

CHAPTER 3

SOCIO ECONOMIC PROFILE OF THE STUDY AREA

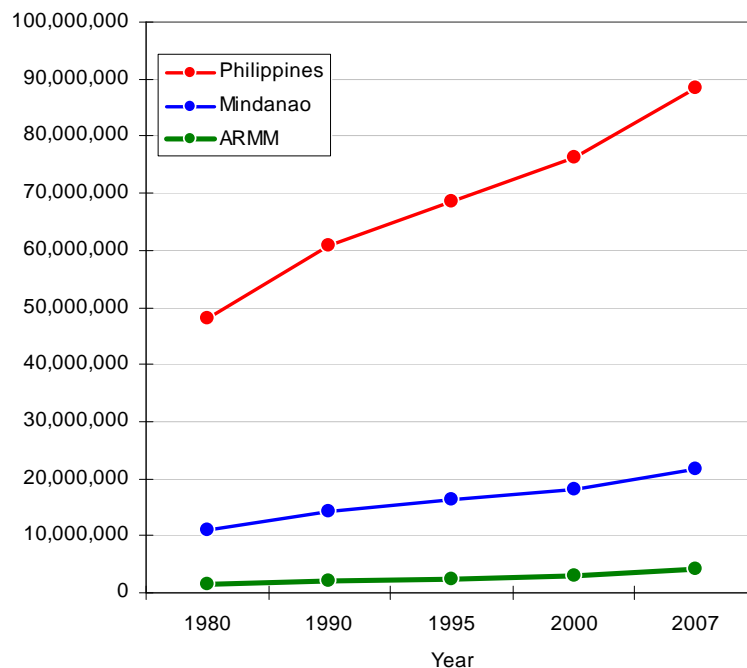
3.1 SOCIAL CONDITIONS

3.1.1 Demographic Trend

1) Population Trends by Region

Philippine population has been continuously increasing from 48.1million in 1980, 76.3 million in 2000 to 88.5million in 2007 with 2.15% of annual growth rate (2000-2007).

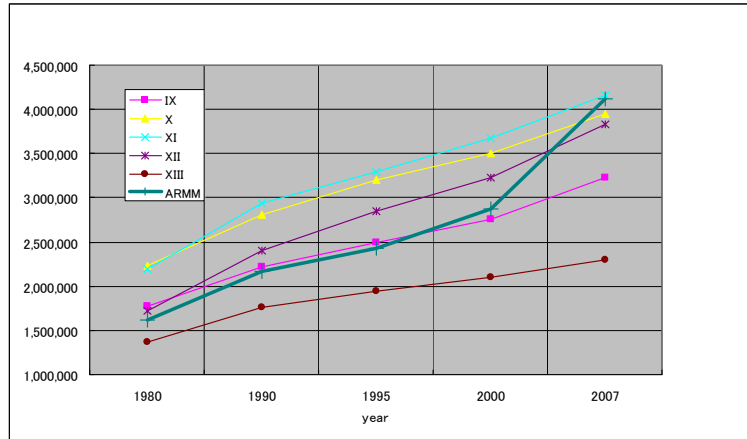
Population of both Mindanao and ARMM also showed higher increases than national trend since 2000, from 18.1 in 2000 to 21.6 million in 2007 (AAGR: 2.52%), and 2.9 in 2000 to 4.1million in 2007 (AAGR: 5.27%), respectively. Population share of Mindanao to Philippines and of ARMM to Mindanao significantly increased from 23.8% to 24.4% and 15.9% to 24.4%, respectively.



Source: NSO, 2008

FIGURE 3.1.1-1 POPULATION TRENDS OF PHILIPPINES, MINDANAO AND ARMM

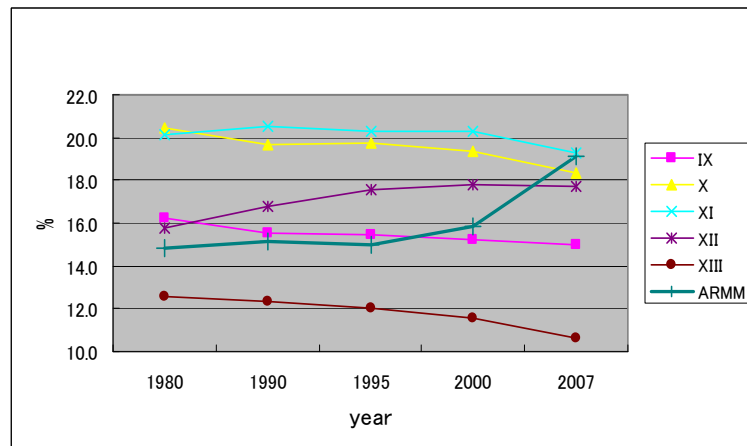
Population trends of Mindanao by region are illustrated in **Figure 3.1.1-2** and the growth in ARMM is significantly high in comparison with other regions since 1995, especially from 2000 to 2007.



Source NSO, 2008

FIGURE 3.1.1-2 POPULATION TRENDS BY REGION IN MINDANAO

As a result, the population composition within Mindanao indicates some different features from previous decade that ARMM occupies a certain amount of share (20%), almost same as Region XI in 2007.



Source NSO, 2008

FIGURE 3.1.1-3 POPULATION SHARES' TRENDS BY REGION IN MINDANAO

2) Population in the Study Area

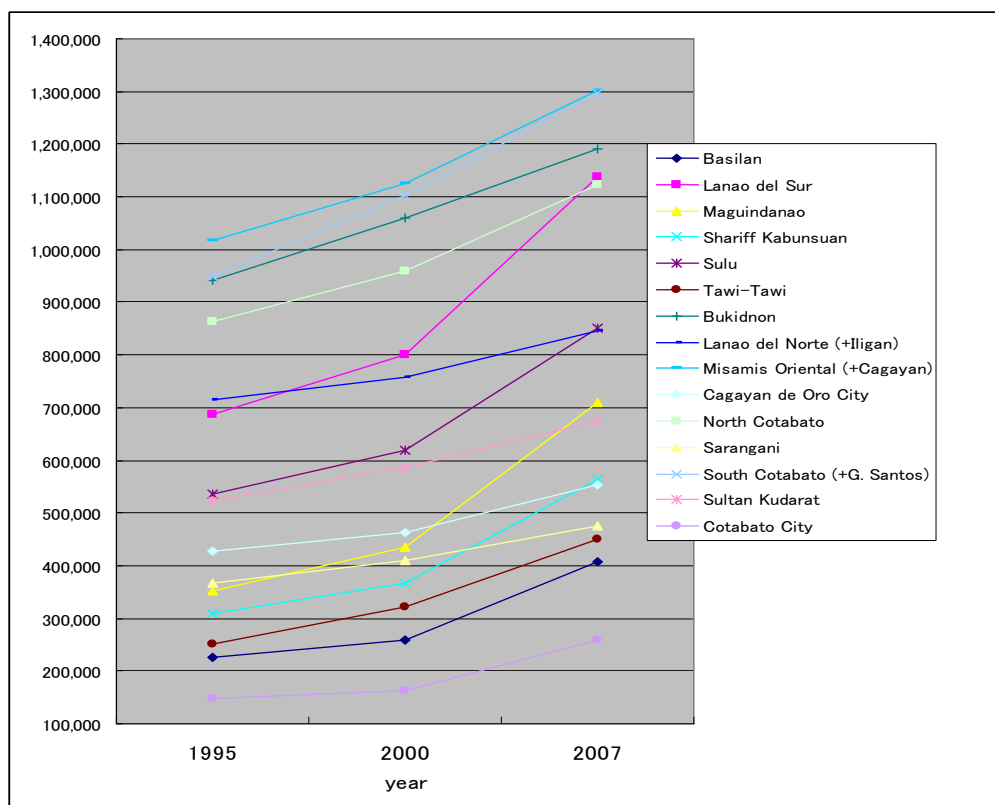
Recent population trends by province in the Study Area are tabulated in **Table 3.1.1-1**. The study are covers ARMM, Region XII and most part of Region X, and total population counts for 8.8 million, 10.1 million and 12.6 million in 1995, 2000 and 2007 respectively. Though total annual growth rate is approximately 3%, growth rate fluctuates widely by Province. Very high annual growth rates (exceeding 5%) are found in Basilan, Lanao del Sur, Maguindanao, Shariff Kabunsuan and Cotabato City from 2000 to 2007.

TABLE 3.1.1-1 STUDY AREA POPULATIONS BY PROVINCE

Region/Province	Census Population					Area sq. km	Population Density (person/sq. km)		
	1995	2000	2007	AAGR (%)			1995	2000	2007
	(Sep 1)	(May 1)	(Aug 1)	95-00	00-07				
ARMM	2,362,300	2,803,045	4,120,795	3.48	5.66	33,511.4	70.5	83.6	123.0
Basilan	227,008	259,796	408,520	2.73	6.68	3,224.5	70.4	80.6	126.7
Lanao del Sur	686,193	800,162	1,138,544	3.12	5.17	13,494.4	50.9	59.3	84.4
Maguindanao	352,751	435,254	710,829	4.29	7.26	5,125.0	68.8	84.9	138.7
Shariff Kabunsuan	309,429	365,848	562,886	3.41	6.35	4,604.1	67.2	79.5	122.3
Sulu	536,201	619,668	849,670	2.94	4.61	3,437.0	156.0	180.3	247.2
Tawi-Tawi	250,718	322,317	450,346	5.15	4.89	3,626.6	69.1	88.9	124.2
Region X (Study Area only)	2,670,055	2,944,603	3,339,464	1.98	1.81	36,556.2	73.0	80.6	91.4
Bukidnon	940,403	1,060,265	1,190,284	2.43	1.67	10,498.6	89.6	101.0	113.4
Lanao del Norte (+Iligan)	713,787	758,123	846,329	1.21	1.58	4,159.9	171.6	182.2	203.4
Misamis Oriental (+Cagayan)	1,015,865	1,126,215	1,302,851	2.08	2.10	3,544.3	286.6	317.8	367.6
Cagayan de Oro City	428,314	461,877	553,966	1.52	2.63	-	-	-	-
Region XII	3,795,294	4,324,719	5,125,877	2.65	2.46	22,513.3	168.6	192.1	227.7
North Cotabato	862,666	958,643	1,121,974	2.13	2.27	9,008.9	95.8	106.4	124.5
Sarangani	367,006	410,622	475,514	2.27	2.12	3,601.3	101.9	114.0	132.0
South Cotabato (+G. Santos)	948,328	1,102,550	1,296,796	3.06	2.35	4,428.8	214.1	249.0	292.8
Sultan Kudarat	522,187	586,505	675,644	2.35	2.04	5,298.3	98.6	110.7	127.5
Cotabato City	146,779	163,849	259,153	2.22	6.77	176.0	834.0	931.0	1,472.5
Study Area Total	8,827,649	10,072,367	12,586,136	2.67	3.23	92,580.9	95.4	108.8	135.9

Source: NSO, 2008

Each region occupies 20 to 32 thousand sq. km and the widest province in the study area is Lanao del Sur (14 thousand sq. km including Lanao Lake) in terms of area. The average population densities by province range from 100 to 300 persons per sq. km, and higher population densities are recognized only in city areas such as 1,473 persons per sq. km in Cotabato City, 1,342 in Cagayan de Oro and 1,074 in General Santos.

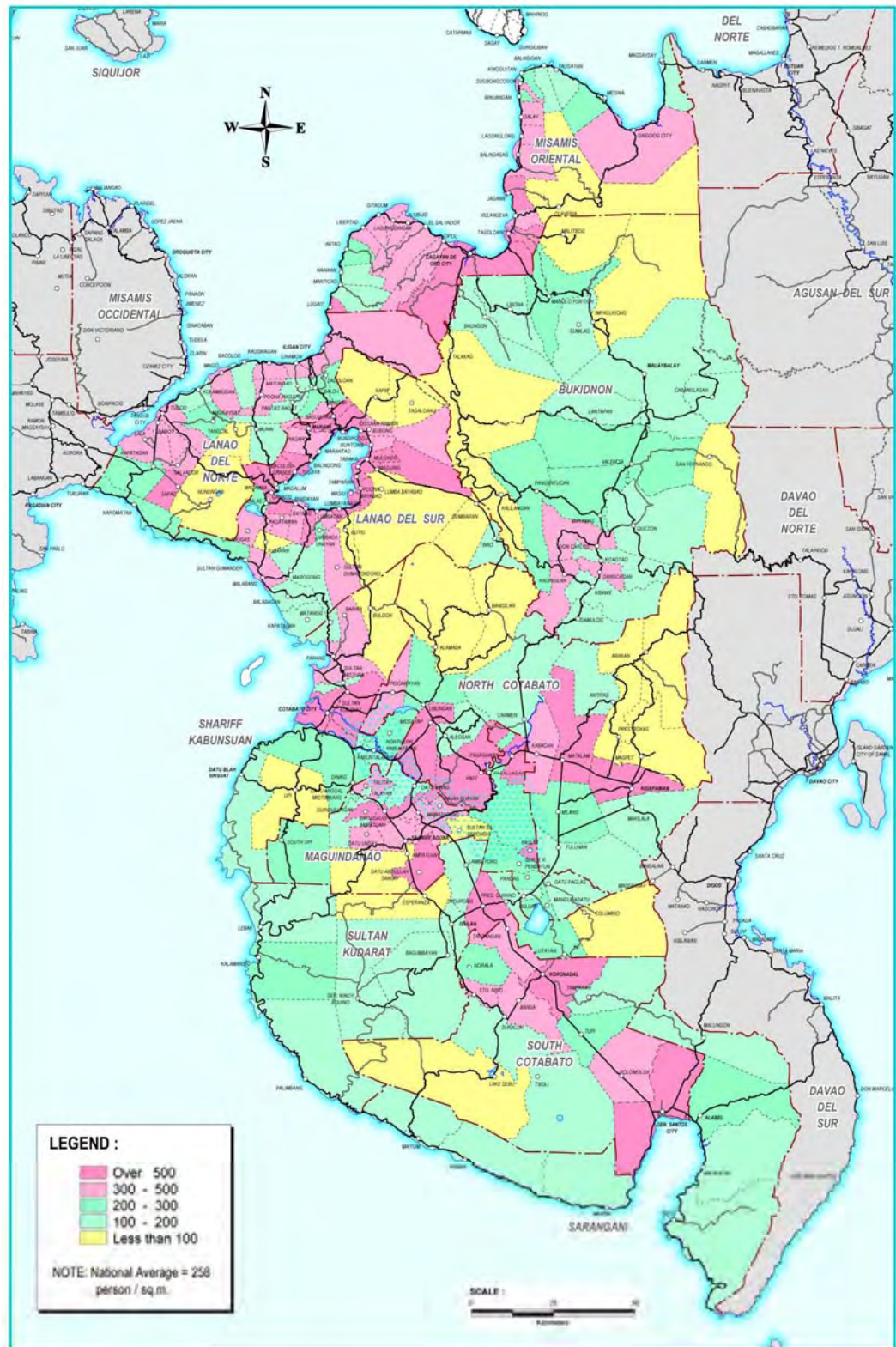


Source: NSO (2008)

FIGURE 3.1.1-4 POPULATION TRENDS BY PROVINCE IN STUDY AREA

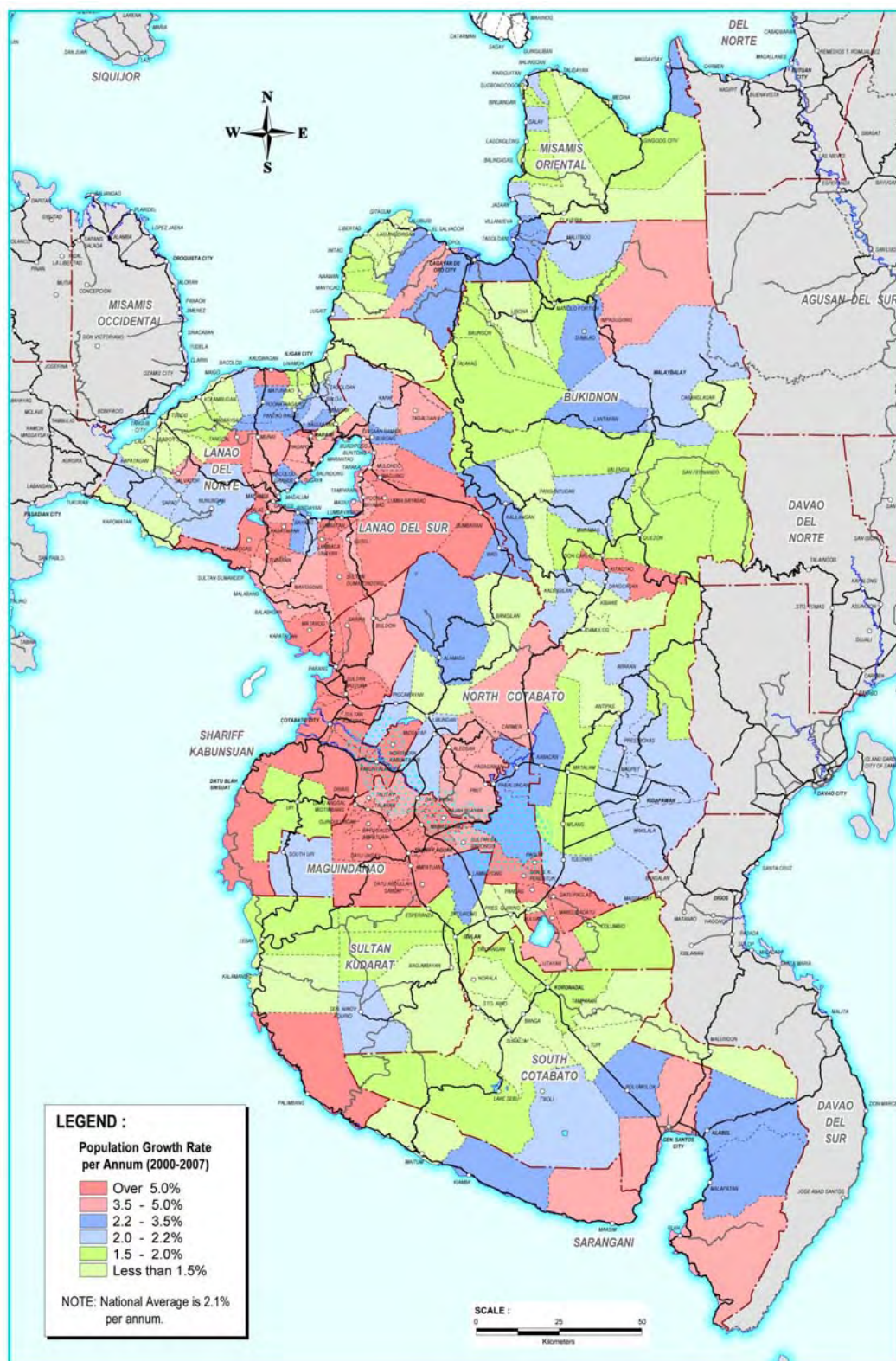
Population by Municipality in ARMM

Population density and population growth rate by City/Municipality is presented in **Figure 3.1.1-5** and Figure 3.1.1-6, respectively.



