GVA(million peso)	139,935	140,554	160,734	172,999
b) Employment(1000pax)	8,453	9,569	10,008	11,367
c) Productivity(peso/pax)	16,555	14,688	16,061	15,219
2. Secondary Sector				
a) GVA (million peso)	197,361	200,548	255,548	285,219
b) Employment(1000pax)	2,554	2,711	3,388	4,129
c) Productivity(peso/pax)	77,275	73,976	75,427	69,077
3. Tertiary Sector				
a) GVA(million peso)	209,343	230,781	304,408	345,232
b) Employment(1000pax)	5,427	6,766	8,807	10,593
c) Productivity(peso/pax)	38,574	34,109	34,564	32,591
4. All Sector				
a) GDP (million peso)	546,640	571,883	720,690	803,450
b) Employment(1000pax)	16,434	19,046	22,203	26,089
c) Productivity(peso/pax)	33,263	30,026	32,459	30,797

SOURCE: NSCB

2.2.6 Family Income and Expenditure

According to 1994 Family Income and Expenditure Study by NSO, the average household income was 83,161 pesos and the expenditure was 67,661 pesos. Figure 2.2-7 shows average family income and expenditure by Region. The regional gaps shows the same pattern as that of GRDP per capita. The income level of NCR was the highest, 2.1 times of the national average and the lowest is Region VIII (Eastern Visayas) at 49,912 pesos, 60% of the national average.

TABLE 2.2-5 AVERAGE FAMILY INCOME AND EXPENDITURES BY REGION, 1994

Region	No. of Families (1,000)	Average Income peso	Average Expenditure peso	Average Savings peso
NCR	1,756	173,599	138,247	35,352
CAR	241	74,699	60,317	14,352
I	706	66,125	54,175	11,950
II	623	68,851	53,251	15,600
III	1,275	94,092	75,427	18,665
IV	1,731	87,627	71,085	16,542
V	878	54,167	46,343	7,824
VI	1,133	64,078	57,868	6,210
VII	952	57,579	46,883	10,696
VIII	694	49,912	37,522	12,390
IX	509	50,784	43,486	7,298
X	734	57,831	46,363	11,468
XI	887	70,711	59,542	11,169
XII	365	61,282	50,527	10,755
ARMM	330	51,304	38,802	12,502
Philippines	12,755	83,161	67,661	15,500

SOURCE: NSO

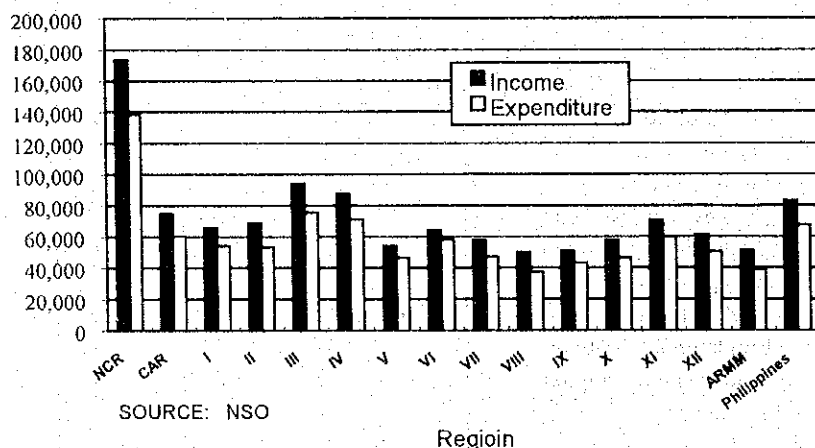


FIGURE 2.2-7 AVERAGE FAMILY INCOME AND EXPENDITURES BY REGION, 1994

2.2.7 Inter-regional Trade

According to the data of National Statistic Office, the total commodity flow among regions accounted for 21.1 million tons in weight and 218.5 billion pesos in value in 1994. More than 98% of them were transported by water mode. Table 2.2-6 presents the inter-regional trade matrix via water transport mode. About 20% of the total flow generated from NCR and more than 25% was attracted to NCR.

Tight economic linkages are observed between NCR and Region III, VI, VII, XI and XII ; between Region V and VIII ; Region X and VII.

TABLE 2.2-6 INTER-REGIONAL COMMODITY FLOW BY WATER TRANSPORTATION, 1994
(1,000 million pesos)

O:D	NCR	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	ARMM	Total
NCR	0.0	0.0	0.0	0.1	1.9	0.4	5.6	13.5	2.7	1.5	5.4	8.7	1.0	0.7	41.6
I	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.4
II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
III	11.3	0.7	0.1	1.1	1.9	0.1	1.0	1.5	0.5	0.7	2.5	0.6	0.5	0.2	22.8
IV	2.2	0.7	0.0	0.1	15.0	0.5	1.1	1.3	0.7	0.1	0.5	1.0	0.2	0.1	23.5
V	0.1	0.0	0.0	0.0	0.8	1.4	0.1	0.4	6.1	0.0	0.1	0.1	0.2	0.0	9.2
VI	9.5	0.0	0.0	0.0	0.4	0.3	5.3	3.0	0.4	0.6	0.7	0.3	0.2	0.0	20.7
VII	5.7	0.2	0.0	0.1	0.4	1.1	4.6	8.1	3.4	1.4	7.1	2.5	1.2	0.2	36.0
VIII	0.3	0.0	0.0	0.0	0.2	0.4	0.1	0.8	0.4	0.0	2.8	0.1	0.4	0.0	5.4
IX	1.2	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	1.8	0.0	0.5	0.2	0.2	5.1
X	6.0	0.0	0.0	0.0	0.6	0.2	0.5	5.4	3.0	0.1	1.1	0.2	0.4	0.0	17.6
XI	12.3	0.1	0.0	0.0	0.2	0.1	0.4	3.4	0.1	0.7	0.3	1.0	0.3	0.0	19.0
XII	7.4	0.0	0.0	0.0	0.3	0.1	0.5	2.1	0.2	0.2	0.5	0.2	0.0	0.0	11.6
ARMM	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.3	1.3
All	56.7	1.8	0.2	1.3	21.8	4.7	19.2	40.7	17.8	7.7	20.9	15.2	4.6	1.7	214.3

SOURCE: NSCB

2.2.8 Inflation

The Philippines suffered from the high inflation rate of 18% in 1991 and it calmed down to the level of 8%. After that it kept stable rate around 8%. The rate in the areas outside Metro Manila was slightly smaller than the national average.

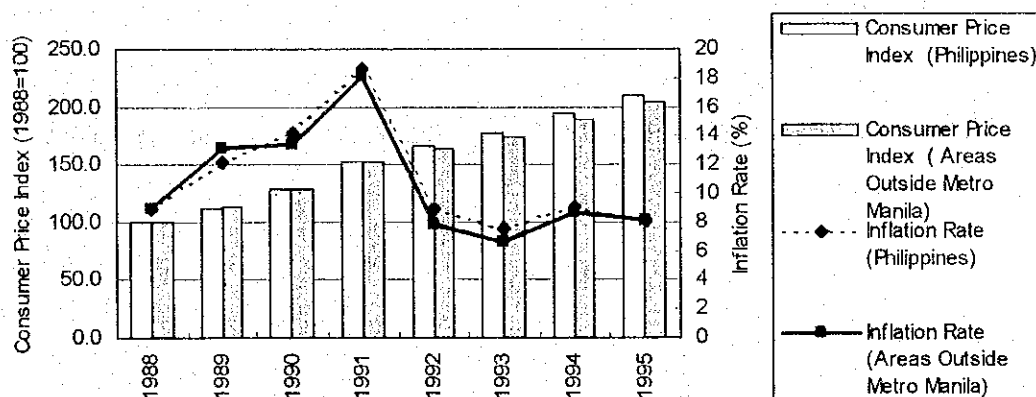


FIGURE 2.2-8 INFLATION RATE AND CONSUMER PRICE INDEX

2.3 INDUSTRIES

2.3.1 Primary Industry

The GVA of the agricultural sector was slowly but steadily increasing, even in 1991 when the industry and the service sectors experienced decrease. However, it has slightly reduced the share in GRDP to 21.7%.

As shown in Table 2.3-1 and Figure 2.3-1 and 2, the crop production increased their share in the agricultural GVA during 1993-95. In particular, palay and coconut productions made progress. Livestock/poultry and fishery productions slightly reduced the share. Forestry production declined drastically in the period although the total amount was small.

TABLE 2.3-1 AGRICULTURE, FISHERY & FORESTRY PRODUCTION VALUE AND GVA

	1993				1994				1995			
	Production Value	GVA	%	GVA Ratio	Production Value	GVA	%	GVA Ratio	Production Value	GVA	%	GVA Ratio
Palay	51,493	42,167	13.2%	0.8189	62,516	51,079	13.7%	0.8171	77,685	63,908	15.5%	0.8227
Corn	20,832	18,484	5.8%	0.8873	22,289	18,757	5.0%	0.8415	25,925	21,770	5.3%	0.8397
Coconut	23,110	18,489	5.8%	0.8000	22,862	23,400	6.3%	1.0235	21,321	27,330	6.8%	1.2819
Sugarcane	13,291	9,538	3.0%	0.7176	18,274	12,036	3.2%	0.6586	17,746	11,971	2.9%	0.6746
Banana	10,312	9,554	3.0%	0.9265	11,453	11,582	3.1%	1.0113	10,818	11,675	2.8%	1.0792
Other crops	61,848	76,046	23.9%	1.2338	71,624	92,690	24.9%	1.2941	80,186	107,510	26.0%	1.3408
Sub-Total	180,683	174,278	54.7%	0.9646	209,018	209,544	56.2%	1.0025	233,679	244,164	59.1%	1.0449
Other activities		14,503	4.6%			16,895	4.5%			19,243	4.7%	
Livestock	52,021	39,441	12.4%	0.7582	63,013	45,019	12.1%	0.7144	67,193	48,476	11.7%	0.7214
Poultry	46,321	27,221	8.5%	0.5877	51,199	30,765	8.3%	0.6009	48,264	28,130	6.8%	0.5828
Agriculture Total		255,443	80.2%			302,223	81.1%			340,013	82.3%	
Fishery	71,058	57,533	18.1%	0.8097	81,229	65,860	17.7%	0.8108	83,862	70,206	17.0%	0.8372
Forestry		5,570	1.7%			4,770	1.3%			2,748	0.7%	
Total		318,546	100.0%			372,853	100.0%			412,965	100.0%	

Source: Bureau of Agricultural Statistics, National Statistics Coordination Board

(unit: million pesos)

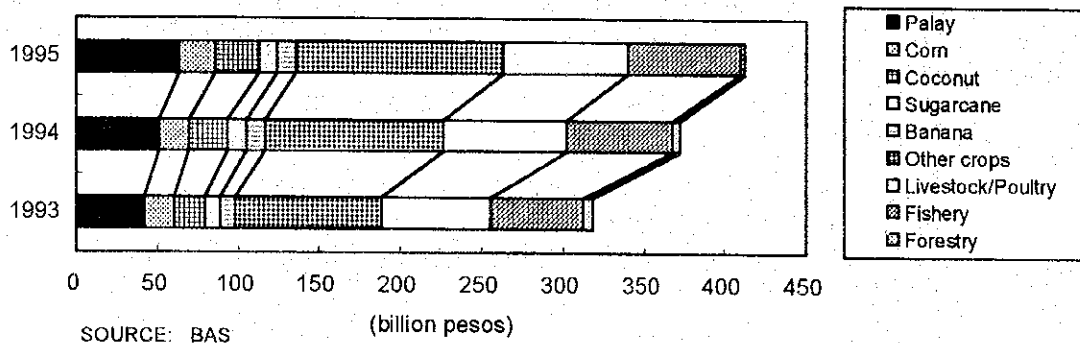


FIGURE 2.3-1 TREND OF AGRICULTURE, FISHERY & FORESTRY SECTOR GVA

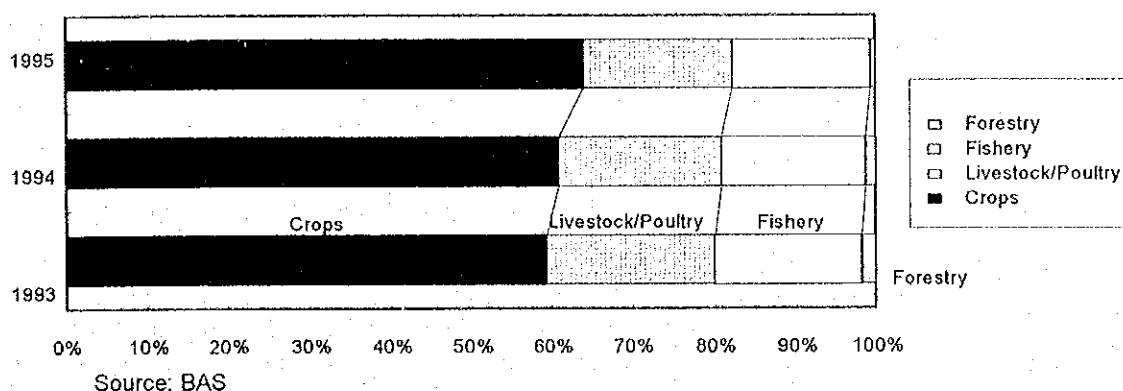


FIGURE 2.3-2 SHARE IN AGRICULTURE, FISHERY & FORESTRY SECTOR

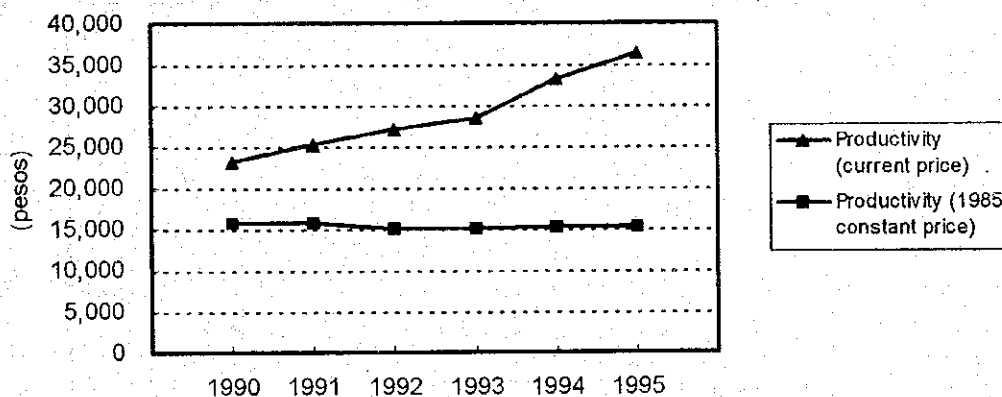
The GVA per agricultural employed persons has increased in current price and it was 36 thousand pesos in 1995. However in 1985 constant price, it kept the level of 15 thousand pesos (Table 2.3-2, Figure 2.3-3).

TABLE 2.3-2 AGRICULTURE PRODUCTIVITY

(pesos per agricultural employed persons)

Item	1990	1991	1992	1993	1994	1995
Agricultural Employed Persons (in thousands)	10,185	10,402	10,870	11,194	11,249	11,324
Agricultural GVA (current price in million pesos)	235,956	261,868	294,922	318,546	372,853	412,965
Agricultural GVA (1985 constant price in million pesos)	160,734	162,937	163,571	167,053	171,472	172,999
Productivity (current price)	23,167	25,175	27,132	28,457	33,145	36,468
Productivity (1985 constant price)	15,781	15,664	15,048	14,923	15,243	15,277

Source : Bureau of Agricultural Statistics, National Statistical Coordination Board (NSCB)



Source: BAS

FIGURE 2.3-3 AGRICULTURAL PRODUCTIVITY (GVA PER EMPLOYED PERSONS)

The agricultural GVA by province at 1995 current price is shown in Table 2.3-3 based on the data of agricultural production by crop by province.

TABLE 2.3-3 AGRICULTURAL GVA BY PROVINCE IN 1995 (unit : million pesos)

Region	Province	Palay	Corn	Other Crop	Crop Total	Other Activities	Livestock / Poultry	Fishery	Forestry	Total	Employed Persons (1000)	GVA per Employed Person (1000peso)
IV	Marinduque	117	4	255	376	30	377	380	0	1,162	53	22
	Occidental Mindoro	1,238	65	849	2,152	170	449	321	0	3,091	98	32
	Oriental Mindoro	1,346	17	901	2,264	178	484	39	0	2,966	174	17
	Palawan	858	290	689	1,837	145	706	1,303	0	3,990	167	24
	Romblon	128	5	298	431	34	448	89	0	1,001	60	17
	Sub-Total	3,585	381	2,970	6,937	547	2,463	2,131	0	12,078	552	22
Total Region IV		6,000	586	12,071	18,656	1,470	7,960	10,050	3	38,140	1,223	31
V	Masbate	365	97	584	1,047	82	707	835	0	2,670	210	13
	Total Region V	3,618	535	5,980	10,133	799	3,958	2,420	0	17,311	985	18
VI	Aklan	840	5	638	1,482	117	538	443	0	2,579	85	30
	Antique	697	6	466	1,169	92	675	177	0	2,113	89	24
	Capiz	1,498	51	1,337	2,886	227	617	753	0	4,483	180	25
	Iloilo (Guimaras)	3,640	139	4,935	8,714	687	2,751	3,662	0	15,813	391	40
	Negros Occidental	1,422	103	11,859	13,384	1,055	2,445	8,171	0	25,055	478	52
	Total Region VI	8,096	304	19,235	27,635	2,178	7,026	13,205	0	50,044	1,223	41
VII	Bohol	1,011	127	1,247	2,384	188	1,734	1,000	0	5,306	237	22
	Cebu	55	350	2,035	2,439	192	3,027	1,903	0	7,561	276	27
	Negros Oriental	350	282	2,392	3,023	238	1,762	542	0	5,565	289	19
	Siquijor	7	26	63	96	8	340	19	0	463	30	15
	Total Region VII	1,422	785	5,736	7,943	626	6,863	3,464	0	18,896	832	23
VIII	Leyte (Biliran)	1,426	146	2,686	4,257	336	2,599	510	10	7,712	361	21
	Southern Leyte	291	30	591	911	72	459	159	10	1,611	115	14
	Eastern Samar	152	0	412	565	45	350	142	10	1,112	80	14
	Northern Samar	351	37	759	1,146	90	442	195	11	1,885	158	12
	Western Samar	349	37	853	1,239	98	436	540	12	2,323	149	16
	Total Region VIII	2,569	249	5,301	8,119	640	4,285	1,547	53	14,643	863	17
IX	Zamboanga del Norte	352	359	1,089	1,800	142	1,275	2,330	155	5,701	191	30
	Zamboanga del Sur	1,515	673	5,873	8,060	635	1,966	4,882	20	15,563	322	48
	Sub-Total	1,867	1,032	6,961	9,860	777	3,241	7,211	175	21,264	513	41
	Total Region IX	1,877	1,047	8,500	11,423	900	4,112	7,399	175	24,010	563	43
X	Bukidnon	1,672	2,822	8,716	13,209	1,041	1,394	4	0	15,649	298	53
	Agusan del Norte	705	128	1,228	2,060	162	763	264	36	3,285	73	45
	Agusan del Sur	708	142	1,207	2,057	162	435	7	286	2,947	123	24
	Surigao del Norte	476	3	648	1,127	89	360	1,408	0	2,983	123	24
	Misamis Occidental	340	99	733	1,172	92	984	309	0	2,557	119	21
	Misamis Oriental	100	256	1,663	2,020	159	1,373	1,234	0	4,786	142	34
	Camiguin	16	1	145	162	13	167	80	0	422	15	28
	Total Region X	4,018	3,450	14,340	21,808	1,719	5,476	3,306	322	32,630	893	37
XI	Davao	1,210	257	6,026	7,494	591	1,443	136	76	9,738	255	38
	Davao City	172	142	2,300	2,615	206	1,699	200	0	4,720	66	72
	Davao del Sur	570	268	3,499	4,337	342	1,137	419	23	6,257	179	35
	Davao Oriental	279	178	4,618	5,075	400	803	190	85	6,552	140	47
	Surigao del Sur	445	20	733	1,198	94	535	895	1,403	4,126	102	40
	South Cotabato	1,494	3,153	7,911	12,558	990	1,986	1,452	52	17,037	266	64
	Total Region XI	4,170	4,017	25,088	33,275	2,622	7,602	3,293	1,619	48,411	1,008	48
XII	Lanao del Norte	849	1,120	2,654	4,624	364	1,477	1,373	9	7,847	133	59
	North Cotabato	2,051	1,644	2,980	6,676	526	1,267	1	12	8,481	325	26
	Sultan Kudarat	1,726	684	1,323	3,732	294	971	103	56	5,157	106	49
	Total Region XII	4,627	3,448	6,957	15,032	1,185	3,714	1,477	77	21,484	564	38
ARMM	Lanao del Sur	537	1,611	3,495	5,643	445	308	244	5	6,646	91	73
	Maguindanao	1,142	1,339	2,583	5,064	399	525	268	5	6,260	224	28
	Sub-Total	1,679	2,950	6,078	10,707	844	833	512	10	12,906	315	41
	Total ARMM	1,758	2,963	8,496	13,217	1,042	964	1,632	11	16,866	511	33
Total of Study Area		32,408	16,728	94,789	143,925	11,343	43,081	37,168	2,256	237,773	7,023	34
PHILIPPINE		63,908	21,770	177,729	244,164	19,243	76,606	70,206	2,746	412,965	11,323	36
		13.6%	7.0%	39.9%	60.5%	4.8%	18.1%	15.6%	0.9%	100.0%		