Source: Worked-out by the Study Team from NSO 2007 data

FIGURE 3.1.1-5 POPULATION DENSITY BY CITY/MUNICIPALITY

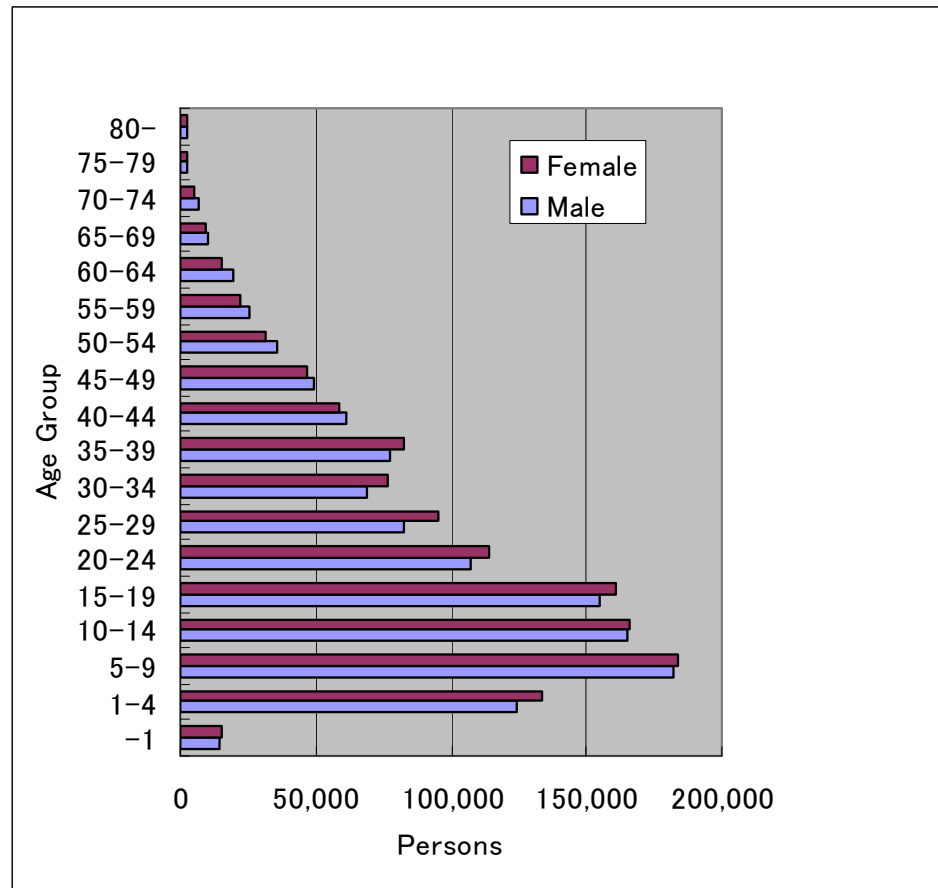


Source: Worked-out by the Study Team from NSO 2007 data

FIGURE 3.1.1-6 POPULATION GROWTH RATE BY CITY/MUNICIPALITY

3) Population by Age Group

Population distribution by age group of ARMM (2000) shows a typical pattern of rural areas as illustrated in **Figure 3.1.1-7**.



Source: NSO, 2001

FIGURE 3.1.1-7 POPULATION BY AGE GROUP, ARMM IN 2000

3.1.2 Poverty

One of the critical issues in the study area is 'Poverty' in comparison with other areas in the Philippines.

1) Family Income

The regional average annual family income in the study area ranges 78 to 114 thousand Pesos. ARMM recorded only 54% of the Philippine average.

Average family income by province shows wide range variation in the study area, 67 thousand Peso in Basilan to 140 thousand Peso in South Cotabato, and growths from 1997 indicates minus (decrease) in a few provinces in ARMM even though the Philippine total records 17% increase.

**TABLE 3.1.2-1 AVERAGE ANNUAL FAMILY
INCOME BY PROVINCE, 2000**

Region/Province	No. of Families	Average Family Income, 2000	Com. Index	Growth (%) from 1997	
Philippines Total	15,269,655	144,039	1.00	16.9	
Study Area			Rank		
X (only study area)		113,718		0.79	
Bukidnon	202,184	106,375	31	0.74	20.5
Lanao del Norte	152,758	101,981	35	0.71	9.3
Misamis Oriental	221,007	128,547	14	0.89	12.9
XII (excl. Cotabato City)	619,541	91,165		0.63	
North Cotabato	191,892	82,098	61	0.57	20.5
Sarangani	82,561	73,294	73	0.51	19.4
South Cotabato	226,657	140,100	13	0.97	38.7
Sultan Kudarat	118,431	75,756	71	0.53	-7.53
Cotabato City		-			
ARMM (incl. Islands)	454,837	77,979		0.54	
Basilan	60,582	67,497	75	0.47	-29.0
Lanao del Sur	100,072	83,413	60	0.58	19.2
Maguindanao	145,985	76,438	70	0.53	13.6
(Shariff Kabunsuan)	-	-		-	-
Sulu	99,416	77,598	67	0.54	13.6
Tawi-Tawi	48,782	85,240	58	0.59	-24.2

Source: NSO, 2001

2) Poverty Incidence

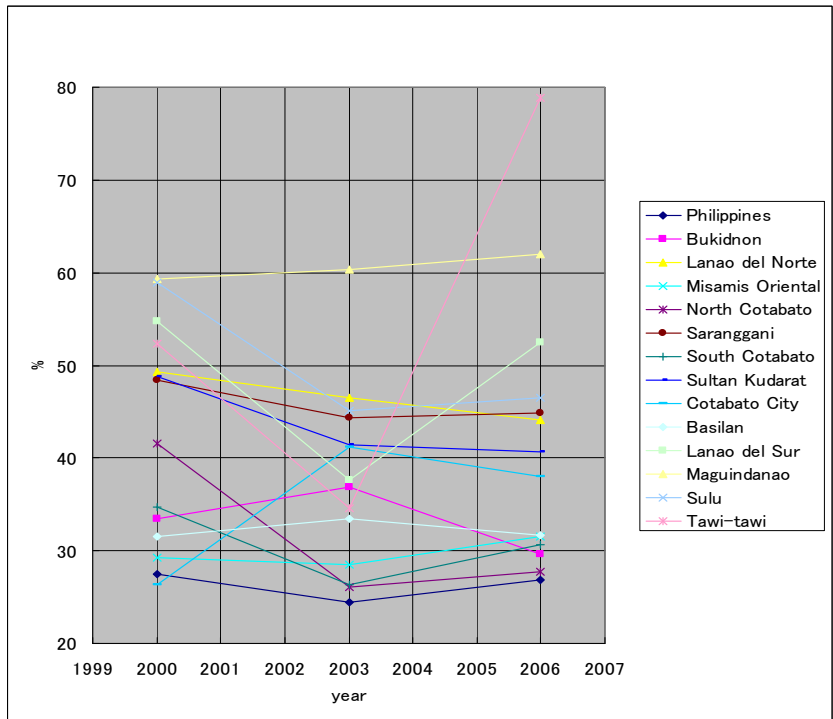
Although 'Poverty' is one of the significant subjects to be overcome through both national and regional development plan implementation, present situations in the study area are still problematic/deteriorating.

a) by Region

Poverty incidences in 2006 indicate 55.3% in ARMM in comparison with 26.9% of National average, 39.3% in Mindanao and 41.0% in study area, and the critical phenomena is 'getting worse in ARMM, from 44.0% in 1997 to 51.2% in 2000 and 55.3% in 2006.

b) by Province in the Study Area

Although there are some limitation in availability of trend data, all the provinces in the study area shows deteriorating trend in poverty incidence.

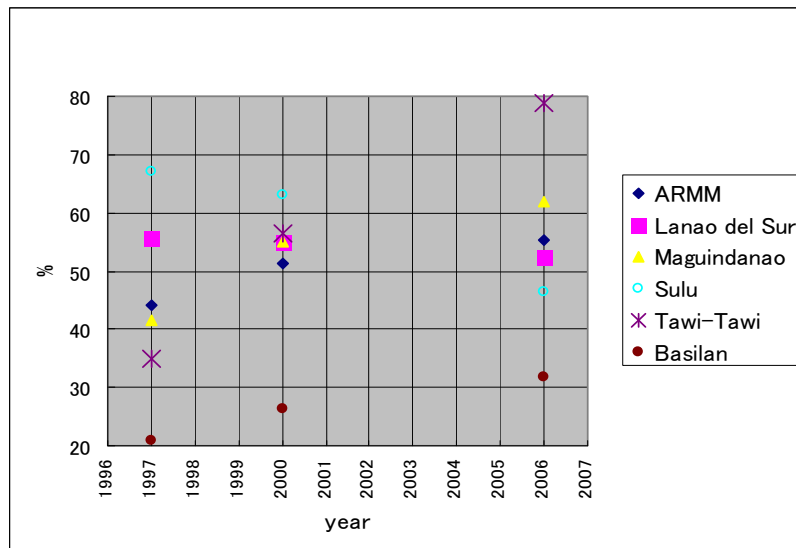


Source: NSO, 2008

FIGURE 3.1.2-2 POVERTY INCIDENCE TRENDS BY PROVINCE IN STUDY AREA

c) by Province in ARMM

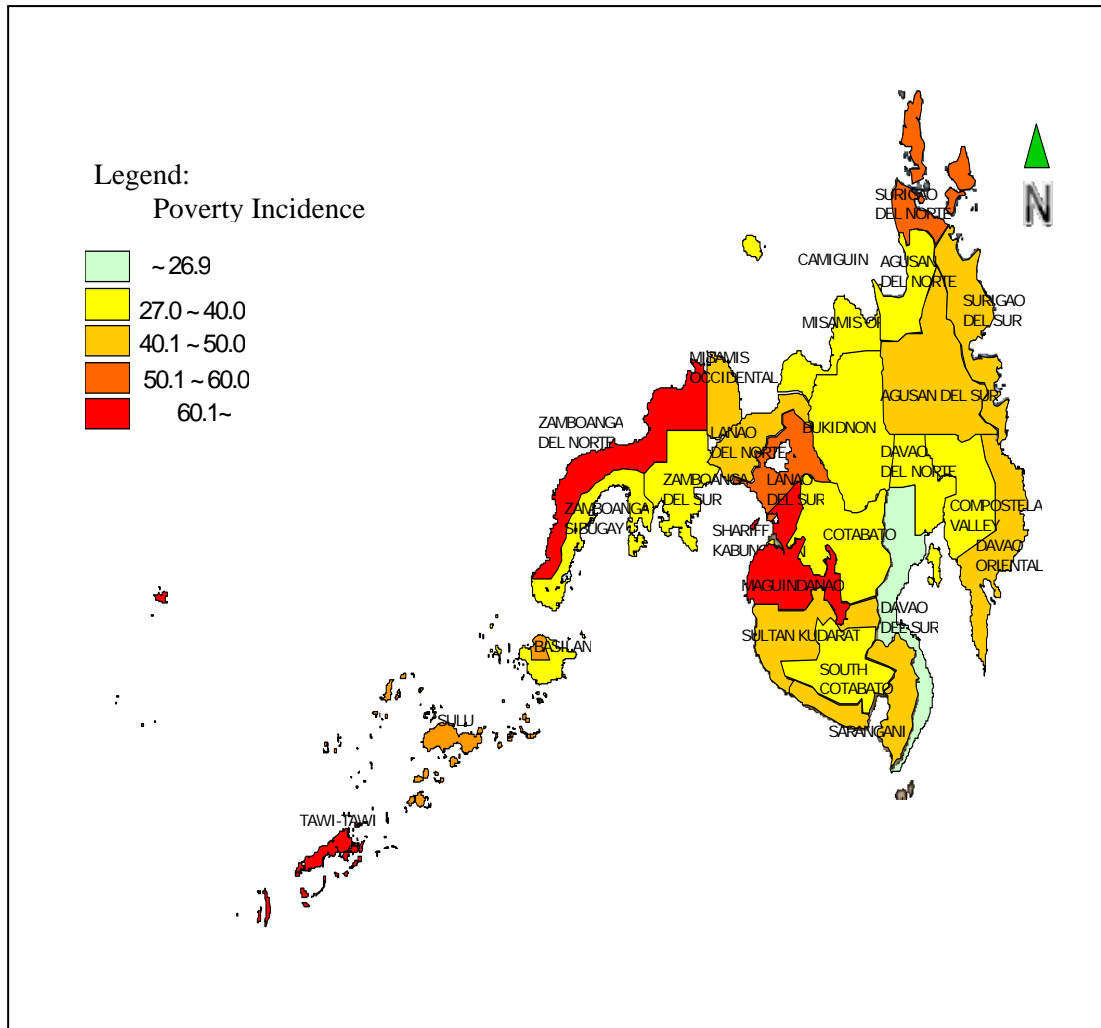
The worst province in poverty incidence is Sulu in 1997 (67.1%) and 2000 (63.2%) and Tawi-Tawi in 2006 (78.9%) within ARMM.



Source: NSO, 2008

FIGURE 3.1.2-3 POVERTY INCIDENCES BY PROVINCE, ARMM

Figure 3.1.2-4 illustrates poverty incidence by Region in Mindanao.



Source: NSCB (2007)

FIGURE 3.1.2-4 POVERTY INCIDENCE BY PROVINCE IN MINDANAO, 2006

3.1.3 Accessibility to Basic Social Services

Some features of social service level in the study area are overviewed from viewpoints of health, education, energy, etc.

1) Health

At first, infant and child mortality by region is analyzed in comparison with national average. Regarding infant mortality, every region in Mindanao indicates improved trend after 1999 and ARMM shows the least figures among them.

TABLE 3.1.3-1 INFANT MORTALITY BY REGION

(Infants under one year of age per 1,000 live births)

Region	1990	1991	1992	1993	1994	1995	1998	1999	2000	2001	2002	2003	2004
Philippines	57	55	54	52	50	49	36	16	16	15	14	14	13
IX Zamboanga Penins	76	74	72	69	60	59	45	11	12	11	12	10	10
X Northern Mindana	64	63	62	61	54	54	41	11	11	11	11	10	10
XI Davao Region	57	57	56	55	53	52	41	9	9	9	8	8	8
XII SOCCSKSARGEN	56	55	54	53	54	54	48	8	8	9	7	9	8
XIII Caraga	56	56	55	55	...	...	53	11	9	9	9	9	9
ARMM Muslim Mindanao	...	...	...	...	66	63	55	2	7	4	5	5	4

Note: The 1998 is based on the 1998 National Demographic and Health Survey.

Source: Technical Working Group on Maternal and Child Mortality (1990-1995 data) and National Statistics Office.

Moreover, almost same as or better conditions than Philippines total are found in child mortality, except the case of ARMM in 2000.

TABLE 3.1.3-2 CHILD MORTALITY BY REGION

(Children 1-4 years of age per 1,000 live births)

Region	1990	1991	1992	1993	1994	1995	1998	1999	2000	2001	2002	2003	2004
Philippines	24	23	22	21	20	19	20	6	7	7	7	6	5
IX Zamboanga Penins	40	38	36	34	27	26	32	5	4	5	6	6	4
X Northern Mindana	30	29	28	27	23	22	25	5	4	5	6	5	4
XI Davao Region	25	24	24	23	21	21	21	5	5	5	5	6	4
XII SOCCSKSARGEN	24	23	22	22	22	22	29	5	5	5	5	6	5
XIII Caraga	24	24	23	23	...	...	31	6	6	6	6	5	4
ARMM Muslim Mindanao	...	...	...	...	31	30	45	3	17	2	3	3	2

Note: The 1998 is based on the 1998 National Demographic and Health Survey.

Source: Technical Working Group on Maternal and Child Mortality (1990-1995 data) and National Statistics Office.

On the other hand, social conditions for health service are also analyzed from the viewpoint of numbers of health workers by province such as doctors, dentists, nurses, midwives, barangay health workers, etc. Most of provinces in the study area belong to lower level compared to national average. This shows the study area belongs to less service level in medical care opportunities.

TABLE 3.1.3-3 NUMBERS OF GOVERNMENT HEALTH WORKERS BY PROVINCE, 2006

Region/Province	Doctors per 100,00			Dentists	Nurses	Midwives	Nutritionists	Engineers/Sanitary Inspectors	Medial Technologist	Active Barangay Health Workers		Total Health Workers	per 100,000	
	No.	0 pop.	Rank							Workers	Others		pop.	Rank
Philippines Total	2,955	3		1,930	4,374	16,857	601	3,429	1,700	200,897	44,860	277,603	319	
Study Area														
X (only study area)														
Bukidnon	28	2	65	26	49	358	3	27	27	4,653	1,634	6,805	555	26
Lanao del Norte	19	2	66	3	38	147	1	35	5	1,227	364	1,839	218	63
Misamis Oriental	43	3	35	23	80	307	5	53	37	3,732	963	5,243	400	41
XII (excl. Cotabato City)														
North Cotabato	17	2	77	12	37	285	3	21	14	2,155	971	3,515	320	55
Sarangani	20	4	21	9	39	90	4	13	9	765	776	1,725	357	46
South Cotabato	30	2	63	18	39	227	4	34	24	2,214	383	2,973	230	61
Sultan Kudarat	37	5	10	13	64	171	6	11	22	1,467	446	2,237	330	52
Cotabato City	4	-	-	2	7	44	-	9	1	97	136	300	-	-
ARMM (incl. Islands)														
Basilan	5	2	72	4	28	70	1	16	5	200	135	464	156	70
Lanao del Sur	39	5	16	9	29	113	1	44	9	705	253	1,202	149	72
Maguindanao	18	2	73	8	24	163	1	23	7	1,107	533	1,884	174	66
Shariff Kabunsuan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulu	12	2	71	5	20	64	1	31	6	396	240	775	113	74
Tawi-Tawi	4	1	78	2	13	49	1	8	10	346	279	712	192	55

Source: National Epidemiology Center, Department of Health

2) Water Supply and Sanitary

Table 3.1.3-4 shows one of the sanitary conditions of each province in the study area. Both Regions X and XII show nearly average levels of the country, but ARMM shows significantly low levels both in water and toilet supply. Very low percentage of safe water supply in Lanao del Sur and Maguindanao is one of critical issues.

TABLE 3.1.3-4 SAFE WATER AND SANITARY TOILET SUPPLY BY PROVINCE, 2006

Region/Province	Safe Water Supply				Sanitary Toilet	
	2006	%	Rank	Growth Rate	2006	%
Philippines Total	13,501,942	83.0		1.9	12,249,703	75.3
Study Area						
X (only study area)		90.5				73.2
Bukidnon	206,479	91.9	24	6.4	166,877	74.3
Lanao del Norte	121,326	76.0	57	15.0	89,124	55.8
Misamis Oriental	256,503	98.1	4	16.9	216,405	82.8
XII		84.4				72.4
North Cotabato	182,322	91.1	28	-9.8	152,169	76.1
Sarangani	72,684	72.4	63	6.7	63,631	63.3
South Cotabato	225,963	86.6	41	17.1	201,376	77.2
Sultan Kudarat	95,916	75.5	59	4.3	84,891	66.8
Cotabato City	36,036	96.1		7.5	23,249	62.0
ARMM (incl. Islands)		54.6				35.8
Basilan	24,591	51.3	77	1.6	10,712	22.4
Lanao del Sur	69,782	46.1	78	51.5	57,238	37.9
Maguindanao	93,516	60.2	73	-1.0	71,250	45.9
Shariff Kabunsuan	-	-	-	-	-	-
Sulu	69,254	56.8	74	92.7	13,301	10.9
Tawi-Tawi	24,674	73.0	60	9.2	23,179	68.6

Source: National Epidemiology Center, DOH

3) Education

Table 3.1.3-5 shows a basic education services in the study area. Regarding public elementary school, Teacher-Pupil ratio is below the national average level in the study area except for Lanao del Norte. Cohort survival rates are very low (almost half of the average) especially in the provinces of ARMM.

TABLE 3.1.3-5 TEACHER-PUPIL RATIO AND SURVIVAL RATE IN ELEMENTARY SCHOOLS, 2006-07

Region/Province	Enrolment	Teachers	TPR	Rank	Cohort Survival Rate(%)
Philippines Total	12,038,471	342,346	35		71.7
X					
Bukidnon	194,284	4,920	39	68	54.6
Lanao del Norte	118,050	3,684	32	35	49.7
Misamis Oriental	193,286	5,260	37	59	63.6
XII					
North Cotabato	176,267	4,542	39	66	45.0
Sarangani	72,819	1,746	42	72	45.9
South Cotabato	175,511	4,462	39	67	53.0
Sultan Kudarat	94,519	2,730	35	46	48.2
Cotabato City	29,627	735	40	-	49.5
ARMM					
Basilan	44,312	1,112	40	69	41.3
Lanao del Sur	217,340	5,796	37	63	23.5
Maguindanao	141,008	2,658	53	79	34.1
Shariff Kabunsuan	-	-	-	-	-
Sulu	93,820	2,279	41	71	43.0
Tawi-Tawi	67,897	1,517	45	75	-

Source: Department of Education

Some better conditions are revealed about secondary schools, except Lanao del Sur.

TABLE 3.1.3-6 TEACHER-PUPIL RATIO IN SECONDARY SCHOOLS, 2006-07

Region/Province	Enrolment	Teachers	TPR	Rank
Philippines Total	5,025,112	130,606	38	
X				
Bukidnon	51,205	1,190	43	68
Lanao del Norte	38,503	1,174	33	14
Misamis Oriental	82,806	2,045	40	53
XII				
North Cotabato	67,279	1,710	39	48
Sarangani	20,691	552	40	49
South Cotabato	76,147	1,864	41	58
Sultan Kudarat	32,472	762	43	67
Cotabato City	13,678	464	29	-
ARMM				
Basilan	8,201	278	30	6
Lanao del Sur	72,866	1,232	59	79
Maguindanao	24,968	502	50	75
Shariff Kabunsuan	-	-	-	-
Sulu	18,549	457	41	55
Tawi-Tawi	10,930	245	45	70

Source: Department of Education

4) Electricity Supply

Table 3.1.3-7 indicates the less-developed status of the study area in energization. Most of the regions in Mindanao (except Regions X and Caraga) belong to lower level in percentage of electricity connection. ARMM records the worst (only 25%) in the country.

TABLE 3.1.3-7 STATUS OF ENERGIZATION BY REGION, 2007

Region	Municipalities/Cities			Barangays			Connections		
	Coverage	Energized	%	Potential	Energized	%	Potential*	Actual	%
Philippines	1,486	1,486	100.0	37,723	36,375	96.4	11,499,900	7,755,515	67.4
Mindanao	437	437	100.0	9,560	8,850	92.6	3,470,800	1,885,570	54.3
IX Zamboanga Peninzula	72	72	100.0	1,865	1,750	93.8	612,600	332,820	54.3
X Northern Mindanao	85	85	100.0	1,843	1,767	95.9	589,200	422,759	71.8
XI Davao Region	44	44	100.0	894	891	99.7	523,300	291,023	55.6
XII SOCCSKSARGEN	47	47	100.0	1,031	979	95.0	671,600	329,625	49.1
XIII Caraga	73	73	100.0	1,310	1,285	98.1	448,100	355,829	79.4
ARMM	116	116	100.0	2,617	2,178	83.2	626,000	153,514	24.5

* Based on the NSCB Resolution No. 1 Series of 2005 on the "Adoption of Methodology Used in Generating the 2005 Census of Population and Housing-Based National Population Projections".

Source: National Electrification Administration

The conditions by province in the study area show a steady improvement from 2006 to 2007, especially in the island provinces of ARMM.

TABLE 3.1.3-8 NUMBER OF BARANGAYS ENERGIZED BY PROVINCE, 2006 & 2007

Region/Province	2006			2007		
	Coverage	Energized	%	Coverage	Energized	%
Philippines Total	40,077	37,963	94.7			
Study Area						
X (only study area)						
Bukidnon	474	470	99.2	474	472	99.6
Lanao del Norte	407	324	79.6	407	333	81.8
Misamis Oriental	424	424	100	424	424	100
XII (excl. Cotabato City)						
North Cotabato	348	325	93.4	348	331	95.1
Sarangani	140	122	87.1	140	122	87.1
South Cotabato	376	363	96.5	376	365	97.1
Sultan Kudarat	307	273	88.9	307	283	92.2
Cotabato City	-	-	-	-	-	-
ARMM (incl. Islands)						
Basilan	269	262	97.6	269	266	98.9
Lanao del Sur	1,190	844	70.9	1,190	979	82.3
Maguindanao	576	382	66.3	576	451	78.3
Shariff Kabunsuan	-	-	-	-	-	-
Sulu	396	229	57.8	396	304	76.8
Tawi-Tawi	186	141	75.8	186	178	95.7

Source: National Electrification Administration (NEA)

3.2 ECONOMIC CONDITIONS

3.2.1 GRDP and Economic Structure

1) GRDP by Region

Major findings in historical trends of GRDP in nominal term are summarized as follows:

- ① Philippine economy is continuous growing since 1992, with 8% to 15% of growths to the previous years in current price.
- ② Growths in Mindanao also show same tendencies and only Region XI shows a little irregular trend.
- ③ The shares of Mindanao/national, ARMM/national and ARMM/Mindanao are almost stable without any drastic changes, 16-19%, 0.8-1.0% and 4.8-5.8%, respectively.
- ④ Three regions of the study area show widely fluctuated ranges of growth rates (-11% to +40%) comparing national totals (+9% to +15%).
- ⑤ Nominal growth rates of ARMM show drastically wide differences, -0.8 to 2.0, comparing to national total.

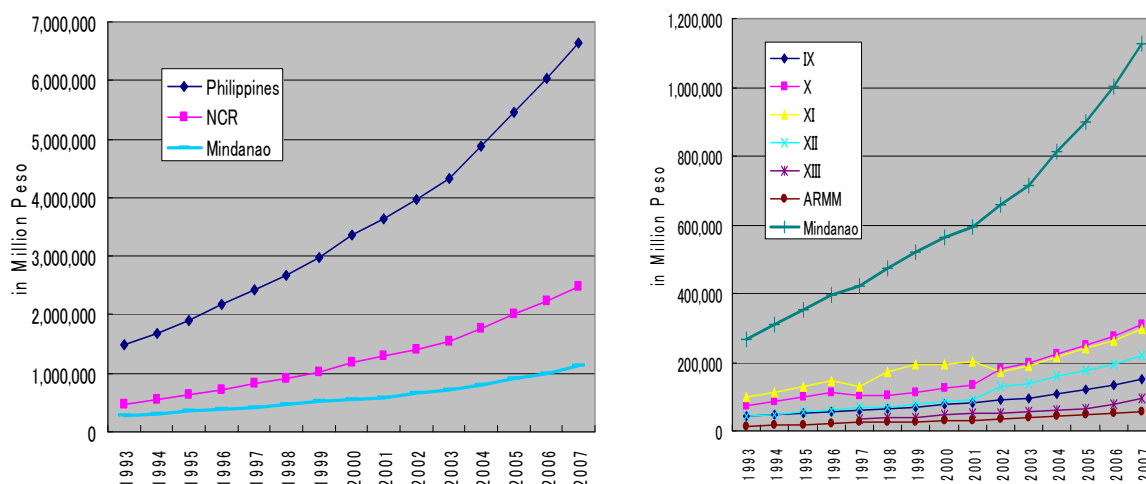


FIGURE 3.2.1-1 GRDP TRENDS (IN CURRENT PRICE) BY REGION

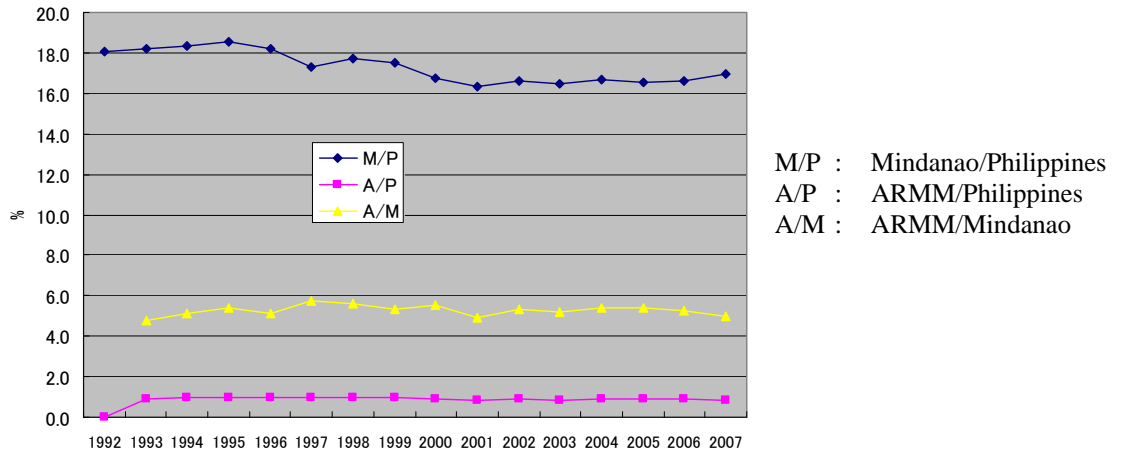


FIGURE 3.2.1-2 TRENDS OF GRDP SHARES, MINDANAO AND ARMM

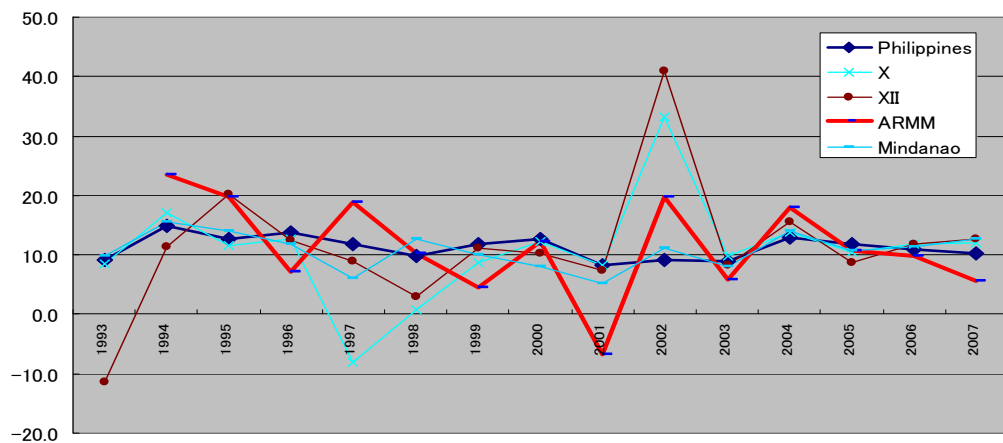


FIGURE 3.2.1-3 GRDP GROWTH RATE TRENDS (IN CURRENT PRICE)

Meanwhile, GRDP trends in constant price (in 1985) reveal followings:

- ① Philippine economy has been growing in terms of total GRDP (real) with growth rates of 2-6% since 1993, except for both in 1998 and 2001 (minus growth).
- ② GRDP in ARMM grew continuously in 1993 to 1999 with its growth rates of 0-7% , but decreased both in 2000 (-6%) and 2001 (-23%) and then very low growth rates up to 2006.
- ③ Regarding its share to national, this did change much which is around 1% from 1993 to 2007 while its share to Mindanao is around 5% to 6% from 1993 to 2007.

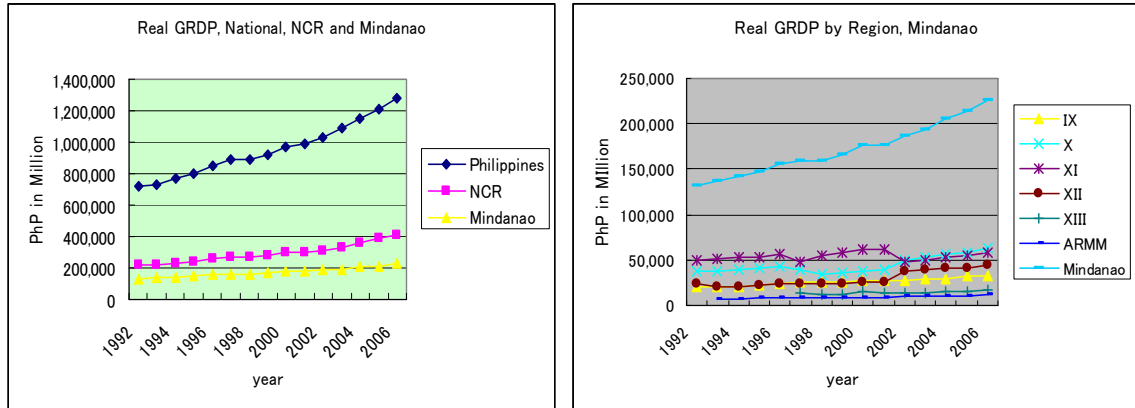


FIGURE 3.2.1-4 GRDP TRENDS BY REGION IN REAL TERM

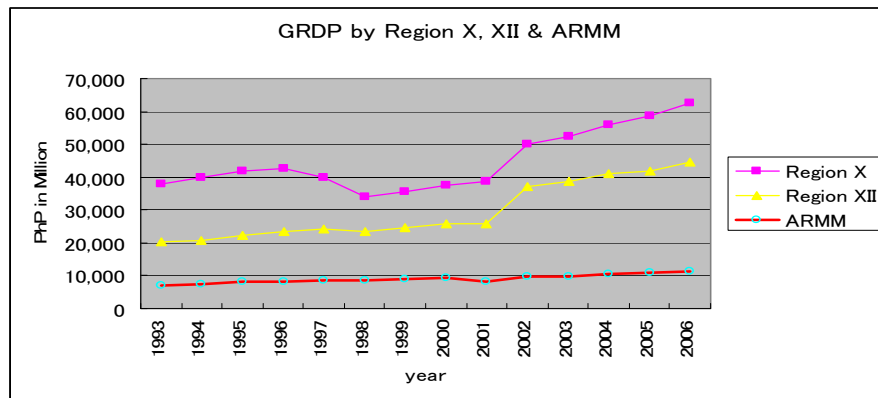


FIGURE 3.2.1-5 GRDP TRENDS, REGION X, XII AND ARMM IN REAL TERM

2) GRDP by Sector

GRDP of each region by industrial sector in 2006 is illustrated in **Figures 2.1.2-6 and 7.**

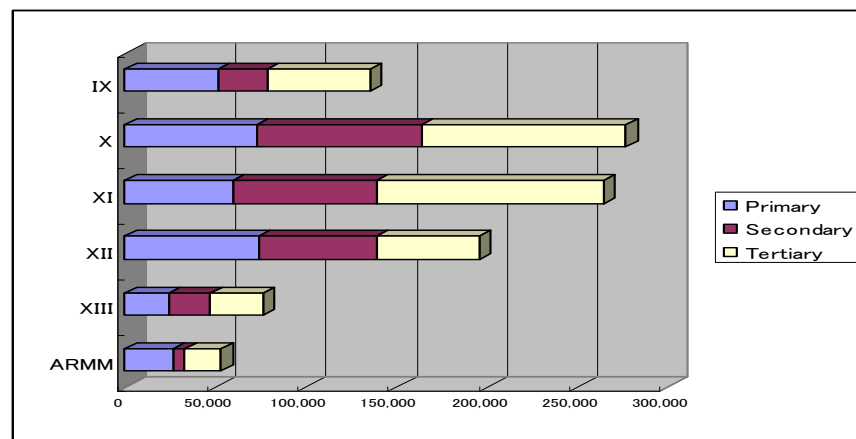
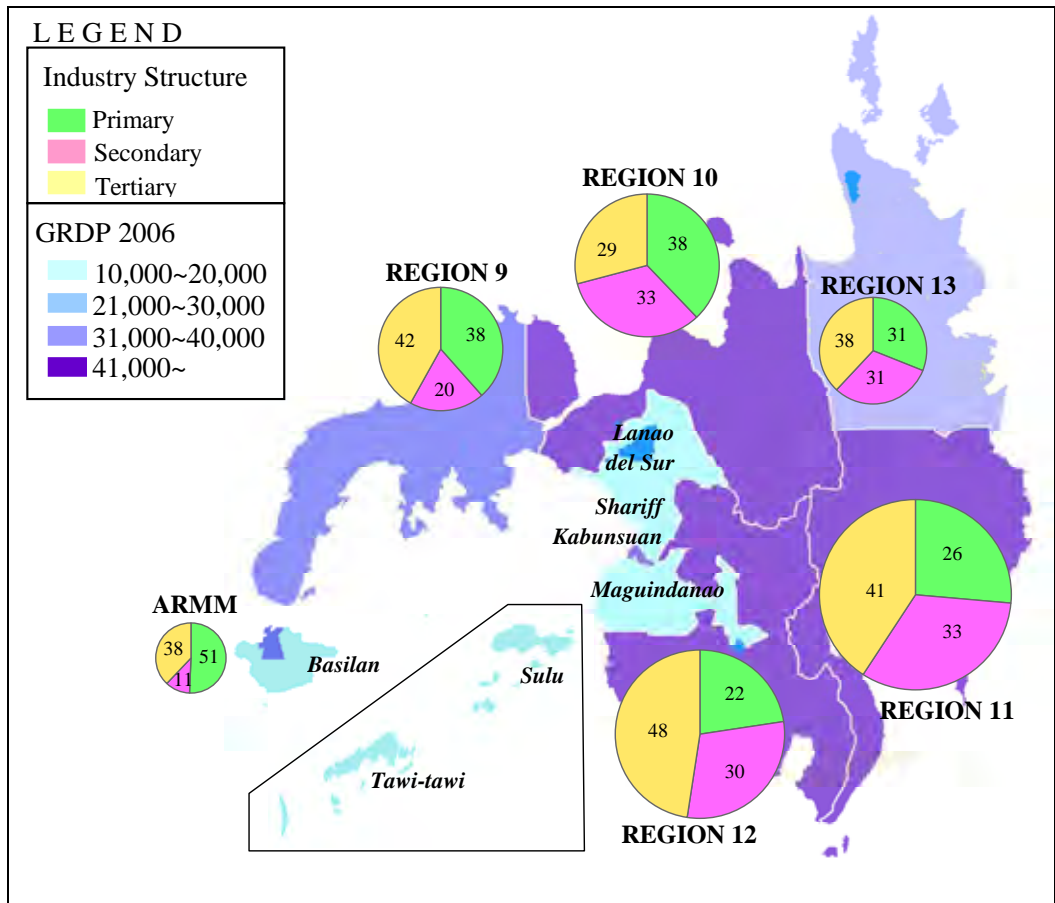


FIGURE 3.2.1-6 GRDP BY SECTOR, 2006



Source: NSCB (2008)

FIGURE 3.1.2-7 INDUSTRIAL STRUCTURE AND GRDP

Compositions of GRDP by industrial sector (agriculture, industry and service) in Mindanao are classified almost into 3 types: Mindanao average (30:30:40, Region X, XII and XIII), service sector oriented (20:30:50, Region IX and XI) and agriculture oriented (50:10:40, ARMM). This characteristic is also reflected in the employment structure.

3) Per Capita GRDP

In 2006, per capita GRDP in ARMM recorded PhP 16,346 (equivalent to PhP 3,486 in 1985 price), which is only 24% of National average or 34% of Mindanao and Study area, and only 9% of NCR.