Source : Bureau of Agricultural Statistics

(1) Crop Production

The total crop production quantity was 62.5 million metric tons (m.m.t) in 1995. The quantity in the Study Area was 46.4 m.m.t or 73 % of the total, while the land area is 63% of the Philippines. Region VI produced the most (14.8 m.m.t), followed by Region XI (9.9 m.m.t). The production of sugarcane in Negros Occidental (9.4 m.m.t) was huge and raising the rank of Region VI. The coconut production of Davao Oriental (1.9 m.m.t) and South Cotabato (including Sarangani) (1.6 m.m.t) was outstanding. The other characteristics of the area was banana in Region XI (1.4 m.m.t) and palay in Region VI (1.3 m.m.t).

The total crop production quantity increased 2.7% annually during 1990 - 94, but decreased in 1995 to the level of 1991 due to the decline of palay production (Figures 2.3-4 and 5).

The production quantity of sugarcane formed 29% of the total crop production, while in the Study Area sugarcane was 33% followed by coconut (21%), palay (12%) and corn (7%). These 4 items amounted to 73% of the total.

The distinctive crops in the Study Area were sugarcane (81% to the total sugarcane of Philippine), coconut (80%), banana (90%), cacao (96%) and pineapple (93%).

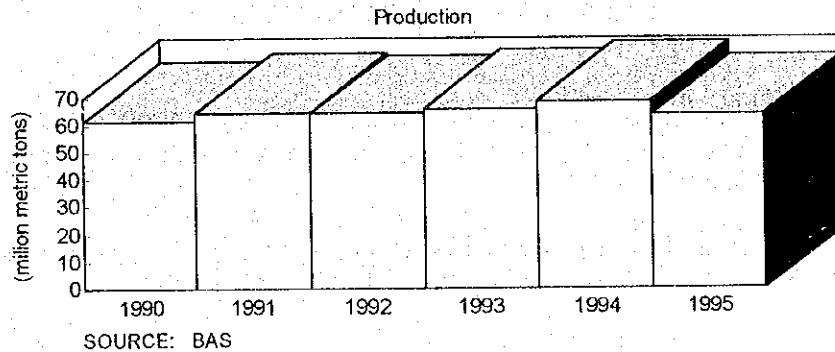


FIGURE 2.3-4 TOTAL CROP PRODUCTION QUANTITY

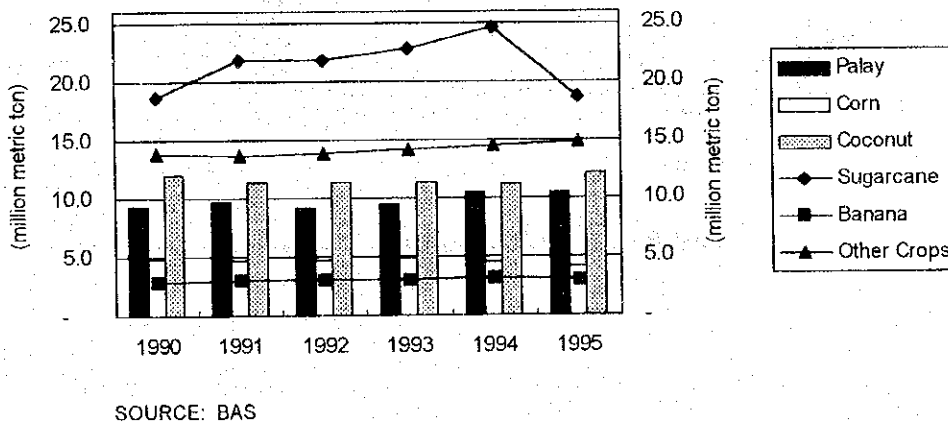


FIGURE 2.3-5 CROP PRODUCTION QUANTITY

In terms of production value, palay or rice took the major share in the crop production both in Philippines and the Study Area. In Philippines, palay accounted for 28%, followed by sugarcane (13%), coconut (12%) and corn (10%) (Figure 2.3-6).

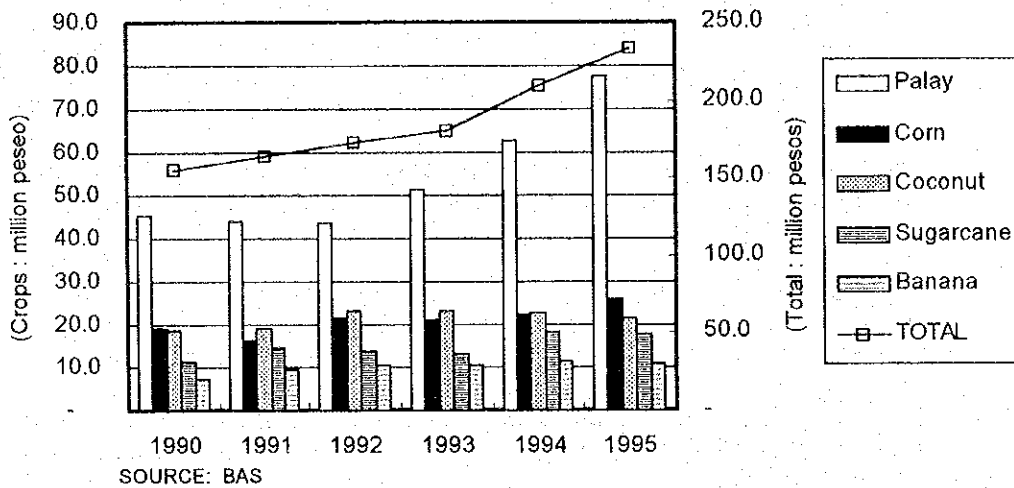


FIGURE 2.3-6 CROP PRODUCTION VALUE

In spite of increase of agricultural production during 1990 - 1993, the area harvested decreased slightly. In 1995, the area was 12.5 million ha which was same as 1992 (Figure 2.3-7).

The harvested area of palay increased during 1992 - 1995, while the area of corn constantly decreased during 1990 -1995. (Figure 2.3-8)

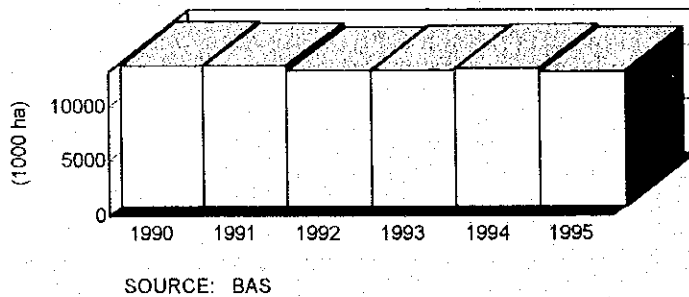
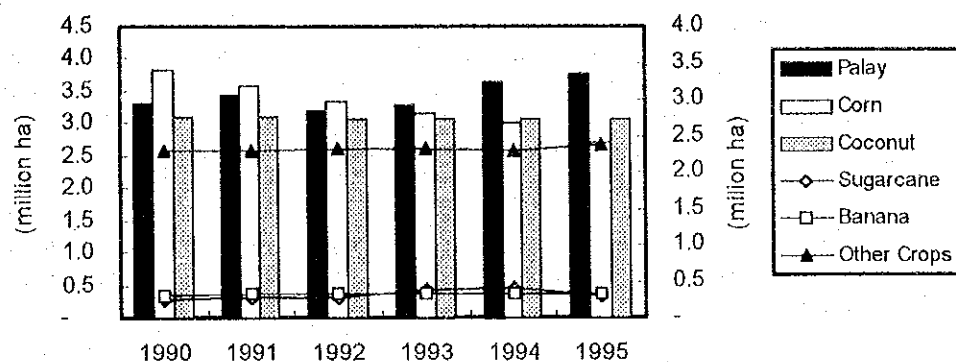