Historical trend indicates very small shares of ARMM, with sharp drop in 1999 and continuously decreasing tendency until 2007

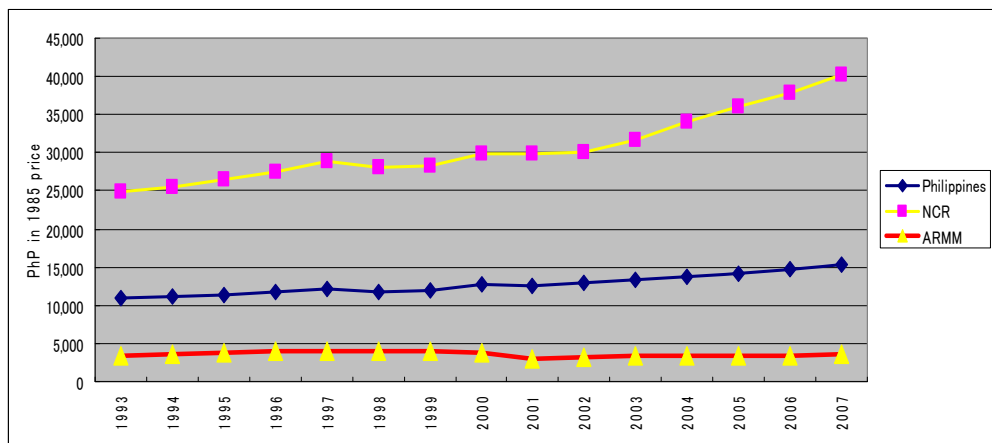


FIGURE 3.2.1-8 PER CAPITA GRDP TREND (REAL PRICE); ARMM, NATIONAL AVERAGE AND NCR

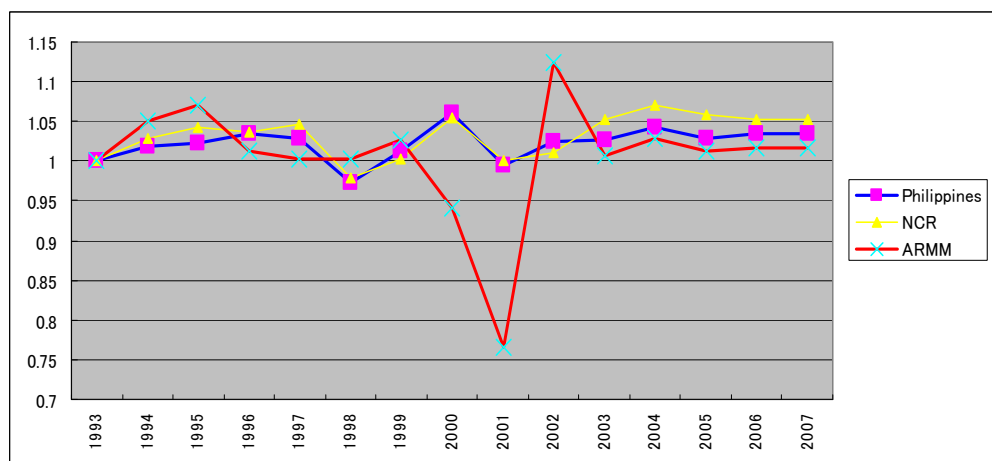


FIGURE 3.2.1-9 PER CAPITA GRDP GROWTH RATE, ARMM, NATIONAL AVERAGE AND NCR

4) Employment by Industry Sector

Though the data is not latest one, compositions of employments by industry sector shows general characteristics in industry structure by region.

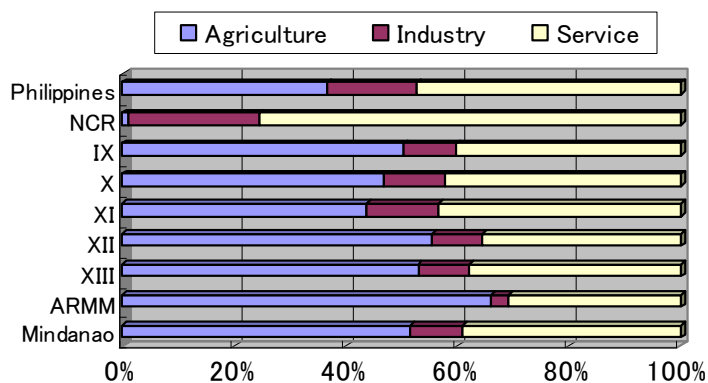


FIGURE 3.2.1-10 EMPLOYMENT COMPOSITIONS BY REGION, 2003

Figure 3.2.1-11 illustrates the employment composition by sector by province in 2003. Agriculture and fishery (primary industry) sector occupies a dominant share in most of provinces and very small share by manufacturing (secondary) sector, with an exception of Misamis Oriental.

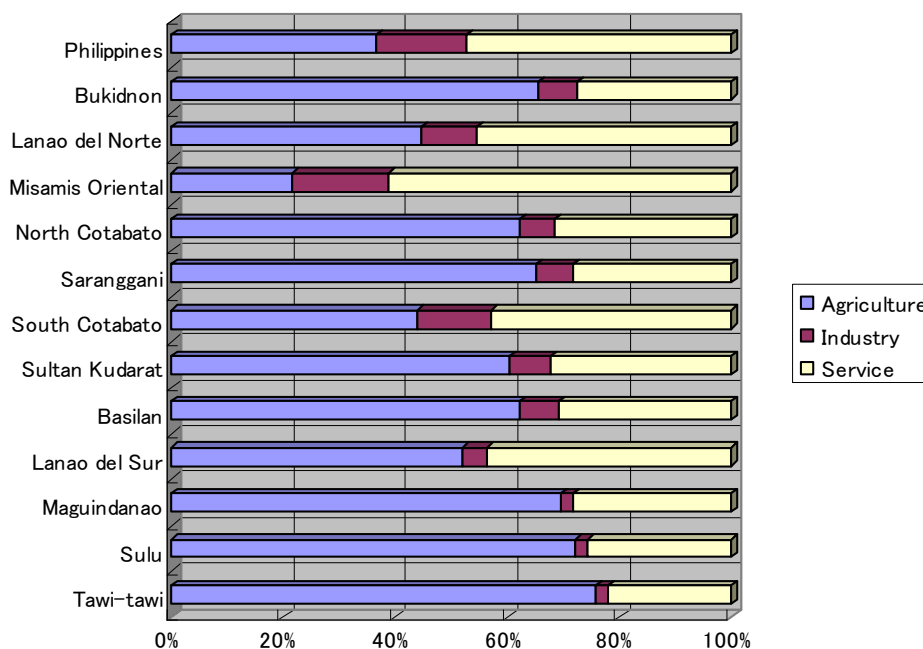


FIGURE 3.2.1-11 EMPLOYMENT COMPOSITIONS BY PROVINCE IN STUDY AREA, 2003

5) Productivity by Region

As one of the comparative indicators for industrial productivity by region, an indicator of productivity by employment is derived by “GRDP values divided by number of employments”, and an example in 2003 is shown in **Table 3.2.1-1**.

TABLE 3.2.1-1 EXAMPLE INDEX OF PRODUCTIVITY BY REGION, 2003

	Agriculture			Industry			Service		
	PhP million	Emp. 000	Productivity	PhP million	Emp. 000	Productivity	PhP million	Emp. 000	Productivity
Philippines	631,970	11,155	56.7	1,378,870	4,859	283.8	2,305,562	14,404	160.1
NCR	4	46	0.1	500,904	917	546.2	1,055,900	2,988	353.4
IX	36,449	571	63.8	18,022	104	173.3	42,301	455	93.0
X	51,786	784	66.1	66,849	180	371.4	78,467	708	110.8
XI	43,061	677	63.6	55,230	199	277.5	89,050	670	132.9
XII	52,083	714	72.9	43,616	113	386.0	43,468	456	95.3
XIII	18,244	498	36.6	13,843	88	157.3	22,651	355	63.8
ARMM	17,121	632	27.1	4,016	31	129.5	15,761	296	53.2
Mindanao	218,744	3,876	56.4	201,576	715	281.9	291,698	2,940	99.2
Comparison									
M/P			1.00			0.99			0.62
A/P			0.48			0.46			0.33
A/M			0.48			0.46			0.54

ARMM shows less than half of national average in every industrial sector, in contrast with almost average levels by Mindanao both in agriculture and industry sectors. Productivity of ARMM is only one half of Mindanao in every sector.

3.2.2 Primary Sector

1) Major Crops Production, Harvested Area and Yield

Table 3.2.2-1 shows production, harvested area and yield of major crops in the Study Area. **Figure 3.2.2-1** shows production of palay, corn, coconut and banana by province.

Productivity of major crops in the Study Area is compared with the national average as shown in **Table 3.2.2-2**.

TABLE 3.2.2-1 PRODUCTION, AREA HARVESTED AND YIELD OF MAJOR CROPS

	ARMM						Region X				Region XII			
	ARMM Total	Maguindanao	Lanao del Sur	Region X Total	Bukidnon	Lanao del Norte	Misamis Oriental	Region XII Total	Cotabato	Sultan Kudarat	South Cotabato	Sarangani		
Production (ton)	615,780	433,766	174,682	501,892	266,598	143,905	25,892	1,186,688	449,202	400,384	291,263	45,839		
● Irrigated Palay	296,043	220,963	73,432	—	—	—	—	992,386	353,100	351,443	255,700	32,143		
● Rainfed Palay	319,737	212,803	101,250	—	—	—	—	194,302	96,102	48,941	35,563	13,696		
Area Harvested (ha)	199,359	137,672	56,845	129,249	67,398	39,063	6,440	328,456	122,972	112,724	78,804	13,956		
● Irrigated Palay	71,443	50,625	20,282	—	—	—	—	259,508	87,772	95,412	67,151	9,173		
● Rainfed Palay	127,916	87,047	36,563	—	—	—	—	68,948	35,200	17,312	11,653	4,783		
Average Yield (ton/ha)	3.09	3.15	3.07	3.88	3.96	3.68	4.02	3.61	3.65	3.55	3.70	3.28		
● Irrigated Palay	4.14	4.36	3.62	—	—	—	—	3.82	4.02	3.68	3.81	3.50		
● Rainfed Palay	2.50	2.44	2.77	—	—	—	—	2.82	2.73	2.83	3.05	2.86		
Annual Production Growth Rate (2002-2007)	7.8%	10.9%	2.5%	-1.2%	1.1%	-6.7%	3.3%	2.3%	1.1%	5.6%	2.8%	2.3%		
Production (ton)	895,024	601,411	289,741	1,048,344	703,735	221,073	84,189	1,123,584	354,356	177,435	431,633	160,160		
● Yellow Corn	196,081	114,599	81,482	—	—	—	—	744,419	227,834	125,178	319,158	72,249		
● White Corn	698,943	486,812	208,259	—	—	—	—	379,165	126,522	52,257	112,475	87,911		
Area Harvested (ha)	312,164	194,507	112,884	369,839	185,089	104,040	54,409	418,594	127,343	72,600	141,163	77,488		
● Yellow Corn	54,889	31,263	23,636	—	—	—	—	243,829	74,895	44,996	96,774	27,164		
● White Corn	257,265	163,244	89,248	—	—	—	—	174,765	52,448	27,604	44,389	50,324		
Average Yield (ton/ha)	2.87	3.09	2.57	2.83	3.80	2.12	1.55	2.68	2.78	2.44	3.06	2.07		
● Yellow Corn	3.57	3.67	3.45	—	—	—	—	3.05	3.04	2.78	3.30	2.66		
● White Corn	2.72	2.98	2.33	—	—	—	—	2.17	2.41	1.89	2.53	1.75		
Annual Production Growth Rate (2002-2007)	7.1%	20.9%	-6.2%	8.4%	12.8%	-0.9%	5.7%	4.9%	4.9%	0.4%	4.7%	12.4%		
Production (ton)	1,242,707	498,522	169,860	1,669,281	44,964	559,159	494,135	854,581	177,071	148,861	146,295	382,354		
Area Harvested (ha)	314,376	93,271	46,380	298,985	9,470	75,327	101,698	167,985	36,000	21,389	32,123	78,473		
Average Yield (ton/ha)	3.95	5.34	3.66	5.58	4.75	7.42	4.86	5.09	4.92	6.96	4.55	4.87		
Annual Production Growth Rate (2002-2007)	2.4%	5.2%	-0.1%	2.3%	13.5%	1.3%	1.2%	2.2%	6.7%	2.7%	-1.2%	1.7%		
Sugar Cane	58,922	122	35,280	2,559,587	2,559,587	—	—	576,349	405,527	53,141	48,880	68,800		
Banana	372,676	213,650	108,219	933,114	466,857	286,033	140,762	935,565	579,274	28,414	217,247	110,629		
Cassava	977,874	4,460	482,360	310,517	180,000	17,960	85,162	32,725	9,143	1,913	19,891	1,778		
Rubber	NA	49.6	3,921	10,183	9,923	—	200	157,134	156,388	223	29	494		

Source: Bureau of Agricultural Statistics, DA-Nationa and DAF-ARMM

TABLE 3.2.2-2 COMPARISON OF PRODUCTIVITY: NATIONAL AVERAGE VS. STUDY AREA

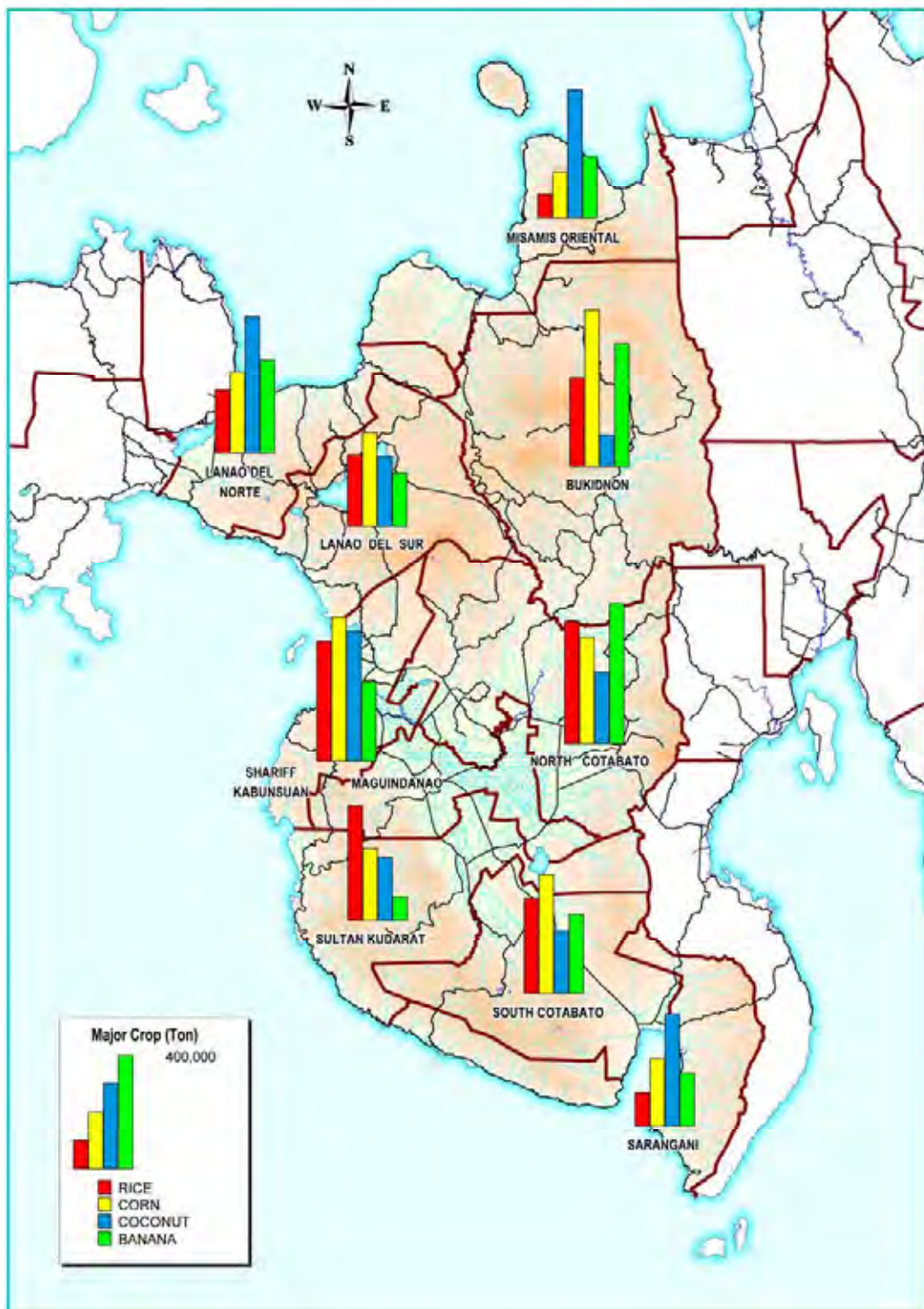
Unit: Ton/ha (2007)

Crops		National Average	ARMM	Maguindanao	Lanao del Sur	Region X	Region XII
Palay	Total	3.80 (1.00)	3.09 (0.81)	3.15 (0.83)	3.07 (0.81)	3.88 (1.02)	3.61 (0.95)
	Irrigated	4.21 (1.00)	4.14 (0.98)	4.36 (1.04)	3.62 (0.86)	—	3.82 (0.91)
	Rainfed	2.93 (1.00)	2.50 (0.85)	2.44 (0.83)	2.77 (0.95)	—	2.82 (0.96)
Corn	Total	2.54 (1.00)	2.87 (1.13)	3.09 (1.22)	2.57 (1.01)	2.83 (1.11)	2.68 (1.06)
	Yellow	3.57 (1.00)	3.57 (1.00)	3.67 (1.03)	3.45 (0.97)	—	3.05 (0.85)
	White	1.72 (1.00)	2.72 (1.58)	2.98 (1.73)	2.33 (1.35)	—	2.17 (1.26)
Coconut		4.42 (1.00)	3.95 (0.89)	5.34 (1.21)	3.66 (0.83)	5.58 (1.26)	5.09 (1.15)

Source: Bureau of Agricultural Statistics, DA national and DAF-ARMM

From both tables, it can be pointed out the following:

- Yield of irrigated palay is higher by about 1.5 to 1.8 times than rainfed palay. For the increase of production, development of potential irrigable area is one of the key solutions.
- Yield of yellow corn is higher by about 1.2 to 2 times than white corn. Shifting from white corn to yellow corn should be accelerated.
- ARMM's average yield of palay is only 80% of the national average, which means there is still possibility to increase productivity.



Source: Bureau of Agricultural Statistics

FIGURE 3.2.2-1 MAJOR CROP PRODUCTION (TON), 2007

2) Agricultural Land Use

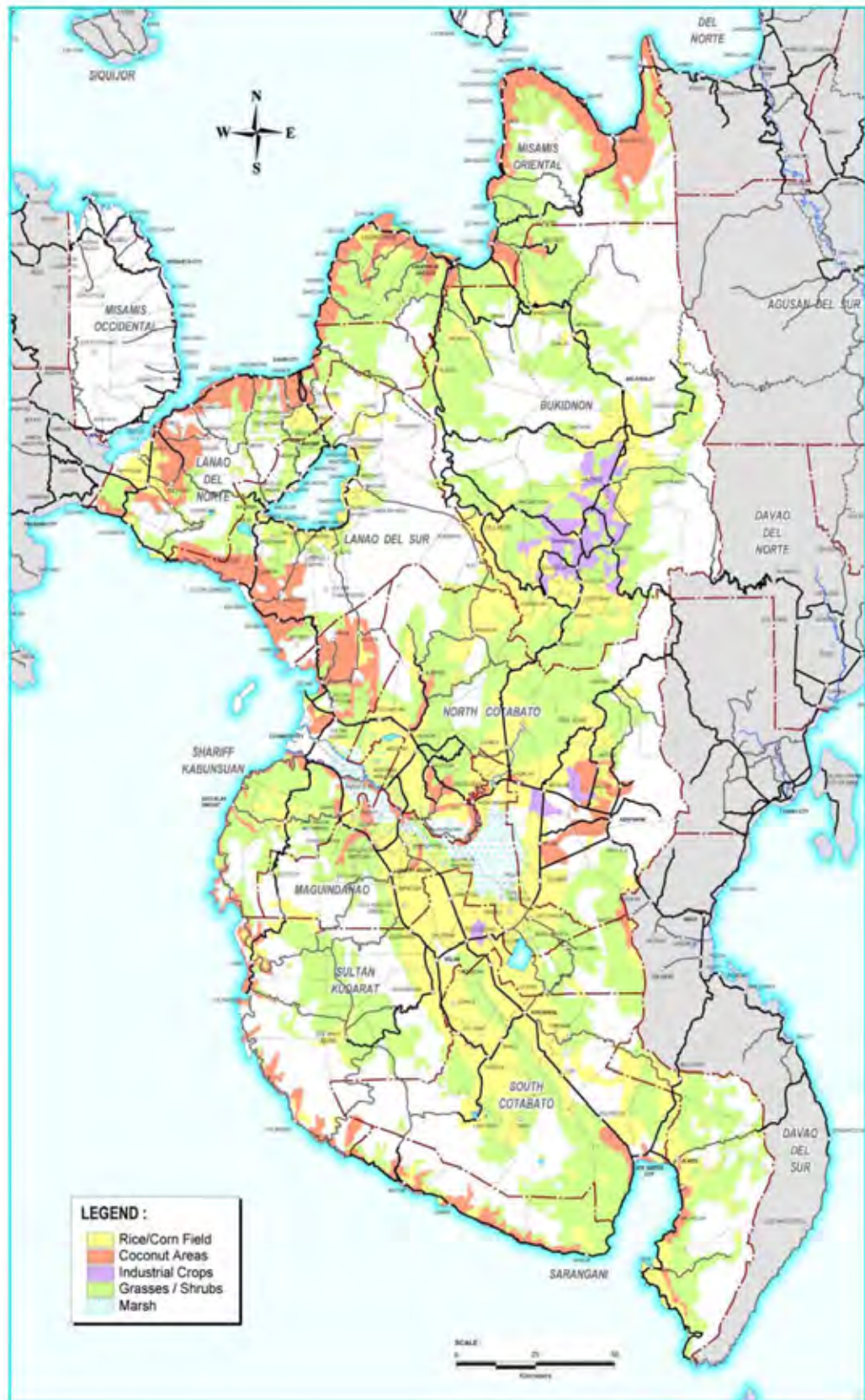
Distribution of rice/corn field, coconut area, and industrial crops in the Study Area is shown in **Figure 3.2.2-2**, which also shows grass/shrub areas.

In the province of Maguindanao, additional areas for palay planting for the period from 2009 to 2010 are proposed by DAF-ARMM as shown in **Table 3.2.2-3**. If this is realized, palay planting area of Maguindanao will increase by 1.36 times compared with 2007 and will contribute greatly for palay production increase.

TABLE 3.2.2-3 PROPOSED ADDITIONAL AREAS FOR PALAY PLANTING 2008-2010

Province of Maguindanao	
Municipality	Additional Area for Palay Planting (ha.)
Datu Paglas	4,931
Buluan	6,500
SK Pendatun	5,000
Paglat	1,200
SS Barongis	3,754
Rajah Buayan	1,500
Mamasapano	1,000
Sultan Kudarat	1,000
Talayan	2,500
Talitay	3,010
Datu Piang	1,537
Datu Saudi	1,000
Datu Odin Sinsuat	4,119
Kabuntalan	5,995
Datu Montawal	2,500
Pagalungan	4,500
	50,046

Source: DAF-ARMM



Source: MEDCO

FIGURE 3.2.2-2 DISTRIBUTION OF AGRICULTURAL LAND USE

3) Irrigation

Table 3.2.2-4 shows potential irrigable area and development rate of Maguindanao and Lanao del Sur provinces. Data of the National Irrigation Administration (NIA) shows that Maguindanao has a potential irrigable area of 146,365 ha., of which 23,201 ha. have the irrigation system in service. There are still 126,439 ha. (or 86%) of potential areas for development.

Lanao del Sur has a potential irrigable area of 40,186 ha., of which 4,932 ha. Have the irrigation system in service. The remaining 35,254 ha. (or 88%) are not developed yet.

Figure 3.2.2-3 shows existing irrigation service areas and potential areas of Maguindanao Province. **Table 3.2.2-5** shows irrigable area with irrigation service area of selected municipalities of Lanao del Sur Province.

TABLE 3.2.2-4 POTENTIAL IRRIGABLE AREA AND DEVELOPMENT RATE, BY PROVINCE

Province	Potential Irrigable Area (has)	Existing Number and Service Area (has)						Development Rate (%)
		NIS		CIS		PIS and Private	Total	
		No.	Area (ha)	No.	Area (ha)	Area (ha)	Area (ha)	
Maguindanao	146,365	5	15,843	32	5,228	1,130	22,201	15.17
Lanao del Sur	40,186	1	3,740	8	1,192	0	4,932	12.27
Total	186,551	6	19,583	40	6,420	1,130	27,133	14.54

Source: NIA-PIO data as of April 2003



Source: NIA

FIGURE 3.2.2-3 IRRIGATED AREA IN MAGUINDANAO PROVINCE

TABLE 3.2.2-5 POTENTIAL IRRIGABLE AREA AND DEVELOPMENT AREA IN SELECTED MUNICIPALITIES OF LANA DEL SUR PROVINCE (DECEMBER 2007)

Municipality	Name of CIS	Potential Irrigable (ha)	Service Area (ha)
Buadi Puso Buntong	Manacab CIS	50	50
Bubong	Gamut CIS	120	120
	Kilogay CIS	105	105
Ditsaan Ragain	Pugaan CIS	50	50
	Ditsaan Ragain RIP	4,000	4,000
Lumba Bayabao	Barangay CIS	181	130
	Mapantao CIS	240	240
	Mapantao Lubo CIS	80	80
	Tungcopan CIS	240	240
Maguing	Niog Pulo CIS	70	70
	Kianodan Mapoling	157	150
Masiu	Masiu CIS	1,200	1,000
Taraka	Rugnan CIS	2,500	2,500
Tagoloan	Inudaran CIS	40	40
Balabagan	6 CIS	2,085	1,900
Balindong	Wato CIP	70	70
Butig	Malaig RIP	2,750	2,750
Ganassi	4 CIP	1,000	1,000
Kapatagan	6 CIP	1,864	1,705
Lumbatan	3 CIP	680	660
Madalum	Tongantongan CIP	100	70
Madamba	2 CIP	268	268
Malabang	3 CIP	980	740
Marogong	3 CIP	2,250	2,250
Pagayawan	2 CIP	570	570
Picong	8 CIP	2,930	2,910
Pualas	4 CIP	685	665
Tubaran	2 CIS	230	200
Total	—	25,495	24,533

Source: NIA Regional Office X

4) Agrarian Reform Communities

An ARC is a cluster of barangays with the highest concentration of farmer beneficiaries and distributed lands where CARP funds and other resources are being channelled to have a greater impact. It is a strategy to accelerate and sustain growth points in rural areas through the convergence of development interventions among Department of Agrarian Reform (DAR), DA, Department of Environment and Natural Resources (DENR), Department of Trade and Industry (DTI), Department of Public Works and Highways (DPWH), NIA, Land Bank of the Philippines (LBP), local government units, people's organizations, non-governmental organizations and donor and funding institutions.

There have been many studies, assessments and surveys conducted to assess the performance and status of ARC's nationwide. The results indicate that the ARC approach has generated positive effects in terms of better production volumes, increased cropping intensity and farm income. Among the specific findings are as follows:

- Increases access to agricultural production assistance in the areas of improving farm productivity, crop diversification, integration of poultry and livestock production and aquaculture into on-farm production activities.
- Increased productivity of palay from 3.15 mt/ha in 2001 to 5.0 mt/ha in 2005; cropping intensity also increased by 200% in 2005. This can be attributed to numerous trainings on grains production, post-harvest technology and marketing and provision of rural infrastructures.
- Yield increases in 50% of croplands for most crops, increases in the number of crops planted and the increase in the number of households which undertook changes in agricultural practices.
- At least 50% increase in number of farms now under irrigation with corresponding increases in cropping intensity and yields.
- Transport and hauling cost, travel time and post harvest losses reduced by 38%, 50%, 46% and 5% respectively and increases mobility of residents and improved access of the community to services provided by the LGUs and various line agencies with the completion of FMRs. Improved mobility of production inputs and outputs to and from the farms had increased prices of final produce.
- Average income increased by 20% from 2001 to 2004. ARB household incomes, farm incomes and expenditures higher than non-ARBs, e.g. average income of ARB household is higher than average for all households, that of non-ARB households lower than overall average, average ARB income (P97,844/yr) is 23% higher than average non-ARB income (P75,787), average farm income of ARBs (P60,214) almost twice that of non-ARBs (P34,134) and average household expenditures of ARBs 8.5% higher than non-ARBs;
- Poverty incidence decreased in 10 regions where 85% of ARCs surveyed are located while the same increased in 4 regions.
- Completion of farm-to-market roads or FMRs also facilitated the efficient delivery of basic social services to Arc barangays, encouraged utilization of idle lands and new development activities in uncultivated agricultural farm lands near the highways/main roads, stimulated trade and commerce, and even restored peace and order in some ARCs.
- There was an observed pattern of increased hectareage of agricultural lands utilized and also lands devoted to non-traditional crops. Values of lands have also increased.

Relatedly, in an effort to expand the provision of support services and facilities to farmers outside of ARCs as well as non-ARBs, DAR has shifted its

development efforts to clusters of several ARCs to develop its agribusiness potential through value adding factors from production to processing to marketing with the achievement of economy of scale. It is vital to note that the efforts are not just confined to the traditional rice, corn and coconut but also to high value crops such as bananas, mangos, coffee and others with high market demand. DAR has been encouraging private sector agribusiness firms to locate their businesses or invest in ARCs under mutually beneficial arrangements.

Given the above findings and results of various studies, the ARCs may represent potential growth areas for agriculture development. **Figure 3.2.2-4** shows location of ARCs in Maguindanao and Lanao del Sur Provinces.

5) Major Agriculture-related and Agribusiness Industries

The major agriculture-related and agribusiness industries in Maguindanao are presented below.

Name of Industries/Support Facilities	Location	Products	Destinations
Alip River Dev't & Export	Alip, Datu Paglas	Cavendish Banana	Japan, China, Korea & Middle East
La Frutera Inc. (LFI)	Digal, Buluan	Cavendish Banana	Japan, China, Korea & Middle East
Lamsan Trading, Inc.	Crossing Simuay, Sultan Kudarat	Cornstarch & by Products	Domestic
MINRICO Lumber Ent. Inc.	Crossing Simuay, Sultan Kudarat	Finished Lumber	Japan
Morogulf Food Industries, Inc.	Gang, Sultan Kudarat	Banana Chips	Domestic
Phil. Trade Center, Inc.	Calsada, Sultan Kudarat	Corn & Corn starch	Domestic
Coconut Oil Millers Traders Assn. Inc. (COTA, Inc.)	Salimbao, Sultan Kudarat	Edible Oil & Copra Meal	Domestic



FIGURE 3.2.2-4 LOCATION MAP OF AGRARIAN REFORM COMMUNITIES

6) Marketing/Major Flow of Agricultural Commodities

Rice is generally sold as fresh or dry palay to traders in nearby cities where the milling facilities are found. For instance, palay harvested from Buluan, Paglat, Ampatuan, and Gen. S. K. Pendatum are brought to Tacurong City, Pres. Quirino, and Isulan in Sultan Kudarat. In many areas such as South Upi and Upi, palay produced is generally milled into rice for local consumption with some extra being sold to traders.

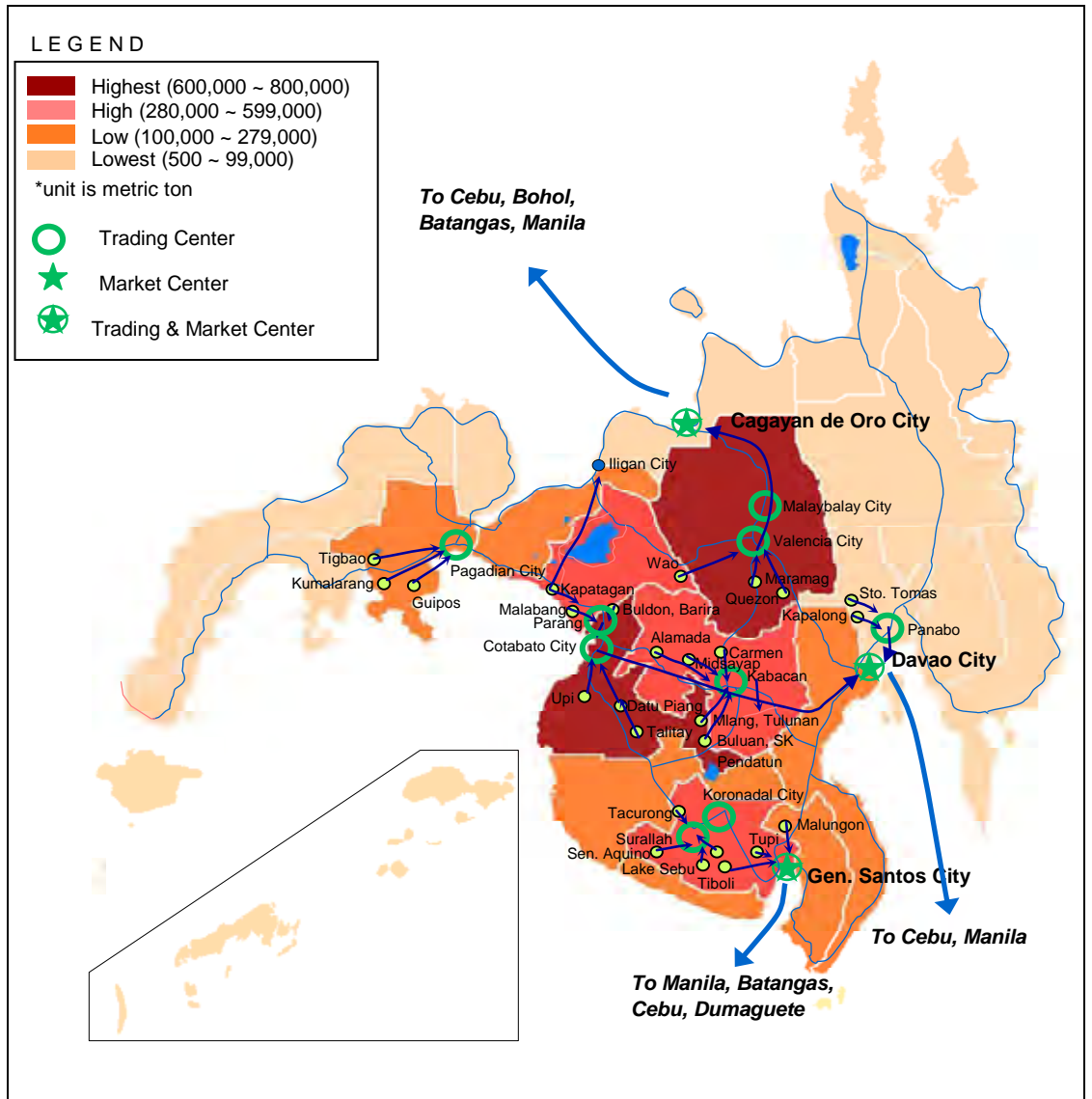
Oftentimes, farmers are forced to sell the newly threshed paddy rice at low prices even if it is still wet because of the absence or lack of drying facilities during rainy season. The trader then takes care of the drying using a mechanical drier as well as milling and sacking. The milled rice are transported to Cotabato City, Cagayan de Oro City, Davao City, and General Santos City to the different retailers and consumers.

Corn is sold as dried grains to traders who transport the grains to feed milling centers either in Cotabato City, Davao City or and General Santos City. A small portion of the corn produced is used as feeds for poultry and ducks in the locality. In South Upi, corn produced is sold as dried grains to traders, mostly from Cotabato City who have established buying stations in the locality. Then the grains are shipped to Cebu or Manila for processing as food or feeds.

Cavendish banana produced by La Frutera in Datu Paglas are exported to Japan, China, Korea and Middle East. Cardava banana and other varieties are sold as fresh fruits in hands either for local consumption or for processing in Davao City or in General Santos City. Mangoes are sold as fresh fruits mostly to traders in General Santos City. Rubber is sold as cuplumps to processors in Kidapawan and Makilala of North Cotabato.

Livestock finds its way in the market as live, butchered or processed foods in eateries and restaurants in the local and neighboring towns. A local agent or buyer is usually present or involved in facilitating the trading or the owner will go directly to the buyer in the Poblacion center.

The major flow is shown in **Figure 3.2.2-5**.



Source: Raw data from Bureau of Agricultural Statistics (BAS), 2007

FIGURE 3.2.2-5 MAJOR MARKET CHANNELS AND GEOGRAPHICAL FLOW OF RICE AND CORN IN MINDANAO

7) Cost and Return

Below are some cost and returns of major crops from three different municipalities which were based on actual field surveys conducted in 2007.

Municipality of Gen. S.K. Pendatun

Major Crops Products	Average Production/ha	Production cost/ha	Gross sale/ha	Net income/ha
Rice				
- Irrigated	4 T/ha	12,000	28,000	16,000
- Rainfed	2 T/ha	10,000	18,000	8,000
- Upland	1 T/ha	4,000	12,000	5,000
Corn				
- Yellow Corn	4 T/ha	15,000	25,000	8-10,000
- White Corn	2 T/ha	7,000	12,000	5,000
Banana	50/bunch	14,900	19,200	4,300/yr
Oil Palm	0.5 tons X 24 = 12 Tons/ha/yr	16,000	48,000	32,000/ha/yr
Coconut	2.0 Tons/ha/yr	10,900	37,000	26,00/ha/yr

Municipality of Matanog

Major Crops	Average	Production			Market
	Production per Hectare	Cost per Hectare	Gross Sales	Net Income	Outlet
Corn- yellow	3.5	12,260.00	28,000.00	15,840.00	Lamsan & Parang
White	3	11,160.00	27,000.00	15,840.00	-do-
Upland Rice	2.5	17,060.00	60,000.00	42,940.00	Cot. City & Parang
Banana	1.3	38,400.00	93,600.00	55,200.00	-do-
Abaca	0.5	36,000.00	40,000.00	4,000.00	Parang & Malabang
Coconut	1.2	7,600.00	20,000.00	12,800.00	Parang

Municipality of Guindulungan

Major Crops Produced	Average Prod./ha Tree	Production Cost/ha	Gross Sale/ha	Net Income/ha	Trading Arrangement
Corn	5 tons	P8,000.00	P45,000.00	P37,000.00	wholesale
Rice	4 tons	P5,000.00	P40,000.00	P35,000.00	wholesale
Coconut	1.5 tons	P1,500.00	P27,000.00	P25,500.00	wholesale
Banana	210 bunches	P1,000.00	P10,500.00	P9,500.00	wholesale

8) Development Constraints and Problems

Based on the available municipal agriculture profiles and other related documents, the following are the identified development issues and problems besetting the development of the agriculture sector of the Maguindanao as well as the corresponding recommendations:

a) High cost of farm inputs

The farmers are struggling with the high cost in farm inputs such as fertilizers, seeds, pesticides, herbicides, among others. One reason is that certified seeds, fertilizers, and chemicals are not always available in the area, thus triggering high prices such as in the municipality of Guindulungan.