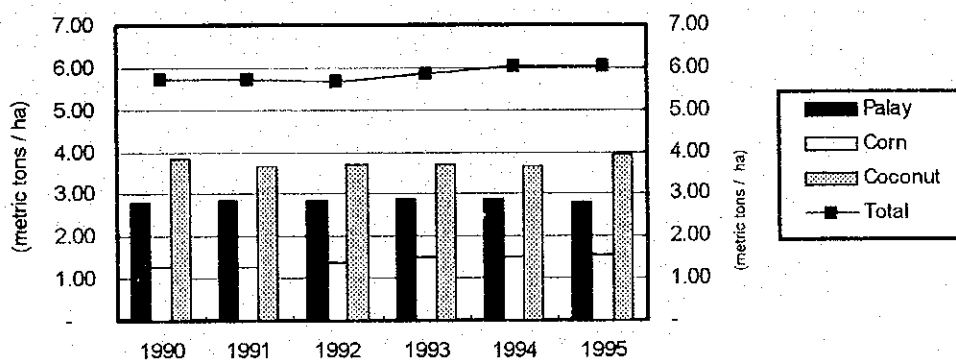
FIGURE 2.3-7 CROP AREA HARVESTED



SOURCE: BAS

FIGURE 2.3-8 CROP HARVESTED AREA

The yield of all crops kept the level of 6 ton per ha and slightly increased up to 1994. The yield of palay has kept the level of 2.8 ton/ha during 1990 to 1995. The yield of corn made progress from 1.27 ton/ha in 1990 to 1.53 ton/ha in 1995. (Figure 2.3-9)



SOURCE: BAS

FIGURE 2.3-9 AVERAGE YIELD OF CROPS

The average farmgate price of palay in 1995 was 7.37 pesos/kg which rose 50% in 5 years from 1990. The average farmgate price of all crops has increased 46% from 1990, which has not yet reached the level of the steep growth of consumer price index. (Table 2.3-4)

TABLE 2.3-4 AVERAGE FARMGATE PRICE

(unit : pesos / kg)

Item	1990	1991	1992	1993	1994	1995
Palay	4.90	4.54	4.80	5.46	5.93	7.37
Corn	3.92	3.51	4.60	4.34	4.93	6.28
Coconut	1.57	1.68	2.02	2.04	2.04	1.75
Sugarcane	0.61	0.67	0.62	0.58	0.74	0.95
Banana	2.49	3.30	3.44	3.36	3.68	3.51
Cassava	1.87	2.16	1.79	2.03	2.05	2.60
Other Crops	4.12	4.71	4.79	4.68	5.39	5.81
TOTAL	2.52	2.55	2.71	2.75	3.05	3.68

Source : Bureau of Agricultural Statistics, National Statistical Coordination Board

(2) Livestock and Poultry

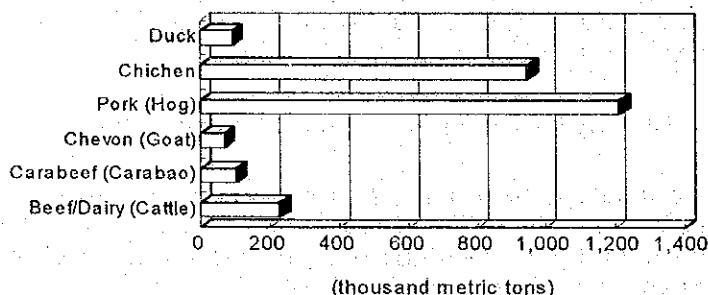
The production of livestock/poultry increased 5% during 1994 - 95, however the share of GVA reduced a little to 19% and the GVA was 76,606 million pesos. The total production of livestock was 1.6 m.m.t, and that of poultry was 1.0 m.m.t. Livestock mainly consisted of cattle (beef and dairy), carabao (carabeef), goat (chevon), hog (pork). Poultry was composed of chicken and duck. Major production was hog (46%) and chicken (36%). (Table 2.3-5, Figure 2.3-10).

The number of heads of livestock/poultry was dispersed to the provinces. Comparatively large portion was cattle in Cebu (5.3%), chicken in Cebu (4.6%) and chicken in Iloilo (4.9%).

TABLE 2.3-5 LIVESTOCK / POULTRY PRODUCTION IN 1995

	Production (metric ton)	(%)	Average Farmgate Price (peso/kg)	Value (1000peso)	(%)
Beef	213,080	8.0%	39.55	8,427,310	7.3%
Dairy	13,910	0.5%	7.99	111,140	0.1%
Cattle total	226,990	8.5%		8,538,450	7.4%
Carabeef (Carabao)	103,960	3.9%	30.74	3,195,730	2.8%
Chevon (Goat)	70,710	2.7%	35.29	2,495,360	2.2%
Pork (Hog)	1,213,100	45.6%	43.66	52,963,950	45.9%
Livestock Total	1,614,760	60.8%		67,193,490	58.2%
Chichen	747,850	28.1%	47.93	35,844,450	31.0%
Chichen-Egg	199,910	7.5%	40.99	8,194,310	7.1%
Chichen Sub-Total	947,760	35.7%		44,038,760	38.1%
Duck	47,370	1.8%	50.69	2,401,190	2.1%
Duck-Egg	47,690	1.8%	38.24	1,823,670	1.6%
Duck Sub-Total	95,060	3.6%		4,224,860	3.7%
Poultry Total	1,042,820	39.2%		48,263,620	41.8%
Total	2,657,580	100.0%		115,457,110	100.0%

(Source : Bureau of Agricultural Statistics)



Source: BAS

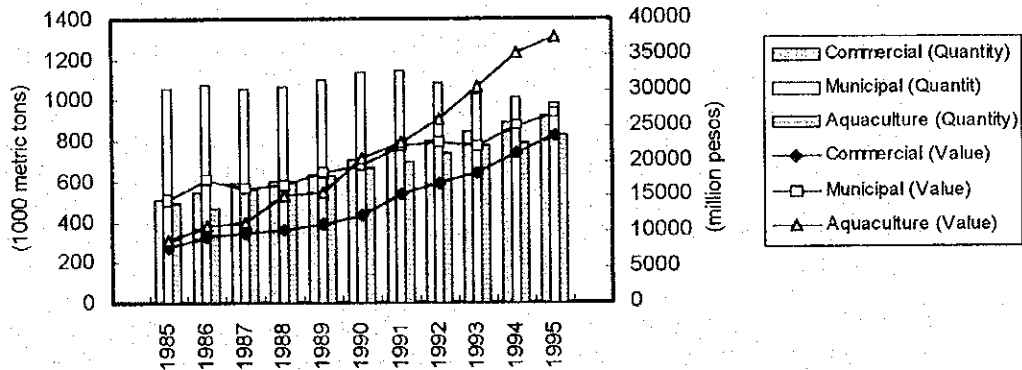
FIGURE 2.3-10 LIVESTOCK/POULTRY PRODUCTION QUANTITY 1995

(3) Fishery

There are three classifications in fishery; commercial fishery, municipal fishery and aquaculture. Commercial fishery is defined as production operations offshore (beyond 7 km) or in ocean with vessels of over 3 gross tons. Municipal fishery is production utilizing vessels of 3 gross tons or less, or without boat. Aquaculture refers to controlled rearing of fish, shell, shrimps etc. in pond or cages.

The municipal fishery had a major share in production quantity, although it had decreased. The commercial fishery and aquaculture was continuously growing, and the increase of production value of the aquaculture was outstanding. Considering limited marine resources, the development of aquaculture is expected for the growth of fishery. (Figure 2.3-11).

In the Study Area, Negros Oriental ranked first producing 164 thousand tons, followed by Iloilo (139 thousand tons). In terms of production value, the share of the Study Area to the Philippines was 36%.



Source: BAS

FIGURE 2.3-11. FISHERY PRODUCTION QUANTITY AND VALUE

(4) Forestry

With depletion of forest resources, the production and GVA of forestry has dropped remarkably.

The production of roundwood decreased 14% annually during 1985 to 1995, and it was 868 thousand cubic meter. The share of GVA in the agricultural sector was 0.7% in 1995. (Figure 2.3-12)

The timber resource in commercial forests was still 426,326 thousand cubic meter. The existing timber licenses accounted for 1,600 thousand ha. The Industrial Forest Plantation Management Agreement, Industrial Tree Plantation Lease Agreement, Tree Farm Lease and Agroforestry Farm Lease encompassed 653 thousand ha in 1995.

The reforestation was only 65 thousand ha in 1995 but it accounted for 191 thousand ha in 1990. As the production forest has not been delineated, forestry development will require prudent consideration so as not to harm sustainability and environment, as well as careful logging practice.

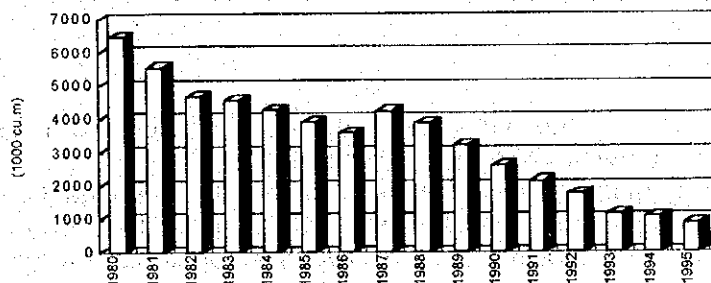


FIGURE 2.3-12 ROUNDWOOD PRODUCTION (FOREST MANAGEMENT BUREAU, DENR)

2.3.2 Industries

(1) Mining

The Philippines have rich and extensive mineral resources. It ranked ninth production of both gold and chromite in the world in 1990. The major metallic reserves in quantity are copper (5,017 million metric tons) and nickel (1,080 million metric tons). The proclaimed mineral reservations in the Study Area include Samar Bauxite Mineral Reservation Area (230,792 ha) and Surigao Mineral Reservation Area (nickel-iron, chromite) (201,487 ha). [Zamboanga Mineral Reservation Area (coal) (1,017ha)]

Actually the GVA of the mining sub-sector is smallest in the industries sector. It was 18 billion pesos in 1995. The share has been decreasing.