One recommendation is to promote the adoption or practice of organic farming. Farmers are also asking for possible subsidy or for the LGU to undertake a regular program on certified seeds distribution either free of charge or charged to crop. The establishment of seed production areas is also being proposed.

b) The high cost of production is further exacerbated by the lack of production capital. In some cases, capital is available but the high interest rates have been a disincentive for farmers to borrow.

The recommendation is to attract investors to make available funds at affordable terms. Another is to promote the establishment of lending/financial institutions and government subsidy program.

c) Poor farm management practices resulting in low production/ productivity and poor quality produce.

Most farmers still use the traditional farm management practices in the selection of seeds, improper land preparation techniques, soil and water management, and post harvest technology. These poor practices have resulted in low quality and quantity of yields. Except for irrigated rice and white corn, production or yields of most crops remain low. For livestock and poultry, production is mostly at backyard scale.

d) Inadequate farm equipment/machinery, post harvest and related infrastructure support such as food terminals or trading posts.

The lack of post harvest facilities for rice and corn like solar dryer, continue to force farmers to sell their produce even when still wet, thus obtaining lower prices. In some municipalities there are existing facilities but these could not cope up with the volume of harvest specially on peak season.

The recommendation is to seek financial assistance to concerned government agencies and foreign assisted projects. Also being promoted is

the formation and/or strengthening of farmers cooperatives for them to avail of loans to procure and establish such facilities.

LGUs should also initiate and lead in the establishment of food terminals and trading posts.

e) Lack of farm to market roads

The lack of farm-to-market road has led to high transport/hauling costs and leakages, among others, thus resulting to lower incomes. Furthermore, existing FMRs are usually damaged during heavy rains.

Among the recommendations is for the affected farmers to coordinate with the LGUs and DA as well as foreign funding institutions for their needs to be addressed in their respective development plans, programs and projects. Existing FMRs should be rehabilitated and extended and made into all weather type while new FMRs should be constructed towards the interior barangays.

f) Inadequate irrigation facilities

The lack of irrigation water has been identified as a major constraint to increased agricultural production.

As mentioned in the previous section on irrigation, many NIS and CIS are non functional and need to be rehabilitated. Among these is the Kabulnan River Irrigation System in Datu Ampatuan in which the 6 service barangays have been suffering from poor supply of irrigation water. Likewise the CIP in Dapiawan, Datu Saudi needs to be rehabilitated. Also the immediate completion of the Mal-Mar Irrigation Project – Phase 2 and the expansion of the communal irrigation system in Barangay Tukanakuden in Sultan sa Barongis is being recommended, among others.

g) Limited access to market

Marketing of farm produce has been mainly through middlemen and traders who dictate the prices. Most marketing are done individually and therefore farmers have weak positions in negotiating for better prices. This is further compounded by the lack of post harvest facilities, trading posts and food terminals as pointed out earlier in most areas in the provinces.

h) Frequent flooding that causes damages to crops and livestock

With excessive rainfalls, low lying areas such as the municipalities of Pagalungan and Sultan sa Barongis are vulnerable to flooding, which causes substantial damages to crops and livestock. There are only five (5) municipalities in Maguindanao which have drainage projects or facilities. These are the municipalities of Sultan Kudarat, Parang, Kabuntalan, Datu Abdullah Sangki and Paglat.

The drainage condition in the province is fairly poor with some portions classified as good to fair drainage. These conditions are mostly found along the plains and valleys. In the upland areas, the drainage conditions range from good to fair to excessive erosion as a result of massive forest destruction.

The recommendation is the construction and improvement of drainage canals as flood control measures. The farmer leaders in coordination with the LGUs shall convince the DPWH to dredge the Rio Grande de Mindanao and Kulangan cut-off channel and construct dikes. Likewise, tree planting activities are being suggested in coordination with DENR.

i) Declining fish catch

There is rampant over and illegal fishing in the Ligwasan Marsh as well as continuing siltation and contamination due to illegal logging and mining operation in the upland areas. In addition, there is insufficient technical know-how on fishpond operation and fish processing.

BFAR should conduct information dissemination on the bad effect of overfishing and illegal fishing. There is also a need for a unified management of Ligwasan Marsh among LGUs having jurisdiction over the area through an appropriate resource management plan to guide the proper use of fisheries resources. This also includes the strict enforcement of local policies and regulations prohibiting illegal fishing.

j) Weak or absence of farmers' organizations and cooperatives

The absence or lack of active and dynamic farmer's cooperatives or organizations is also one of the contributory factors that impede local agricultural development. While the official records may indicate the existence of a number of farmers cooperatives in certain municipalities, many are no longer active or functioning.

k) Need to strengthen the capacity of DA-Maguindanao in agriculture extension and marketing assistance.

The DA-Maguindanao has identified, among others, the need to retool and reorient its personnel on DA thrusts and programs, duties and functions, and upgrade their capacity on extension services and provision of marketing assistance to improve their capability to perform more effectively.

Another major impediment is the peace and order situation which is also a major threat to agricultural development. With peace negotiations between parties concerned still ongoing, peace and order is still fragile. As experienced in the past, war conflicts really affect agricultural production, particularly the smallholder farmers dependent on their farms for sustenance.

3.2.3 Secondary Industry Sector

1) Value Added in Each Sub-sector

This secondary industry sector consists of 'Mining & Quarrying', 'Manufacturing', 'Construction' and 'Electricity, Gas & Water'. Growths and compositions of industry sub-sector by region are tabulated based on the statistical data in 2000 and 2007.

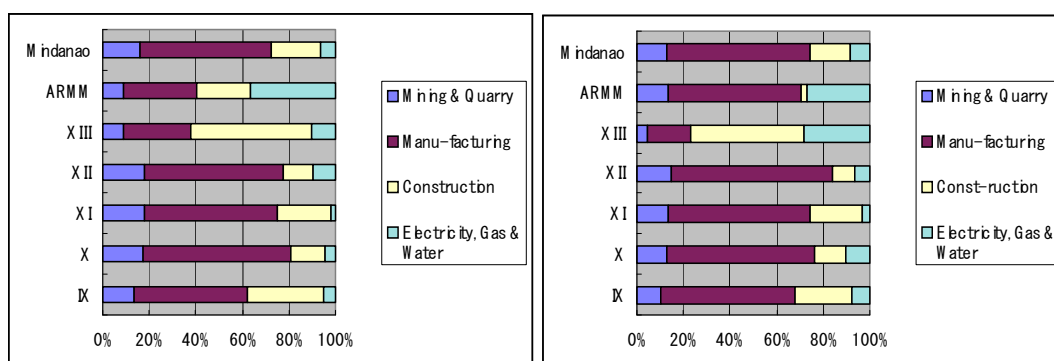
Total GRDP of secondary industry sector in Mindanao increased 1.85 times from 2000 to 2007, and this is 9.2% growth per annum in nominal price. Though the volumes of ARMM are quite small (only 3% share in Mindanao), it shows extremely high growth of 20% among them. It shows also not stable composition by sub-sector in comparison with other regions because of its undeveloped stage.

TABLE 3.2.3-1 VALUE ADDED IN EACH SUB-SECTOR OF SECONDARY INDUSTRY, 2000 & 2007(IN MILLION PHP)

Region	2000					2007				
	Mining & Quarry	Manu-facturing	Construction	Electricity, Gas & Water	Total	Mining & Quarry	Manu-facturing	Const-ruction	Electricity, Gas & Water	Total
IX	2,253	8,197	5,463	865	16,779	3,530	19,288	8,240	2,478	33,536
X	9,129	33,470	7,588	2,496	52,683	15,122	74,005	15,436	12,322	116,885
XI	10,343	33,640	13,229	1,300	58,513	11,771	53,040	19,287	2,729	86,827
XII	7,039	23,664	5,053	3,770	39,527	12,221	58,501	8,656	5,150	84,527
XIII	1,377	4,499	8,143	1,589	15,608	561	2,565	6,506	3,792	13,425
ARMM	379	1,281	945	1,499	4,105	1,547	6,695	319	3,177	11,738
Mindanao	30,521	104,751	40,423	11,521	187,216	44,752	214,094	58,443	29,649	346,938

TABLE 3.2.3-2 COMPARISON INDEX AND AAGR OF VALUE ADDED IN SECONDARY INDUSTRY

Region	2007/2000					2007/2000 AAGR				
	Mining & Quarry	Manu-facturing	Const-ruction	Electricity, Gas & Water	Total	Mining & Quarry	Manu-facturing	Const-ruction	Electricity, Gas & Water	Total
IX	1.57	2.35	1.51	2.86	2.00	6.62	13.00	6.05	16.22	10.40
X	1.66	2.21	2.03	4.94	2.22	7.48	12.00	10.68	25.62	12.06
XI	1.14	1.58	1.46	2.10	1.48	1.86	6.72	5.53	11.18	5.80
XII	1.74	2.47	1.71	1.37	2.14	8.20	13.80	7.99	4.56	11.47
XIII	0.41	0.57	0.80	2.39	0.86	-12.03	-7.71	-3.16	13.23	-2.13
ARMM	4.08	5.22	0.34	2.12	2.86	22.24	26.64	-14.38	11.32	16.19
Mindanao	1.47	2.04	1.45	2.57	1.85	5.62	10.75	5.41	14.46	9.21



FIGURES 3.2.3-1, 2 GRDP OF SECONDARY INDUSTRY BY REGION, 2000 AND 2007

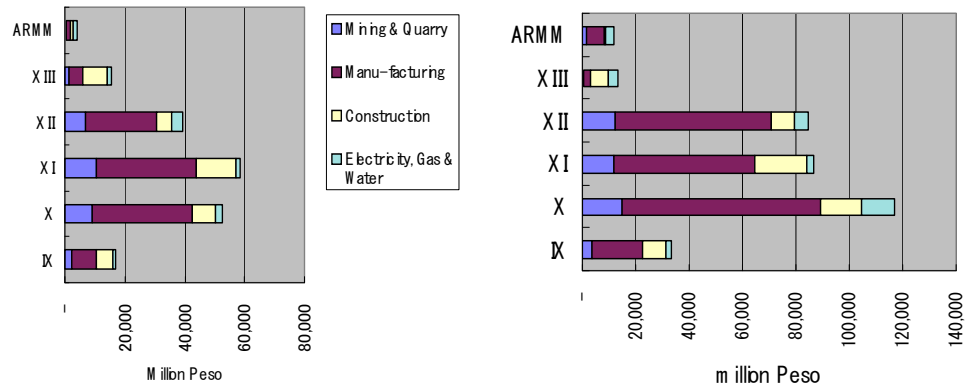


FIGURE 3.2.3-3, 4 COMPOSITION OF SECONDARY INDUSTRY GRDP BY REGION, 2000 & 2007

2) Mining

It is a common understanding that Mindanao is rich in mineral resources, such as gold, nickel, copper, iron ore, lead, zinc, chromites and magnetite.

In fact, Mindanao produced mineral products amounting to PhP 13.5 billion in 2004, or 25.5% of national output. Moreover, various potential mineral reserves are expected, such as copper, gold, nickel, gas and oil deposits.

Figure 3.2.3-5 indicates some probable area of mineral resources in Mindanao, and the list of mineral resources deposit in ARMM is tabulated in **Table 3.2.3-3**.

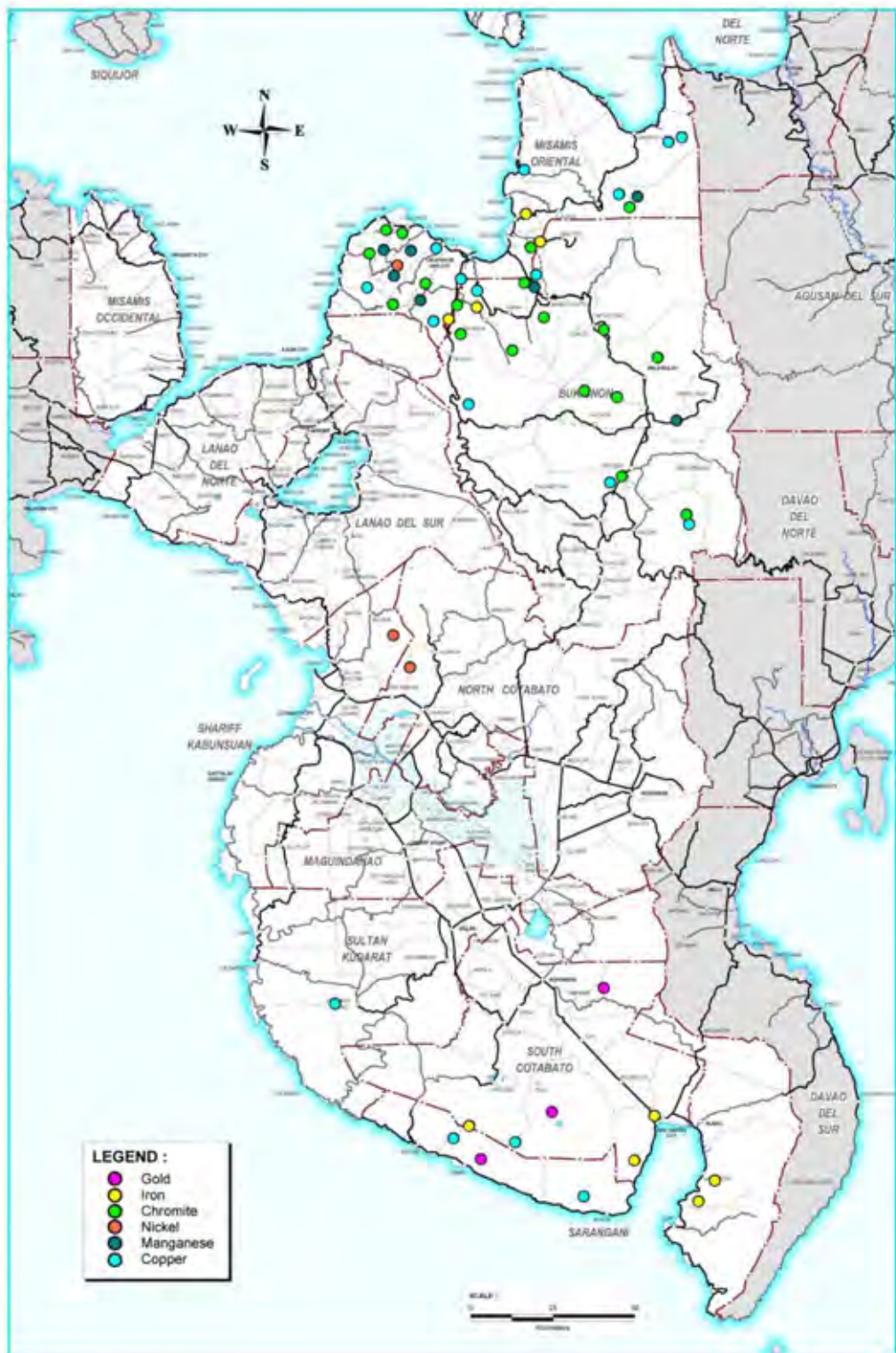


FIGURE 3.2.3-5 MAJOR LOCATIONS OF MINERAL RESOURCES IN MINDANAO

TABLE 3.2.3-3 REPORTED MINERAL RESOURCES IN ARMM

Location	Metal	Non-Metal
Magindanao		
1 Buluan	Copper, Manganese, Gold, Silver, Iron	
2 Ampatuan	Iron, Copper, Silver, Lead	Sand & Gravel
3 Dinaig	Gold, Silver	Guano, Clay
4 Parang	Gold, Copper, Silver, Nickel	
5 Upi	Gold, Iron, Copper, Zinc	Limestone
6 Sultan Kudarat		Sand, Gravel, Limestone
7 Datu Paglas		Sand & Gravel
Sulu		
1 Jolo		Sand & Gravel
2 Patikul		Sand & Gravel
Tawi-Tawi		
1 Maraning	Copper, Chromite	
2 Languyan	Copper, Chromite	

Source: DENR-ARMM

3) Major Manufacturing Factories in the Region

As it can be said that manufacturing industries are not well developed yet in ARMM, locations of existing major manufacturing factories are indicated in **Figure 3.2.3-6**.

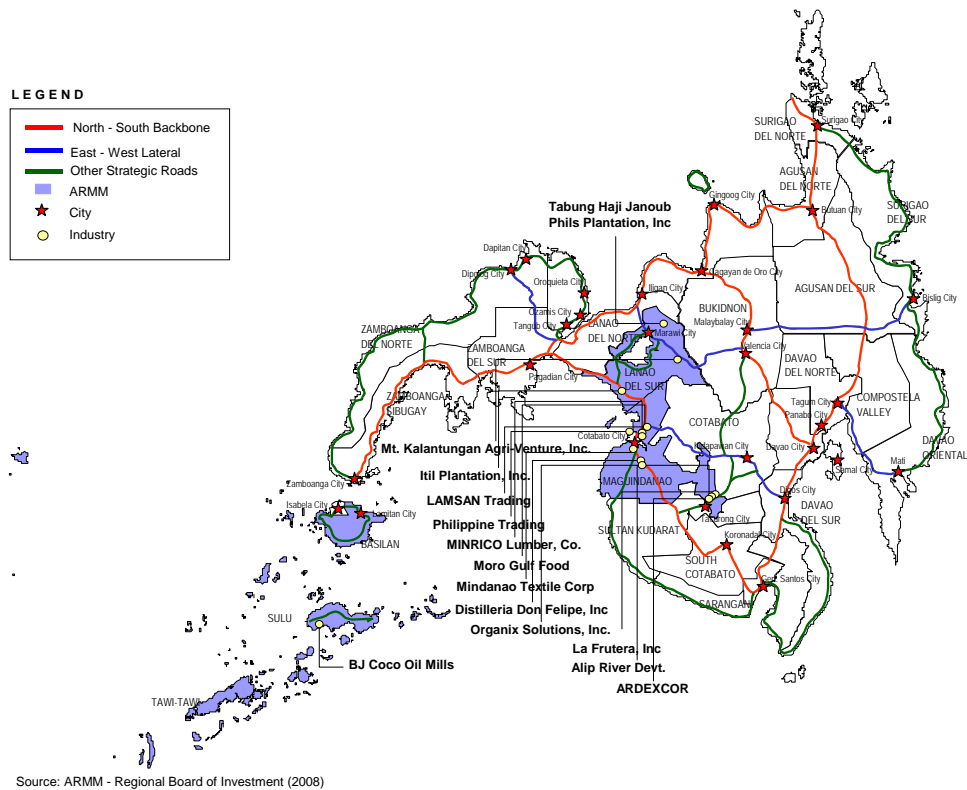


FIGURE 3.2.3-6 MAJOR MANUFACTURING FACTORIES IN ARMM

3.2.4 Tertiary (Service) Industry Sector

Since available data is very limited for the Study Area, major characteristics on commerce and trade of Cotabato City is summarized as the center of ARMM in this section.

Cotabato City resource-wise is agriculture based, but the commerce and trade grows faster than agriculture or service sector. At present, Cotabato City is one of the largest market in the region through which selected agriculture commodities are exported to Manila, Cebu and nearby area and through which nearly all of the region's manufactured goods are imported from Manila. Nearly all markets in the region deal through the city. Marketing is noted to be highly selective and sporadic and does not provide an institutionalised exchange network needed to stimulate agricultural productivity in the rural areas, thus, Cotabato City, in terms of commerce and trade; its strategic location offers as a significant take-off point/base for inter-regional commerce and trade related activities.