In the Study Area, the major production is copper in Marinduque (1,326 million pesos in 1993; and so forth), nickel in Palawan (248 m.p.), gold in Masbate (580 m.p.), coal in Antique (789 m.p.), copper in Negros Occidental (1,011 m.p.), copper in Cebu (1,602 m.p.) and gold in Surigao del Norte 721 m.p.). (Figure 2.3-13)

In terms of production quantity, non-metallic such as sand, gravel and limestone etc. forms the main part. Although the quantity of cement was large, the GVA was included in the manufacturing sector. The major production included sand and gravel in Capiz (2,491 thousand metric tons in 1995; and so forth), that in Cebu (5,876 t.m.t.), that in Leyte (1,381 t.m.t.), cement and limestone in Davao del Sur (1,710 t.m.t) and that in Misamis Oriental (1,006 t.m.t.).

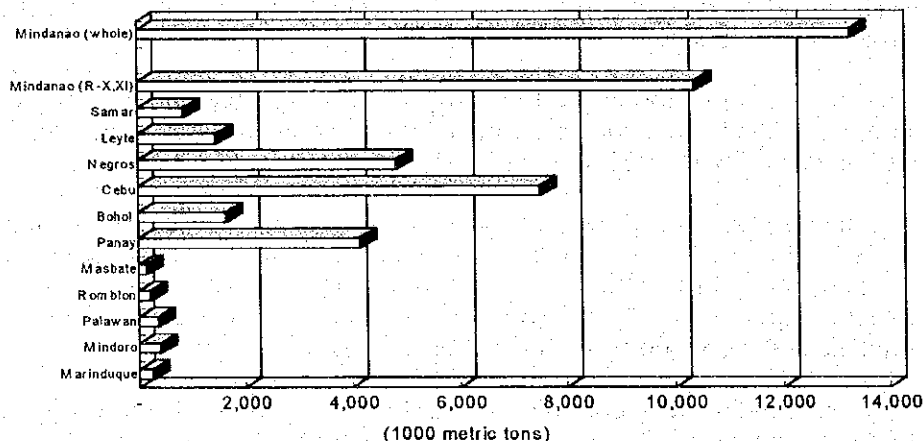


FIGURE 2.3-13 MINERAL PRODUCTION QUANTITY 1993 (DENR)

(2) Manufacturing

The manufacturing sub-sector forms the main part on the industries sector (72%). The GVA was 438 million pesos in 1995.

In order to promote the industrial development, the Regional Growth Centers (RGC) were approved by the Cabinet in 1989. In MTPDP they are called as the Regional Agri-Industrial Centers (RAIC) emphasizing on the linkage and utilization of rural resources. The RGCs being implemented by the Department

of Trade and Industries almost coincide to the RAICs, as shown in Table 2.3-8 and Figure 2.3-19. In the Study Area the largest is Mactan Export Processing Zone (EPZ) in Cebu with the total area of 6,422 ha and 98 firms have actually operated. There are 23 firms operating respectively in PHIVIDEC Industrial Estate of Tagoloan and Villanueva near Cagayan de Ore City (Region-X) with a total area of 3,000 ha. (Table 2.3-6, Figure 2.3-14 & 15)

The growth rate during 1993 - 95 of the manufacturing sub-sector was 12% in Philippine and that in the Study Area was almost the same level as the country. The share of manufacturing in Visayas and Mindanao to Philippine was below 20%. The food industry of the area is only developed as the level of the national average. The GVA per employed person might be biased due to location of huge chemical or petrochemical factories such as Region-VIII. (Table 2.3-7,8)

TABLE 2.3-6 REGIONAL AGRI-INDUSTRIAL CENTERS AND SEPZ IN THE STUDY AREA

Regional Agri-Industrial Centers and SEPZ	City	Region	Order in MTPDP	Total Area (ha)	Present Development Area (ha)	No. of Firms
Regional Agri-Industrial Growth Center						
Mactan EPZ	Cebu City	VII	1	6,422	504	98
PHIVIDEC Industrial Estate	Tagoloan, Villanueva	X	2	3,000	313	23
Espina Industrial Center	Gen.Santos City	XI	proposed	973	126	8
Pavia	Iloilo City	VI	8	1,109	170	
Davao	Davao City	XI	5	314	126	
New Kawayan	Tacloban City	VIII	11	265	40	
Ayala de Zamboanga	Zamboanga City	IX	9	50	50	
Ma. Cristina-Fuentes	Iligan City	XII	proposed	344	344	
Parang	Maguindanao	ARMM	13	40	40	
Cotabato	Cotabato City	XII	14	na	na	
SEPZ						
Accland	Cebu City	VII		na	na	1
First Oriental Business Industrial Park	Dabao City	XI		na	na	(1)