The Central Business District of the city embraces an area of 75.6830 hectares of barangays Pob. MB, 5 and 6, most of these are commercial stores, banking institutions, service-oriented establishments and restaurants and eateries. There are two central markets, namely the Mega market which is located at the eastern portion of the city and the old market at the western side. The city's slaughterhouse is located away from the market and is surrounded by residences.

There is no centralized terminal which caters the commuting public. At present, terminal services for people going towards the south are at various location of the CBD, while those buses/jeeps bound for the Northern direction utilize portions of land along Jose Lim Sr. Street and Don Rufino Alonzo Street. There is a need to put-up one Terminal Complex at barangay Rosary Heights 10 to serve all public vehicles.

The highest volume of cargoes carried by airline was registered in the month of July, 1997 with a total of 176,175 kilograms while the lowest volume of cargoes was in the month of August, 1998 with only 52,711 kilograms brought about when PAL stopped servicing its route for Cotabato City which started again in June 1998.

The highest total shipcalls for both PMO-Polloc & Cotabato Terminal were cited in 1997 for domestic with a total of 4,229 shipcalls while foreign shipcalls were cited in 1995 with 15. The lowest shipcalls were in 1996 with 2,441 shipcalls for domestic and only 9 shipcalls for foreign.

Total Gross Registered Tonage for both domestic & foreign recorded the highest figure in 1997 with 2,271,592 while the lowest tonage in 1996 with 1,672,298.

Problems and issues of the tertiary industry sector are summarized as follows;

Problems/Issues:

- Poor maintenance of the Mega Market
- The need for restoration of the old market
- Lack of facilities in the Mega Market
- Lack of adequate facilities especially water disposal area and constant threat to the health conditions of the residents within the vicinity of the slaughterhouse.
- The need to put-up one transport terminal complex with adequate facilities to serve the commuting public.
- The need to identify additional expansion area for commercial use.
- There is a strong mix of commerce and residential uses in the CBD.
- Lack of definite guidelines on the use of land by existing industries within the residential areas.

3.2.5 Tourism Sector

As there are few data/information regarding tourism in the study area, some topics are described.

1) Number of Tourists

According to a statistical data by DOT, very small number of tourists is recorded in the study area comparing Philippines total (approx. 5%), and no available data in ARMM.

TABLE 3.2.5-1 TRAVELERS DISTRIBUTION BY REGION

Region/Province	2006				2007				2006-07 Growth Rate
	Foreign Travellers	Overseas Filipino	Domestic Travellers	Total	Foreign Travellers	Overseas Filipino	Domestic Travellers	Total	
Philippines Total	1,987,196	202,830	14,074,625	16,264,651	2,721,102	240,335	16,760,539	19,721,976	21.3
Study Area (excl. ARMM)	36,929	11,351	963,182	1,011,462	34,760	8,386	1,015,539	1,058,685	4.7
X (only study area)	32,323	6,908	345,105	384,336	30,602	3,366	388,571	422,539	9.9
Bukidnon	6,380	2,435	28,812	37,627	4,804	603	30,201	35,608	-5.4
Lanao del Norte	2,317	970	81,139	84,426	1,903	499	89,829	92,231	9.2
Misamis Oriental	23,626	3,503	235,154	262,283	23,895	2,264	268,541	294,700	12.4
XII (incl. Cotabato City)	4,606	4,443	618,077	627,126	4,158	5,020	626,968	636,146	1.4
North Cotabato	927	1,108	127,891	129,926	674	1,173	133,001	134,848	3.8
Sarangani	267	327	47,607	48,201	234	504	56,818	57,556	19.4
South Cotabato	2,016	1,557	249,455	253,028	1,907	1,703	232,695	236,305	-6.6
Sultan Kudarat	498	844	99,178	100,520	526	910	118,941	120,377	19.8
Cotabato City	898	607	93,946	95,451	817	730	85,513	87,060	-8.8
ARMM (incl. Islands)									
Basilan*	10,684	11,782	274,652	297,118	-	-	-	-	-
Lanao del Sur	-	-	-	-	-	-	-	-	-
Maguindanao	-	-	-	-	-	-	-	-	-
Shariff Kabunsuan	-	-	-	-	-	-	-	-	-
Sulu	-	-	-	-	-	-	-	-	-
Tawi-Tawi	-	-	-	-	-	-	-	-	-

*: include data for Zamboanga City

Source:DOT

2) Outline of Tourism in ARMM

ARMM's potential tourist attraction is pointed out in its RPPF with unique geologic features from natural, historical, cultural, marine educational, aqua sports, etc. Potential tourist spots in ARMM are listed in **Table 3.2.5-2**.

ARMM generated an Average of 460,000 tourist arrivals with domestic value of 1.754million pesos between 1997 and 1999. However, a decline of tourist arrival noted for 1998 to this date. This decreasing performance was due to weak information drive for marketing promotion and support services such as inadequate infrastructure accessibility to the area and the peace and order condition in the region.

TABLE 3.2.5-2 ARMM POTENTIAL TOURIST SPOTS

Particular	Location
Island Provinces	
Turtle Island Wildlife Sanctuary	Tawi-Tawi
Gusung Reef	Tawi-Tawi
Kaba-Kaban Natural Swimming Pool	Sitangkai, Tawi-Tawi
Tahing-Tahing Beach	Sitangkai, Tawi-Tawi
Shiek Makdum Mosque	Simunul, Tawi-Tawi
Bud Bongao Peak	Bangao, Tawi-Tawi
Provincial Museum, Walled City	Jolo, Sulu
Raja Baguinda Shrine at Bud Datu	Jolo, Sulu
American Cavalry Monument	Jolo, Sulu
White Beaches at Maubu, Tandu, Marungas & Tanjong	Jolo, Sulu
White Beaches identified at 6 Municipalities	Basilan
Mainland Provinces	
Lake Lanao, its twin islets	Lanao del Sur
Lake Dapao	Pualas, Lanao del Sur
Malabang Beach	Malabang, Lanao del Sur
Old Japanese Prot	Sur
Sleeping Lady Mountain	Malabang, Lanao del Sur
Liguasan Marsh	Sur
Lake Buluan	Butig, Lanao del Sur
Mado and Limpongo Hot Spring	Maguindanao
Five Falls of Kiga	Maguindanao
Sapalan Falls	Shariff Aguak,
Blue Lagoon	Maguindanao
Tomb of Datu Mastura and Datu Utto	Upi, Maguindanao
	DOS, Maguindanao
	DOS, Maguindanao
	SK, Maguindanao

3) Major Tourist Attractions in Cotabato City

Major tourist spots in Cotabato City are listed in the official home page as follows:

- Rio Grande de Mindanao: The second largest river in the Philippines and the longest in Mindanao crisscrossing, with its tributary, the city's vast

area. Estimated to be 182 kilometers long and 96 meters wide. Water sports and boat racing are the popular attractions of the river, usually held to coincide with the Shariff Kabunsuan Festival and the Feast of Hariraya Puasa.

- Tamontaka Church: Built in 1872 of Spanish architecture and design. It is the oldest church in the city, a relic of the living past.
- Lourdes Grotto: A replica of Our Lady of Lourdes Grotto in France. The compound is equipped with ideal retreat house for recollection and seminars, a mini zoo and a children's park.
- Kutang Bato Caves: The only cave in the country that is right in the heart of the city. Its various entrances, all within traffic a rarity that can only be had in the "Heart of Mindanao". These caves were also the source of the city's present name for "KUTA" which means "FORT" and "BATO" which means "STONE" hence the name "Fort of Stone" which later became Cotabato.
- Old Cotabato City Hall: A century old structure which houses almost all of the city government offices. It showcases a unique and antique architectural design depicting the Maguindanaon Art.
- Takumi Butai Memorial Shrine: A monument in honor of Takumi Butai and Japanese soldiers who died here during the Second World War. Takumi was the Provincial Commander of the Japanese forces assigned in Cotabato City. Before he died, he requested that some of his ashes be buried in Cotabato City. This shrine was put up by the Lion's Club of Kyoto, Japan in cooperation with the City Government of Cotabato.

3.3 TRANSPORT INFRASTRUCTURE CONDITIONS OTHER THAN ROADS

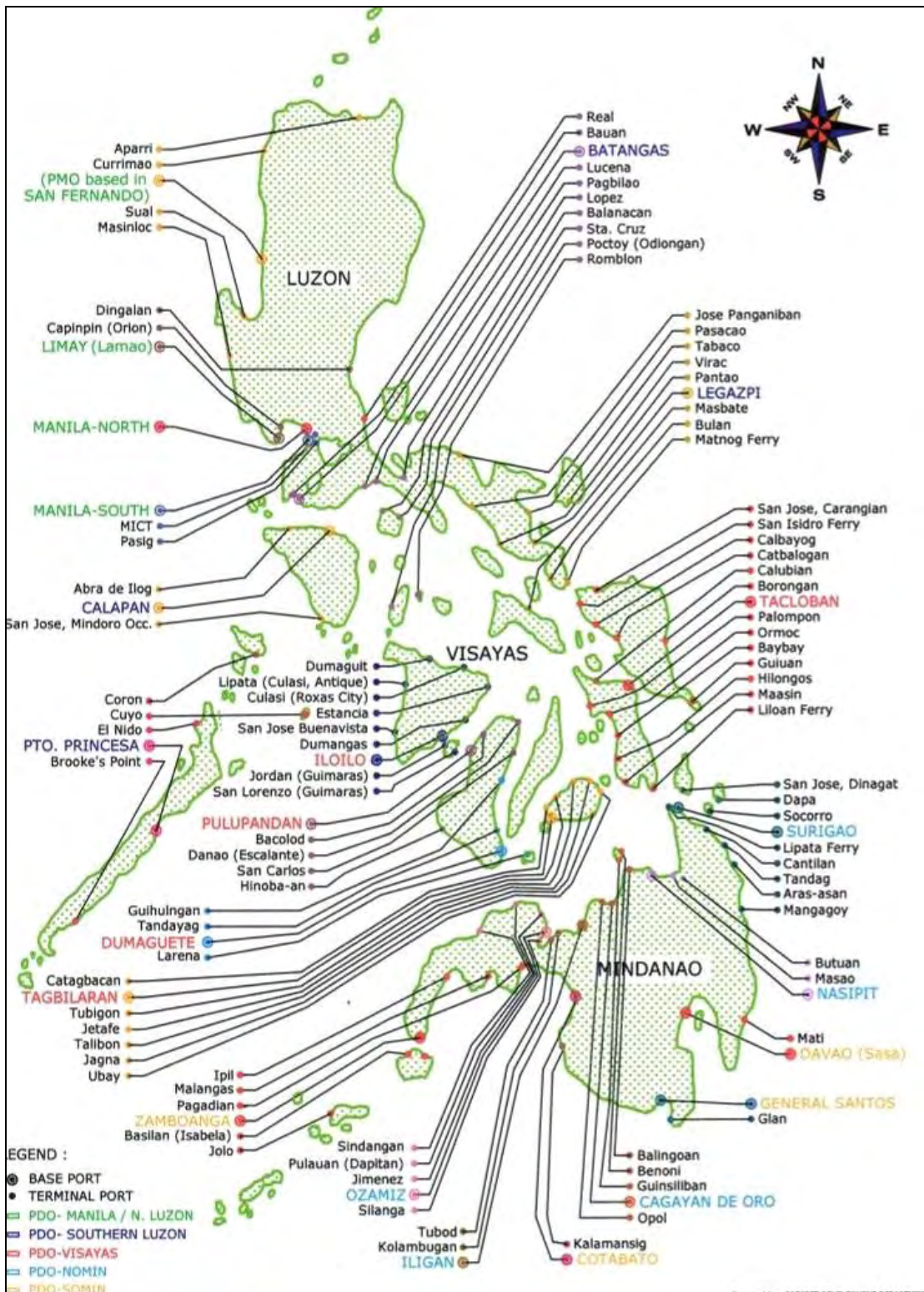
3.3.1 Sea Transport Facility

(i) Location of Base Ports

The JICA Study (2005) entitled "The Study on Domestic Shipping Development Plan in the Republic of the Philippines" reported that the country has over 2,456 ports, but many of them are extremely small and catering mainly to local fishing and passenger movements. There are 423 private ports, mostly ports belonging to private enterprises for their own exclusive use. These ports handle 65%, in tons of all cargo traffic, which consists largely of minerals, petroleum, cement and bulk agricultural produce. There are 421 fishing ports, most of which are under the administration of the Philippine Fisheries Development Authority. The Philippine Port Authority (PPA) operates 123 public ports, which consist of 21 base ports and 102 secondary ports or terminal ports. **Figure 3.3.1-1** shows the location of major ports in the Philippine.

In addition, there are five other important government authorities involved in port operations, namely: the Cebu Port Authority, which operates Cebu Port and several small nearby ports on Cebu Island; Subic Bay Metropolitan Authority, which operates Subic Bay Port; the Bases Conversion Development Authority (BCDA), which now has jurisdiction over San Fernando Port; the Phividec Industrial Authority, which is set to operate the newly completed Mindanao Container Terminal Port in Misamis Oriental; and the Cagayan Economic Zone Authority (CEZA), which is designated to operate the Port Irene freeport. The ARMM Regional Government has assumed supervision of three base ports, 79 terminal ports and 70 local ports within their area of responsibility.

Recently, the Autonomous Region in Muslim Mindanao Social Fund Project (ASFP) has spent P22.8 million for the improvement of the Polloc base port in Parang, Maguindanao. The project includes the concreting of the road network within the port zone and installation of rubber fenders on the berthing area.

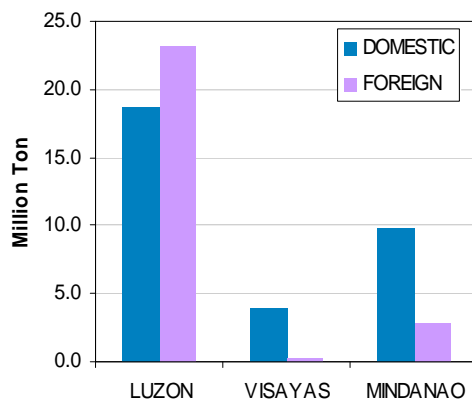


Source: JICA Study on the Master Plan for the Strategic Development of the National Port System (2004)

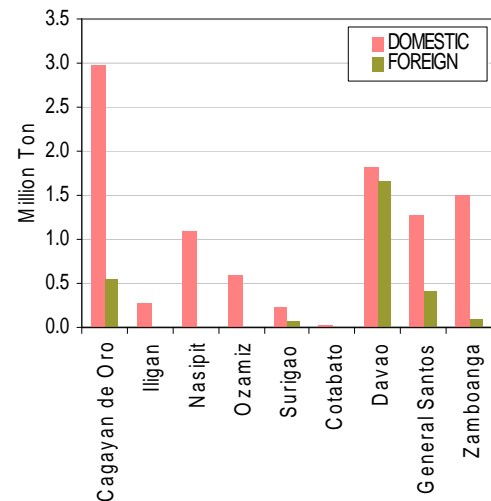
FIGURE 3.3.1-1 MAJOR PORTS IN THE PHILIPPINES

(ii) Port Statistics

Eighty eight percent (88%) of the international cargoes are handled by ports in Luzon; eight percent (8%) are handled by ports in Mindanao and the remaining cargoes are passing through the ports in Visayas as presented in **Figure 3.3.1-2**. In Luzon, most international cargoes are administered at the ports of Manila, Subic and Batangas. In Mindanao, Davao and Cagayan de Oro ports are solidifying their positions as international gateways of the region as shown in **Figure 3.3.1-3**. Davao port in particular has a steady growth of cargo volumes handles for the past years.



Source: PPA (2007)



Source: PPA (2007)

FIGURE 3.3.1-2 VOLUME OF DOMESTIC AND FOREIGN CARGOES HANDLE BY BASE PORTS

FIGURE 3.3.1-3 CARGO & PASSENGER STATISTICS AT MINDANAO PORTS

(iii) Polloc Port

The ARMM government has created the Regional Ports Management Authority (RPMA) to manage and supervise ports under its jurisdiction. Polloc port was devolved by the Philippine Port Authority (PPA) to the ARMM DOTC in 1998. The historical volume of cargoes handled by the port is presented in **Figure 3.3.1-4**. As seen in the figure, the cargo traffic of the port has been declining reaching a new low record of 249,788 metric tons in 2005.