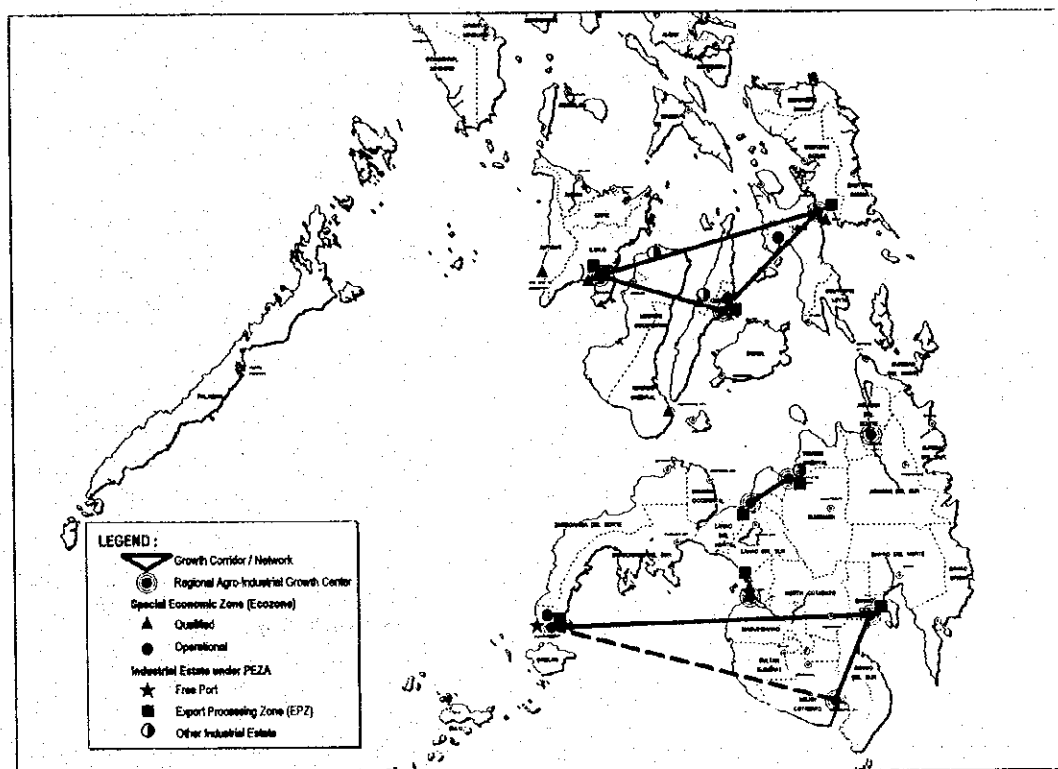


FIGURE 2.3-14 GROWTH NETWORK AND INDUSTRIAL ESTATES IN THE STUDY AREA

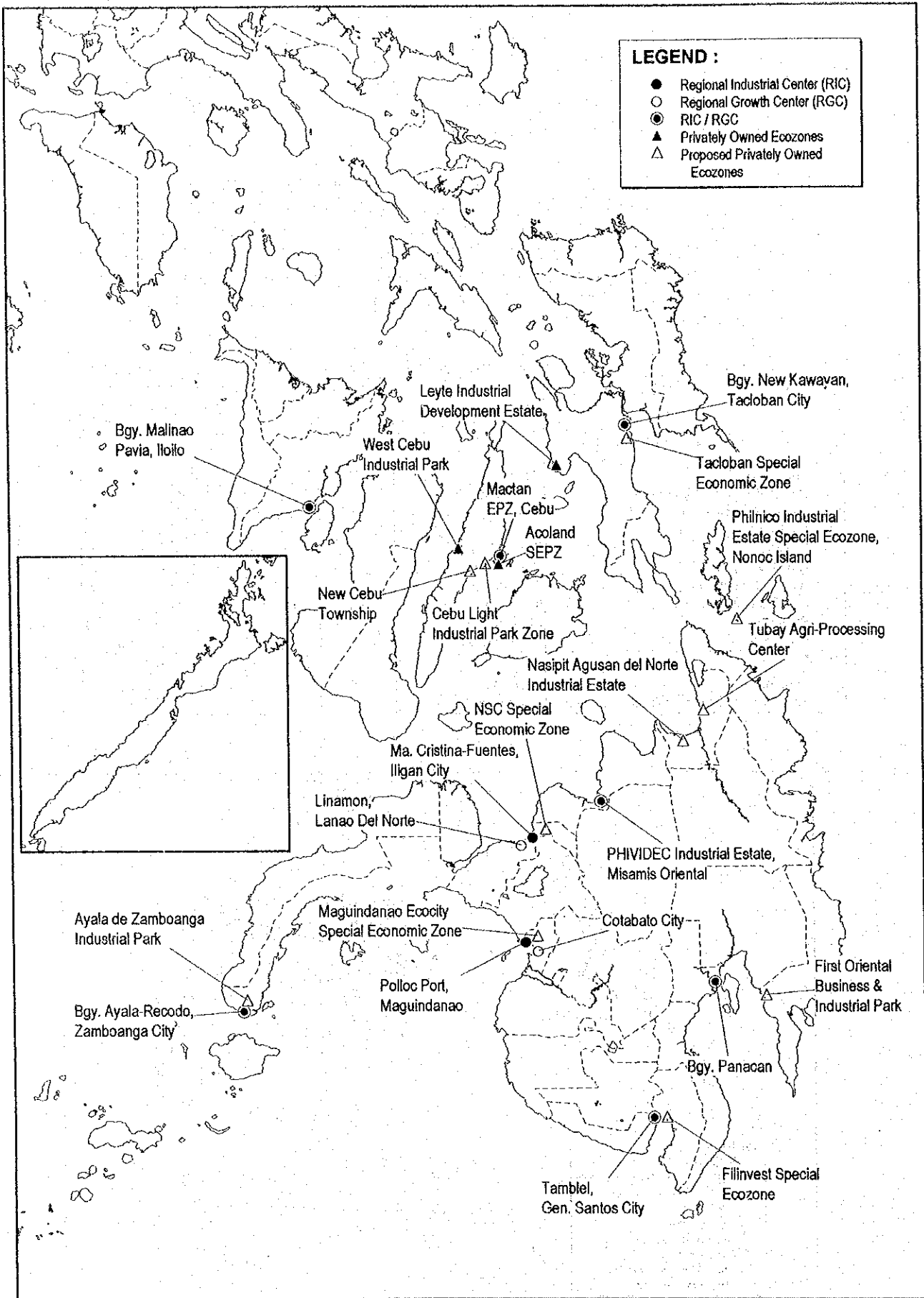


FIGURE 2.3-15 RIC, RGC AND PRIVATE ECOZONES

TABLE 2.3-7 NUMBER OF MANUFACTURING ESTABLISHMENT, EMPLOYMENT AND GVA (1993)

REGION	Number of Establishment	(% to Philippine)	Employment	(% to Philippine)	GVA 1993 (1000 peso)	(% to Philippine)	GVA per employment	GVA 1995 (1000 Peso)	Average Growth Rate 1993 - 95
NCR	5,500	50.0%	482,690	53.1%	147,230	42.1%	305	186,612	12.6%
CAR	52	0.5%	4,083	0.4%	6,813	1.9%	1,669	11,291	28.7%
Region I	168	1.5%	8,255	0.9%	2,737	0.8%	332	3,507	13.2%
Region II	144	1.3%	3,756	0.4%	1,867	0.5%	497	2,412	13.7%
Region III	902	8.2%	52,095	5.7%	32,944	9.4%	632	38,245	7.7%
Region IV	1,668	15.2%	169,018	18.6%	60,113	17.2%	356	72,656	9.9%
Region V	173	1.6%	6,032	0.7%	682	0.2%	113	864	12.5%
Region VI	435	4.0%	28,602	3.1%	18,036	5.2%	631	22,749	12.3%
Region VII	728	6.6%	68,960	7.6%	20,471	5.9%	297	26,668	14.1%
Region VIII	81	0.7%	4,792	0.5%	9,323	2.7%	1,946	12,474	15.7%
Region IX	172	1.6%	7,945	0.9%	4,028	1.2%	507	4,754	8.6%
Region X	301	2.7%	30,083	3.3%	15,085	4.3%	501	18,425	10.5%
Region XI	518	4.7%	30,054	3.3%	17,327	5.0%	577	21,555	11.5%
Region XII	139	1.3%	8,580	0.9%	12,276	3.5%	1,431	15,251	11.5%
ARMM	24	0.2%	3,741	0.4%	663	0.2%	177	784	8.7%
Total of R - VI, VII, VIII, IX, X, XI, XII, ARMM	2,398	21.8%	182,757	20.1%	97,209	27.8%	532	122,660	12.3%
Philippines	11,005	100.0%	908,686	100.0%	349,595	100.0%	385	438,247	12.0%

TABLE 2.3-8 NUMBER OF MANUFACTURING ESTABLISHMENT BY INDUSTRIAL GROUP (1993)

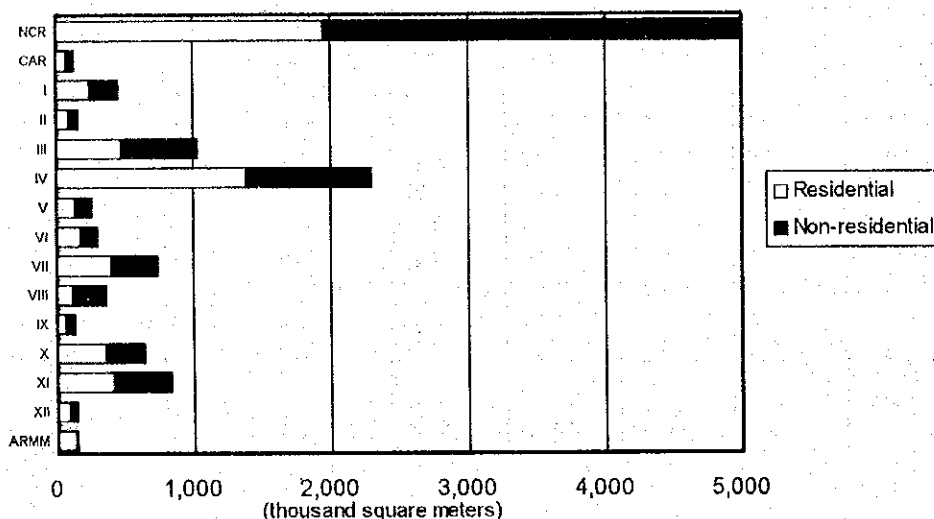
REGION	Food	Textile	Wood	Paper	Chemical	Non-metallic	Metallic	Machinery	Others	Total
NCR	692	1,575	323	590	746	155	137	1,106	176	5,500
CAR	19	10	4	5					14	52
Region I	97	18	10	8		16		11	8	168
Region II	62		50	7		3		8	14	144
Region III	280	303	88	30	44	79	6	53	19	902
Region IV	336	657	176	56	92	79	36	180	56	1,668
Region V	111	22	8	10		9		6	7	173
Region VI	270	33	22	27	8	18	3	43	11	435
Region VII	250	58	148	28	47	41	11	75	70	728
Region VIII	62	3	3	3	4				6	81
Region IX	103	3	16	8	12	6		12	12	172
Region X	154	16	32	15	15	7	3	25	34	301
Region XI	251	34	79	34	17	19	4	72	8	518
Region XII	89	8	8	6	11	3		8	6	139
ARMM	17		3						4	24
Total of R -VI, VII, VIII, IX, X, XI, XII, ARMM	1,196	155	311	121	114	94	21	235	151	2,398
	49.9%	6.5%	13.0%	5.0%	4.8%	3.9%	0.9%	10.0%	6.3%	100.0%
Philippines	2,793	2,740	970	827	996	435	200	1,599	445	11,005
	25.4%	24.9%	8.8%	7.5%	9.1%	4.0%	1.8%	14.5%	4.0%	100.0%

(3) Construction

The GVA of the construction sector has been slowly growing except in 1992. The share to the industries sector reduced in 1991 and has been recovering.

The GVA of the construction sector in Region VII and X was 6.7 and 6.2 billion pesos in 1995, respectively, which are major in the Study Area.

The total floor area of private building construction in 1995 in NCR was about 5,000 thousand m² or 40% to the national total. In the Study Area, those in Region 7, 10 and 11 were 640 – 830 thousand m², those in Region 6 and 8 were 300 – 350 m² and those in Regions 9, 12 and ARMM were lowest level of 120 – 150 m² with low construction activities. (Figure 2.3-16)



SOURCE: NSO, NSCB

FIGURE 2.3-16 TOTAL FLOOR AREA OF PRIVATE BUILDING CONSTRUCTION IN 1995

(4) Electricity, Gas and Water

The GVA of electricity, gas and water in Region 6 and 8 was 3.8 and 3.4 billion pesos in 1995 respectively, while Region 10 accounted for 0.5 billion peso.

In Visayas, Mindanao and small islands, total of 2.631 megawatts capacity existed.

TABLE 2.3-9 ELECTRICITY SYSTEM CAPACITY
(unit: Megawatts)

Grid	NPC	Non-NPC	Total
Luzon	5,534.8	1,397.3	6,932.1
Visayas	866.1	61.0	927.1
Cebu	353.7	56.0	409.7
Negros	196.3	0.0	196.3
Panay	109.5	0.0	109.5
Leyte	174.5	0.0	174.5
Bohol	32.1	5.0	37.1
Mindanao	1,449.2	106.0	1,555.2
Small Island	149.4	0.0	149.4

NPC : National Power Corporation

There are 7 major power generation projects under BOT in Visayas and 10 projects in Mindanao in addition to the small hydro programs.

2.3.3 Services and Tourism

(1) Services

The sector of services gave the largest contribution to the national economy as well as to the most of the regions. The growth rate of the services sector exceeded the agricultural sector. The share of the services sector has increased little by little and became 46% in 1995.

In the regions of Mindanao, the agricultural sector exceeds the services sector.

The GVA of the services sector in Region VII was 66 billion pesos and formed 53% to the region in 1995. On the other hand, that of Region 8 was 17 billion pesos which was slightly more than the agricultural sector.

(2) Tourism

Tourism is a part of the services sector and shall be promoted and developed in accordance the national policy because tourism is expected to be a leading earner of foreign currency and to encourage the development of the national economy.

The number of visitors to the Philippines was decreased in 1991 but it has grown to 1.76 million in 1995. The number of travelers in 1996 by region is shown in Figure 2.3-17. Region VII in which Cebu is located attracted travelers as much as 583 thousand, especially foreign travelers. Most of the domestic travelers concentrated to Region X and the number was 523 thousand.

The Study Area has rich tourism resources in particular marine and natural ones. Major tourism resources are shown in Table 2.3-10 and Figure 2.3-18.

Major hotels and tourism facilities are concentrated in Cebu. The small resorts are scattered in Palawan, West and Central Visayas, and Mindanao.

The Medium-Term Philippine Development Plan (1993-98) designates 6 areas as tourism development, among which Panglao Island (Bohol), Boracay Island (Panay) and Northern Palawan are attached to the Study Area and Samal Island is located near Davao City. (Figure 2.3-18)

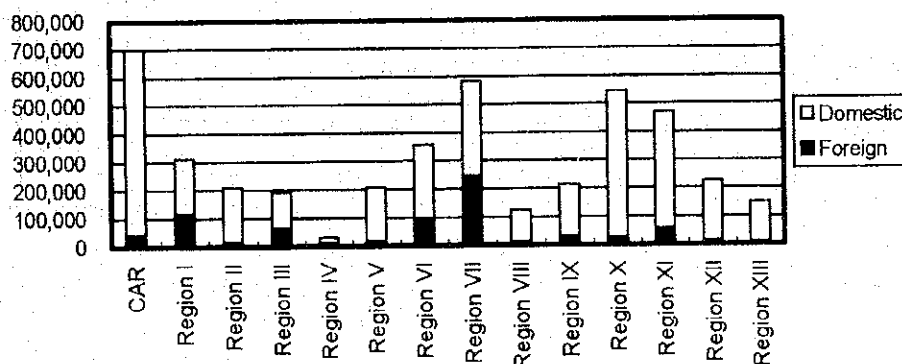


FIGURE 2.3-17 DISTRIBUTION OF REGIONAL TRAVELER (1996)
(DEPARTMENT OF TOURISM REGIONAL OFFICES)

TABLE 2.3-10 MAJOR TOURISM RESOURCES IN THE STUDY AREA

Region	Province	Major Tourism Resources		Resort	Gateway	
		Natural	Cultural		Airport	Port
IV	Palawan	Puerto Princesa, Maquinit Hot Springs, St. Paul Subterranean National Park, Tabon Caves, Paly Island, Calauit Island, Malampaya Sound, El Nido, Barabac Island, Tubbataha Reefs, Honda Bay Islands, Club Paradise, Calanian Island Group	Irawan Crocodile Farming Institute, Palawan State College Museum	El Nido, Calamian, Port Barton,	Puerto Princesa (El Nido) (Busanga)	Puerto Princesa
VI	Iloilo		Museo Iloilo, Molo Church, Jaro Church, Arelalo District, Pavia Church, Dinagyang Festival	-	Iloilo	Iloilo
	Aklan	Baracay Island	Ati-Atihan Festival	Boracay	Caticlan, Kalibo	Kalibo
	Negros Occidental	Negros Occidental Provincial Capitol Park, Kanlaon Volcan National Park	Bacolod City Plaza, Sugarcane Plantation - Steam Locomotive - Victorias Mill, Ossorio Chapel	-	Bacolod	Bacolod
VII	Cebu	Moalboal, Liloan	Magellan's Cross, Fort San Pedro, Lapulapu Monument, Colon Street, Casa Gorordo Museum, University of San Carlos, Basilica Minore Del Sto. Niño, Taoist Temple, Jumalon's Lepido-Mosaic Art Collection, Carbon Market, Carcar, Naga Church, Argao, Danao City	Mactan, Moalboal, Badian, Liloan, Argao, Aregre,	Maclan (Cebu)	Cebu
	Negros Oriental		Bell Tower (Dumaguette), Silliman University	-	Dumaguette	Dumaguette
	Bohol	Bilar Forest, Chocolate Hills, Panglao Island, Balicasag Island	Baclayon Church, Punta Cruz Watch Tower, Sandugo Festival	Panglao	Tagbilaran	Tagbilaran
VIII	Samar	Sohoton National Park, Catarman River Trip, Blanca Aurora Falls, West Coast	-	-	Catarman Tacloban	Allen
	Leyte	Lake Danao, Mahagnao Volcano	MacArthur Landing Memorial Park, Madonna of Japan, Sto.Nino Shrine & Heritage Museum,	Tacloban	Tacloban	Tacloban
X	Misamis Oriental	Inatao Cave, Punta Diwata, Macahambus Cave, Underwater Gardens and Freshwater Springs, Sunken Pontoons, Underwater Hill, Salauan Point, Punta Goda and Agutayan Island, Del Monte Pineapple Plantation	Xavier University's Museo De Oro, Kayayhaan Festival	-	Cagayan de Oro	Cagayan de Oro
XI	Davao	Davao Museum, Nieva's Shellcraft, Greenhills Orchid Farm (Yuhico), Talomo, Talisay, Salakot and Guino-o Beaches, Samal Island, Mt. Apo, Agko Blue Lake, Marbel River, Lake Venado, Mt. Apo Crater	Shrine of the Holy Infant Jesus of Prague, Chinese Buddhist Temple, Etnika Dabaw, Araw-Ng-Dabaw Festival, Davao Orchids and Fruits Festival	Samal Island	Davao	Davao
	Zamboanga	Pasonanca Park,	Fort Del Pilar, Salakot House, Taluksangay Village		Zamboanga	Zamboanga
	Camiguin	Mt. Hibok-Hibok, Katibawasan Falls, White Island, Santo Niño Cold Spring, Esperanza Ardent Spring	Guib Church Ruins			Mambajao

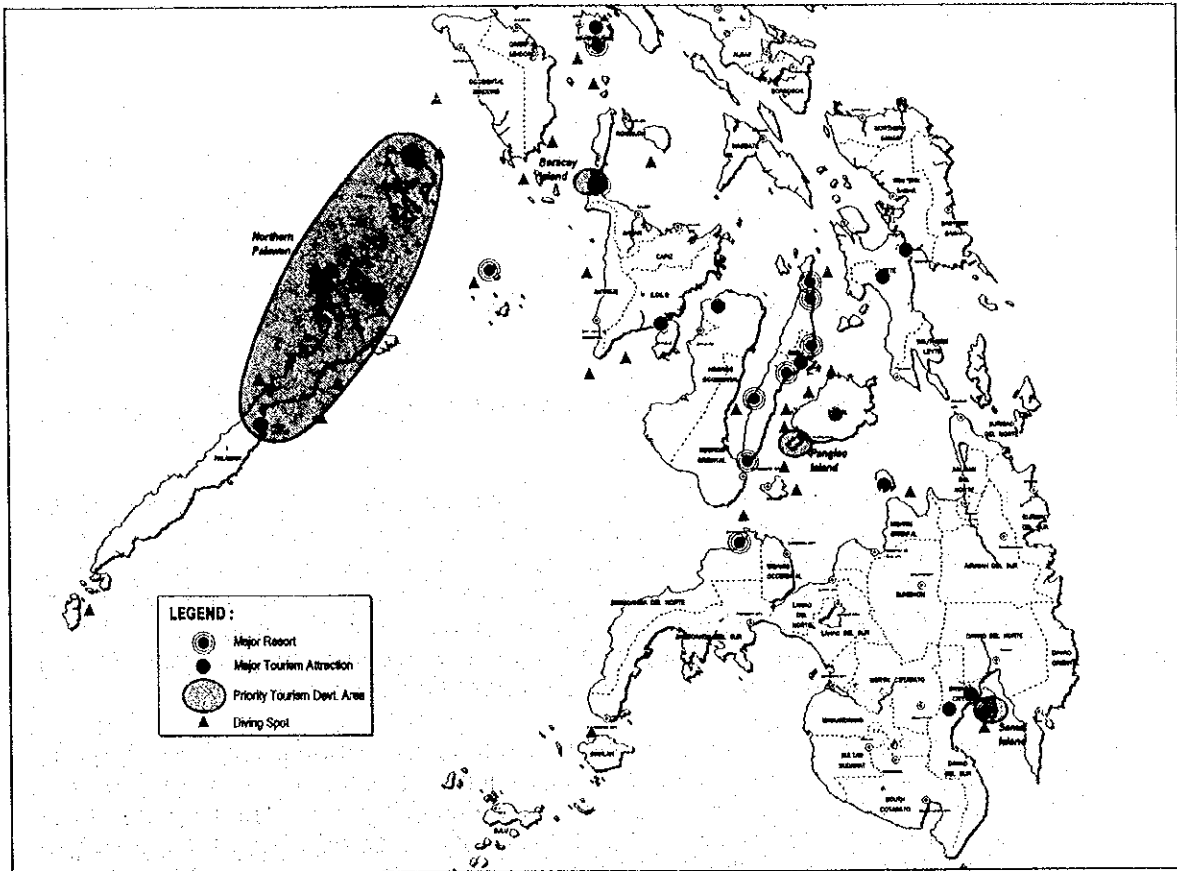


FIGURE 2.3-18 LOCATION OF MAJOR TOURISM RESOURCES AND PRIORITY AREAS

2.4 PRESENT LAND USE

2.4.1 Legislation and Policy

The chronic problems of land use which become obvious in 1980's are the decrease of forests and the expansion of agricultural and urban area it causes the environmental destruction, such as soil erosion and land degradation.

GO set laws and regulations to control the national land use, however the enforcement of legislation is required and strengthened by updated comprehensive land use studies.

The Presidential Decree 705 "Forestry Code" regulates the land use in forest. It describes as follows:

The areas declared as belonging to the National Integrated Protection Areas System (NIPAS) per Republic Act 7586 shall be protected properly, which include National Parks, Game Refuge & Bird Sanctuaries & Wild Life Area, Watershed Forest Reserves and Forest Parks. There are also Military & Naval Reservation and Civil Reserves. (The distribution is referred in the section of Woodland (forest) Land Use) In addition, the relevant areas outside NIPAS and the areas prone to natural hazards should be conserved.

Letter of Instruction 713 prohibits the construction for non-agricultural purpose without proper clearance. The official approval shall be required for the conversion of agricultural lands into non-agricultural uses. The Department of the Agriculture has identified the Network of Protected Areas for Agriculture for protection of agricultural land which accounted for 13.4 million ha. in 1990.

There are Letters of Instructions No. 1260, 1262, 1258 and Presidential Decrees No. 410, 2151, 2152, concerning stipulations and regulations of the use, evaluation and ownership of forest land, reservations and mangroves etc.