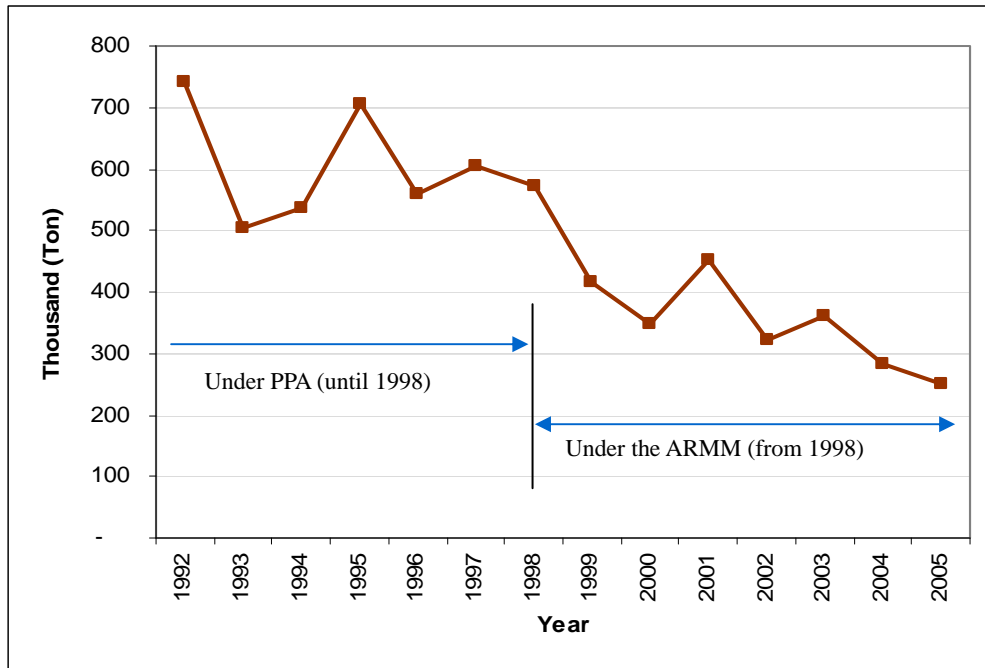


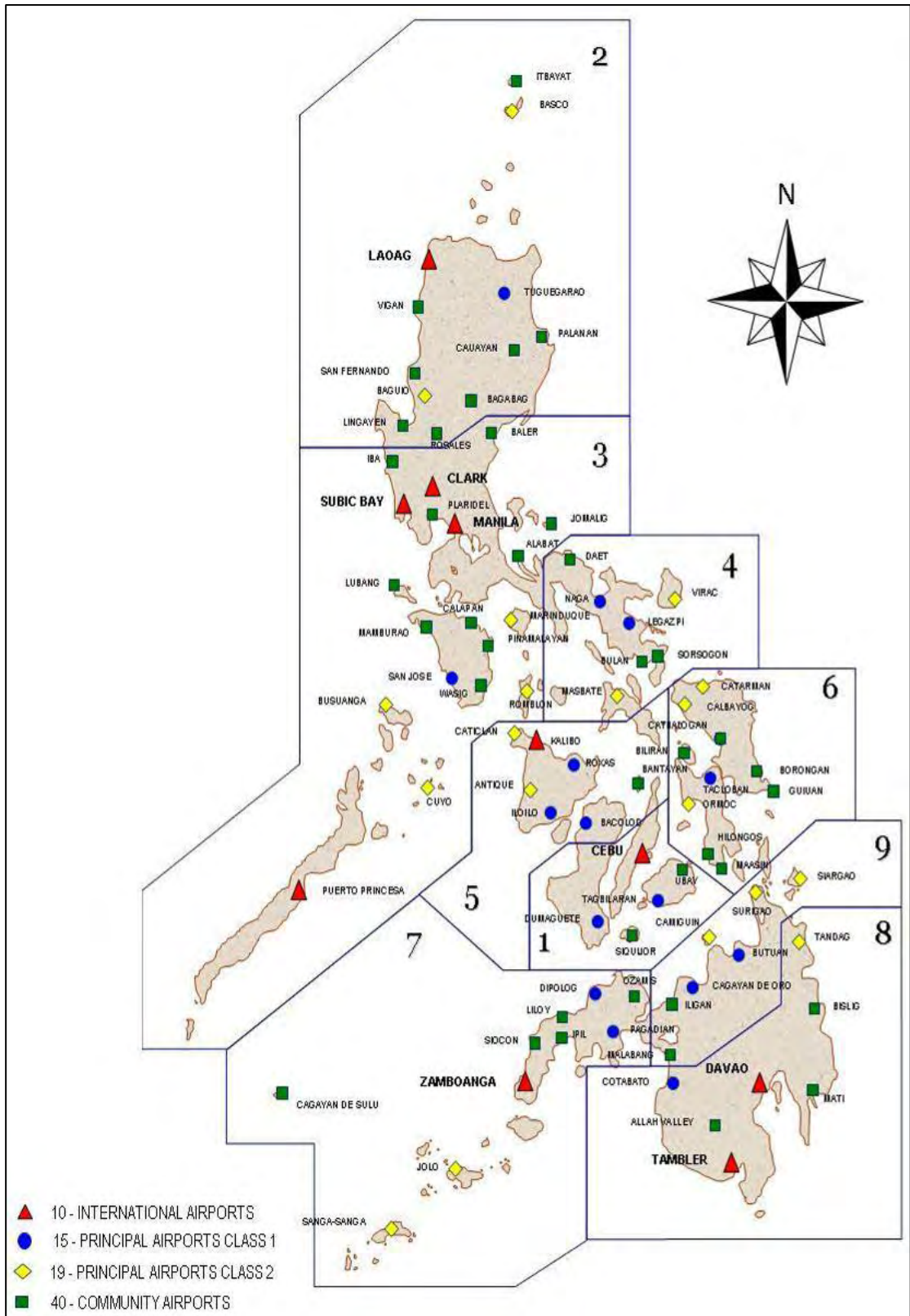
FIGURE 3.3.1-4 VOLUME OF CARGOES HANDLE BY POLLOC PORT

3.3.2 Air Transport Facility

(i) Location of Airport by Class

The Philippines has a total of 84 national airports, which are classified as international, principal class 1, principal class 2 and community airports. There are nine (9) international airports designated as major gateways to the country. Of the nine, three are located in Mindanao – i.e. Davao City, General Santos City and Zamboanga City. The primary international airports are Ninoy Aquino International Airport, Mactan-Cebu, Clark and Subic International Airports. The three international airports located in Mindanao along with Kalibo and Laoag serve as alternate international airports handling limited international scheduled and chartered air services.

Further, there are fifteen (15) principal airports under class 1 and nineteen (19) principal airports under class 2. Of the fifteen, five (5) are in Mindanao – i.e. Cotabato, Pagadian, Dipolog, Iligan, Butuan- which are served by jet aircraft. The rest of the domestic airports are classified as community airports serviced by mainly turbo-propeller type aircraft. **Figure 3.3.2-1** shows the location of commercial airports in the Philippines.



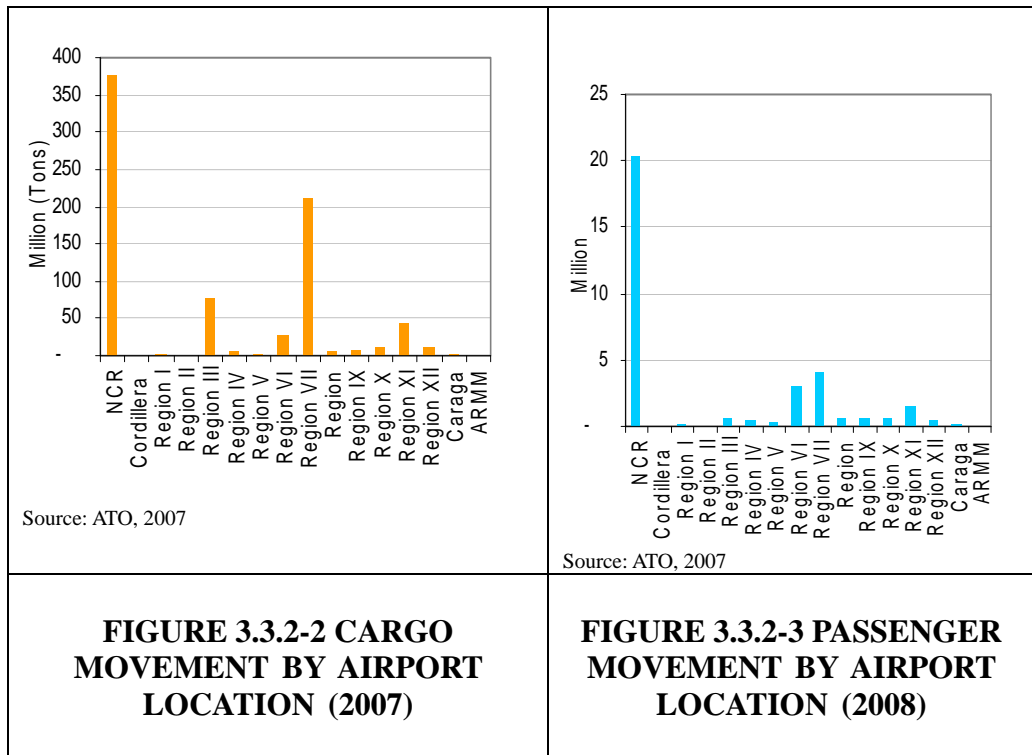
Source: Civil Aviation Authority of the Philippines

FIGURE 3.3.2-1 LOCATION OF PHILIPPINE AIRPORTS

(ii) Airport Statistics

The total air cargo traffic volume in the Philippines in 2007 is 782 million tons. Most of the traffic is coming in/out of Luzon (59%) in particular of NCR. Cargo traffic from/to Visayas is accounted to 31% while Mindanao has a share of merely 10%. ARMM's air cargo traffic is accounted to just 9,884 tons (0.0013%). Regional distribution of cargo traffic is shown in Figure 3.3.2-2.

The trend for passenger movement is rather similar of the above where Luzon (particularly NCR) is the prime origin/destination of passenger traffics. Visayas has a share of 23% of passenger traffic and Mindanao got 11%. Figure 3.3.2-3 presents the regional distribution of passenger traffic.



3.3.3 RO-RO System

(1) Nautical Highway System

The RO-RO system primarily aims to enhance mobility and improve linkage between islands of the country as presented in **Figure 3.3.3-1**. The government has been exerting efforts to expand the coverage of the Strong Republic Nautical Highway (SRNH) through the completion of the vital links of the Western, Eastern and Central Nautical Highway which are vital infrastructure to RO-RO system. Last year, the rehabilitation of Mambajao Port in Camiguin was completed which means that the port can now accommodate large and more Ro-Ro vessels. The port is the nearest RoRo point linking the Visayas to Mindanao via the port of Jagna in Bohol.

Initial success of the RO-RO system has been mentioned in several studies. A JICA Study (2003) reported that the use of the RORO system to transport produce from Mindanao through the Visayas to Luzon has reduced travel time by 10 hours, and reduced costs by 40 percent for passengers and 30 percent for cargo. Another study conducted by the UNDP entitled Seed to Shelf (2005) noted that the RoRo made it possible to transport tomatoes from Cagayan de Oro to Manila within 3 days (instead of 6-9 days) which significantly reduces spoilage and extends the product's shelf life.

The Medium Term Development Program of the Philippines (2004-2010) placed a high priority in the development of the Nautical Highway system in and the following routes were identified as high priority routes:

(a) Western Nautical Highway (also known as Strong Republic Nautical Highway)

- Oroquieta City - Dapitan City – Dipolog City Road
- Dipolog City– Dumaguete City RoRo
- Dumaguete City – Samboan, Cebu RoRo
- Samboan,Cebu – Barili,Cebu – Toledo City Road
- Toledo City – San Carlos City RoRo
- San Carlos City – Dumaguete City Road
- Dumaguete City – Bacolod City Roads
- Dumaguete City – Bais City – Mabinay, Neg.Or. – Kabankalan, Neg.Occ. – Bacolod City Route
- Dumaguete City North Road – San Carlos City Coastal – Bacolod City North Road
- Bacolod City - Iloilo City RoRo
- Iloilo City – Caticlan,Aklan (Aklan Roads)
- Iloilo City – Passi, Iloilo – Calinog, Iloilo – Ivisan, Capiz – Kalibo, Aklan – Nabas, Aklan – Caticlan, Aklan Road
- Iloilo East Coast – Capiz Road
- Caticlan, Aklan – Roxas, Oriental Mindoro RoRo
- Roxas, Oriental Mindoro – Calapan City Road
- Calapan City – Batangas City RoRo

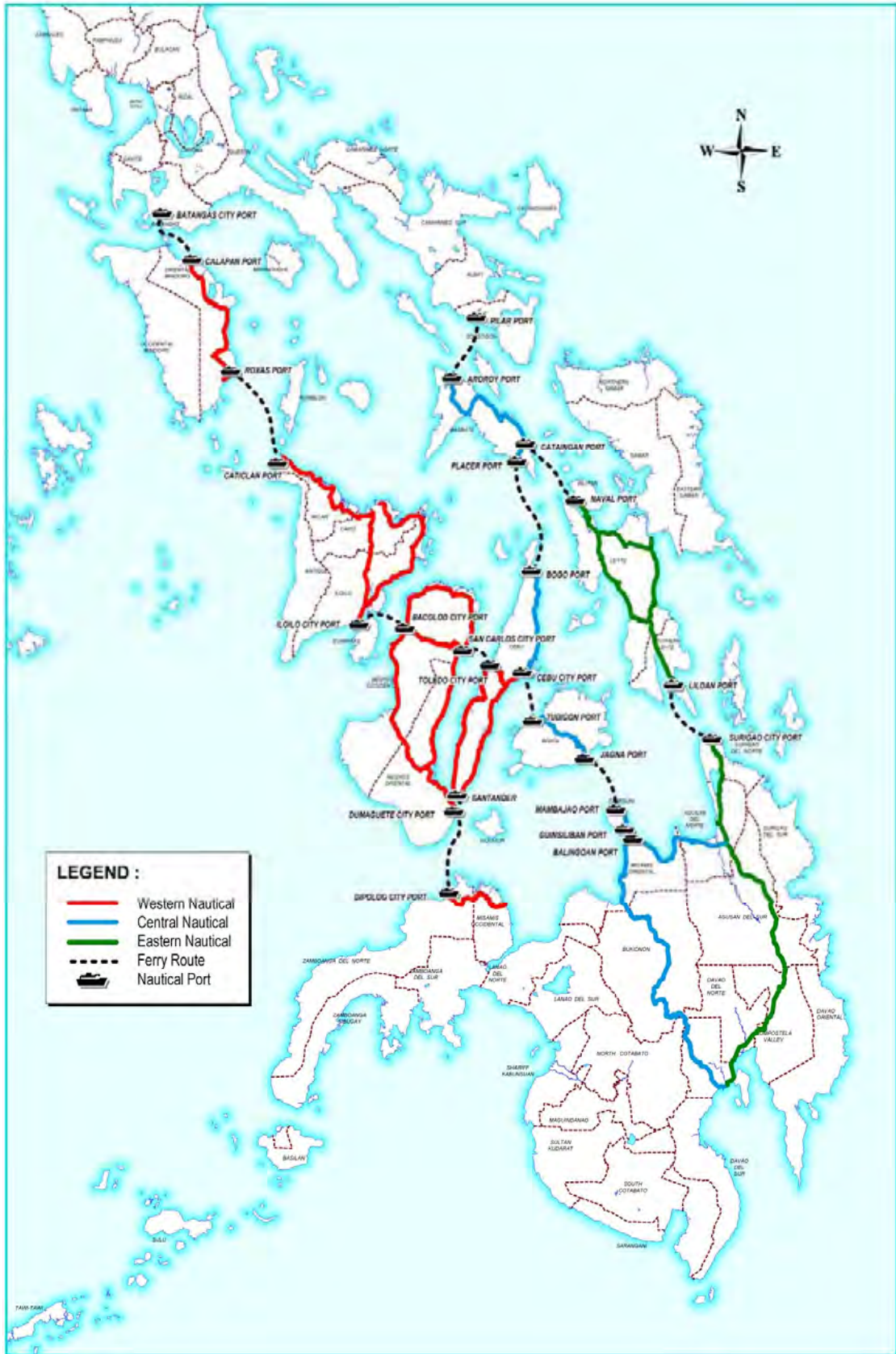


FIGURE 3.3.3-1 ROUTES OF NAUTICAL HIGHWAYS

(b) Central Nautical Highway

- Calinan, Davao City – Buda, Bukidnon – Misamis Oriental Road
- Butuan City – Agusan Del Norte – Misamis Oriental Road
- Balingoan, Misamis Oriental – Guinsiliban, Camiguin RoRo
- Guinsiliban, Camiguin – Mambajao, Camiguin Road
- Mambajao, Camiguin – Jagna, Bohol RoRo
- Jagna, Bohol – Tubigon, Bohol Road
- Bohol Circumferential Road
- [Bohol Interior Road] Jagna – Sierra Bullones – Clarin – Tubigon Road
- Tubigon, Bohol – Cebu City RoRo
- Cebu City – Toledo City Road
- Toledo City – San Carlos City RoRo
- San Carlos City – Dumaguete City Road
- Dumaguete City – Samboan, Cebu RoRo
- Samboan, Cebu – Cebu City Road
- Cebu City – San Remigio, Cebu Road
- San Remigio, Cebu – Placer, Masbate RoRo
- Placer, Masbate – Aroroy, Masbate Road
- Arroyo, Masbate – Boca Engano, Masbate RoRo
- Boca Engano, Masbate – Claveria, Masbate Road
- Claveria, Masbate – Pantao, Albay RoRo
- Claveria, Masbate – San Pascual, Masbate Road
- San Pascual, Masbate – Pasacao, Camarines Sur RoRo

(c) Eastern Nautical Highway

- Davao – Compostela Valley (Alegria – Santiago, Bayugan – San Francisco – Trento – Monkayo) – Agusan – Surigao Road
- Surigao City – Liloan, Southern Leyte RoRo
- Liloan, Southern Leyte – Naval, Biliran Highway
- Naval, Biliran – Cataingan, Masbate RoRo
- Cataingan, Masbate– Aroroy, Masbate Highway

(2) Number of Vehicles Uses Ro-Ro

In 2007, close to one million vehicles were recorded utilizing the RO-RO highways as more ports are rehabilitated to accommodate RO-RO vehicles as shown in **Table 3.3.3-1**. While the volume of cargoes handled by the RO-RO highway is observed to increase, the opposite is being felt by the ports with Ro-Ro terminals. In the PPA's 2006 Annual Report, the agency observed that most PMOs (Project Management Offices) with ports included and/or linked to the SRNH all recorded drops in domestic cargo handled. This trend further confirms the growing preference of port users to have their goods transported by wheeled vehicles from the source to the end-users which can be viewed as users' appreciation to the recent improvements of RO-RO ports.

**TABLE 3.3.3-1 TABLE NUMBER OF VEHICLES
CARRIED BY RO-RO VESSELS (2007)**

Port	INBOUND	OUTBOUND	TOTAL
LUZON	224,497	263,493	487,990
Batangas	103,405	145,319	248,724
Calapan	120,355	117,501	237,856
Puerto Princesa	737	673	1,410
VISAYAS	12,153	9,728	21,881
Dumaguete	7,486	6,646	14,132
Ormoc	1,615	1,529	3,144
Tagbilaran	3,052	1,553	4,605
MINDANAO	185,808	220,950	406,758
Cagayan de Oro	2,622	3,307	5,929
Iligan	167	45	212
Ozamiz	190	6	196
Daima	176,519	212,532	389,051
Surigao	1,652	1,418	3,070
Zamboanga	4,658	3,642	8,300
TOTAL	422,458	494,171	916,629

Source: PPA (2008)

3.3.4 Inter-Modal Linkage

This section assessed the condition of road connections to port and airport. Equal importance is also given to the problems inside the two facilities. The nature of problems that might hamper movement of commodities are classified into two: (i) hard such as forklift, crane, x-ray machine and other equipment needed inside the port, (ii) soft such as paper documentation, quarantine and to some extent, custom clearance for international cargo. It should be noted that although procedures and problems at the airport might be touch, the focus is on the port since this is the main facility which handles bulk of the commodity.

As prelude to assessment on ports performance in Mindanao, it is essential to clarify how the country as a whole is performing when compared to neighboring countries in terms of trade indicators. Looking at the table below show that Philippines is relatively quick in total export time compared to Indonesia and Malaysia but lagging behind Thailand and especially to Singapore. For total import time however, Malaysia is ahead of the Philippines as well as Thailand and Singapore.

The importance of releasing/sending the commodities from the port as quick as possible is rooted to the desire of users to have their cargo on-time. It is because an hour is long enough to disturb the modern Supply Chain Management. In most cases, customs procedure is the main is bottle neck of the entire logistics chain.

TABLE 3.3.4-1 INTERNATIONAL TRADE INDICATORS

	Philippines	Indonesia	Thailand	Malaysia	Singapore
Export	Duration (days)	Duration (days)	Duration (days)	Duration (days)	Duration (days)
Documents preparation	9	14	8	10	1
Customs clearance	2	2	1	2	1
Ports and terminal handling	3	2	3	3	1
Inland transportation and handling	2	3	2	3	2
Total	16	21	14	18	5
Import	Duration (days)	Duration (days)	Duration (days)	Duration (days)	Duration (days)
Documents preparation	8	15	8	9	1
Customs clearance	3	4	2	1	1
Ports and terminal handling	4	6	2	2	1
Inland transportation and handling	1	2	1	2	0
Total	16	27	13	14	3

Source: World Bank – Doing Business (2009)

Access Road to Ports and Airports

A 2004 JICA study entitled “The Study on the Master Plan for the Strategic Development of the National Port System” made an initial assessment to access roads of major ports in Mindanao as shown in **Table 3.3.4-2**. The said study concluded that most of the ports have access road except to ports of Cagayan de Oro and to some extent, port of Davao.

TABLE 3.3.4-2. CURRENT CONDITIONS OF ACCESS ROADS AT MAJOR PORTS IN MINDANAO

Region	Port	Existing		Future Development
		Access Road	Condition	
Region 9	Zamboanga	National 4 lanes	Good	
Region 10	Cagayan de Oro	National 2 lanes	Daily Congested	Required
	PHIVIDEC	National 2 lanes	Good	
Region 11	Davao	National 2 lanes	Fair	
Region 12	Gen. Santos	National 2 lanes	Good	
ARMM	Polloc	National 2 lanes	Good	

Note: Except Polloc Port, all are based on “The Study on the Master Plan for the Strategic Development of the National Port System”, JICA (2004)