2.4.2 Present Land Use

"Crop Development and Soil Conservation Framework (CDSCF) (1990), Agricultural Land Management and Evaluation Division (ALMED), BSWM" is the comprehensive land use framework, composed with three volumes; "Luzon Islands", "Visayas Islands" and "Mindanao Island". This framework was referred for the section of land use, since no complete land use study has been carried out recently.

According to the framework (CDSCF), the present land use is classified as follows:

TABLE 2.4-1 PRESENT LAND USE CLASSIFICATION

Land Use Classification	Description	%
Agricultural Land	Land for various agricultural activities with infrastructure of roads, irrigation etc. including pasture for livestock raising	34%
Grassland / Shrubland	Grasses, shrubs, bamboo, etc.	30%
Woodland	Forest Cover	30%
Wetland	Fresh and salt water land such as marsh, mangroves, swamps and ponds etc.	3%
Built-up Areas and Others	Urbanize settlement such as towns, villages, industrial sites plus mines etc.	3%

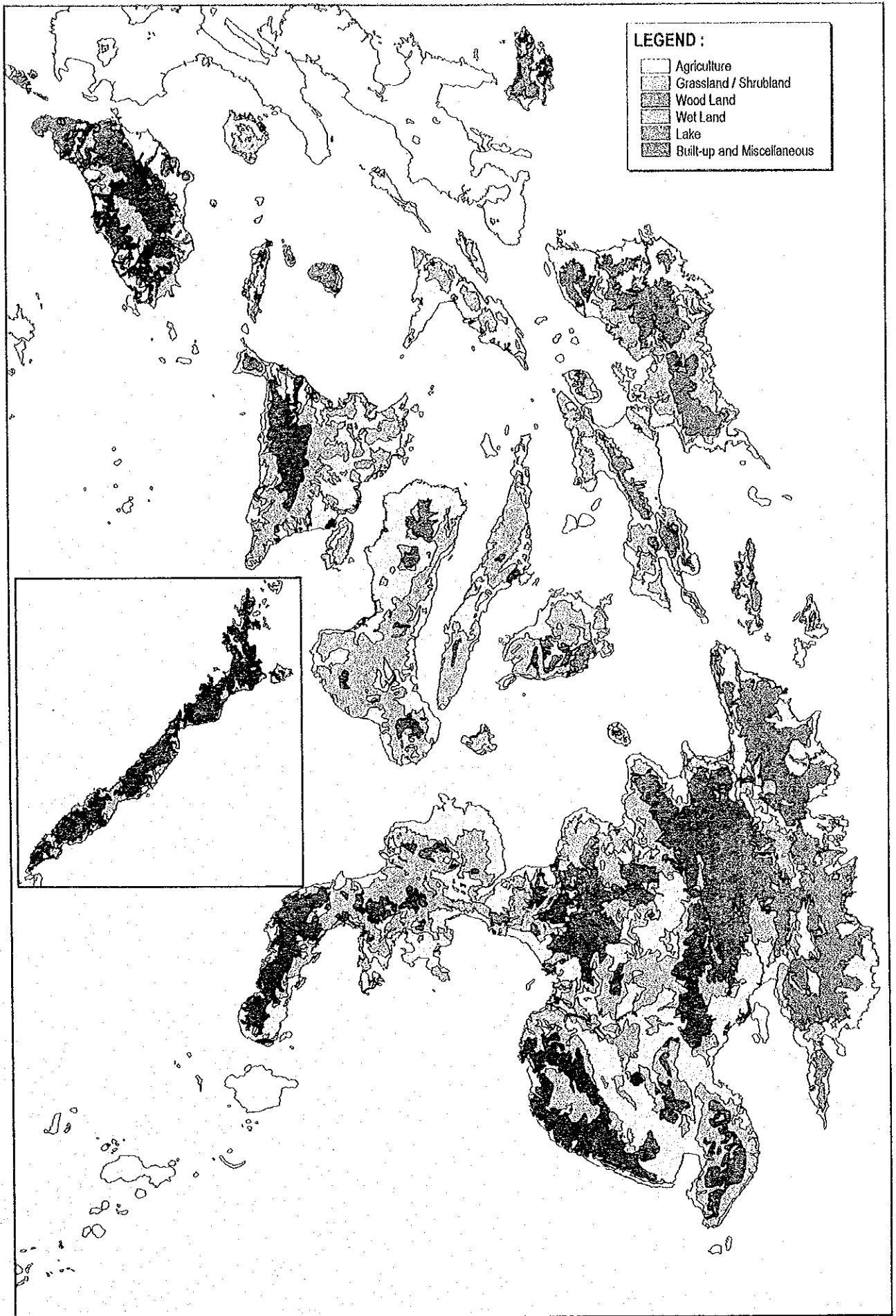


FIGURE 2.4 - 1 PRESENT LAND USE

The land use characteristics of the islands in the Study Area is as follows:

(a) Marinduque (area: 919 km² ; density: 218 persons / km²)

The central area is rolling hills to mountains and the plains are located in the west and the east. Forest area is left only in the central part and the southern end. Agricultural land and grass land are dominating. The productivity in the agricultural land is high.

(b) Mindoro (area: 9741 km² ; density: 94 persons / km²)

The island divided into two parts, west and east, by the mountains extending north to south. The woodland is as much as 37%. The agricultural land is 27% and the land productivity is low. The settlements has been developed along the east and west coast.

There two large national parks in the eastern area.

(c) Palawan (area: 11,942 km² ; density: 42 persons / km²)

The central area is mountainous and covered with forests. The woodland forms 53%. The agricultural land accounts for only 10% and also the land productivity is low. The natural resources in the northern Palawan is marvelous, which is designated as one of the priority tourism area. The provincial capital and the main gateway, Puerto Princesa, is located at the center of the east coast.

(d) Romblon

Province Romblon consists of three major islands;

Romblon (area: 72 km² ; density: 474 persons / km²)

Tablas (area: 627 km² ; density: 214 persons / km²)

Sibuyan (area: 516 km² ; density: 92 persons / km²)

Romblon has the provincial capital but is smallest. Romblon and Tablas are flat islands. There are forests in the central part of Sibuyan Island.

Romblon as a whole, has average distribution of the agricultural land, grassland and woodland.

(e) Masbate (area: 3,313 km² ; density: 154 persons / km²)

Most part is cultivated and no large woodland is left. The agricultural land accounts for as high as 67%.

(f) Panay (area: 11,538 km² ; density: 277 persons / km²)

The mountainous area covered with forests lies in the west. The eastern part is flat land with Panay river and Jaland river, where the cultivation and settlements has been developed. The agricultural land occupies 39% and the woodland is 14%. Boracay island, the priority tourism development area, is located just south of Panay island.

(g) Guimaras (area: 489 km² ; density: 259 persons / km²)

Guimaras is a small and flat island, located near Iloilo city. No wood land is left and the agricultural land accounts for 54%.

(h) Negros (area: 10,967 km² ; density: 315 persons / km²)

Although the configuration is rather rolling or mountainous, the woodland is left only 7%. There is Mt. Canlaon National Park. The plain is formed in the north-west area where sugarcane plantation is developed. A large-scale sugar mill is located in Victorias. The agricultural land occupies 52% and the grassland is 36%.

(i) Cebu (area: 4,566 km² ; density: 598 persons / km²)

Cebu island extends north to south with narrow east-west width. Cebu city is located at the center of the east coast. A bridge connects the main land with Mactan island where a large-scale industrial and tourism development are progressing and the international airport is located. Cebu, Mandaue and Lapu-Lapu cities form Cebu metropolitan area with population of 1 million, which is place as the commercial and industrial center of Visayas.

The woodland is left only 2% and the agricultural land occupies 44%. The land productivity is high.

(j) Bohol (area: 4,136 km² ; density: 236 persons / km²)

The agricultural land occupies 45%. The woodland is 9%.

Panglao island, the priority tourism development area, is located near the provincial capital, Tagbilaran. The tourism spot named Chocolate Hills are located at the central part.

(k) Leyte (area: 7,080 km² ; density: 254 persons / km²)

The mountainous area is the center extending north to south. The plains are in the north-west and the north-east. The agricultural area accounts for 56%. The land productivity has been decreasing. Leyte is connected with Samar island by the San Juanico bridge and the Japan-Philippine Friendship Road is running north to south. It is also linked with Surigao, Mindanao island by ferry services. There is Lake Danao National Park in the north-east.

(l) Biliran (area: 458 km² ; density: 272 persons / km²)

Biliran is a small island located to the north of Leyte island. The pattern of land use distribution is same as Bohol.

(m) Samar (area: 12,775 km² ; density: 101 persons / km²)

Samar island is linked with Luzon island by the ferry service between Allen and Matnog. The central area is hilly with elevation under 850 m. The woodland accounts for as much as 34% and the agricultural land is 39%.

(n) Siquijor (area: 340 km² ; density: 217 persons / km²)

The pattern of land use distribution is same as Biliran or Bohol. The agricultural land accounts for 50%.

(o) Mindanao (area: 93,730 km² ; density: 158 persons / km²)

Mindanao is the second largest island in the Philippines and has a complicated configuration.

There are distributed high mountains with latitude of more than 1500 - 2000 m. The plain is extended along Agusan river flowing from south to north in

Agusan, and Tagun river in Davao. The agricultural area accounts for 31% and the woodland is left 36% in Region -X and XI. Mt. Kitanglad (Bukidnon) and Mt. Apo (Davao del Sur) is designated as National Parks.

Davao city is placed as the center of Mindanao with population of 1 million, facing on Davao Gulf. There are the Regional Growth Centers; Cagayan de Oro city with neighboring industrial towns in the north and General Santos city in the south.

In the Study Area Misamis Occidental is separated from the main part by Zamboanga del Sur and Lanao del Norte. The central to western area of Misamis Occidental is mountainous, part of which is designated as a national Park, and the flat land extends along the coast, north-east-south.

