

CHAPTER 1

PROFILE OF THE STUDY AREA

1.1 PHYSICAL PROFILE

1.1.1 Topography

The study area can be described as generally flat to gently sloping. As such, most of these, particularly those along the coastal zones are considered “environmentally constrained” flood-prone areas.

More than 90% of Iloilo City’s land mass consist flat and low-lying areas adjoining rivers and seas. The elevation is approximately 2.7 meters near the shorelines, and a high of 5.18 meters towards the inland areas.

The municipalities of Leganes and Zarraga are reported to be submerged in water during long heavy rains. The topography of Zarraga varies from level in the central and lowland along the coastal, river, and creek banks, with only a very small portion with hilly areas. Leganes is also one of the coastal towns of the province that is located along the Guimaras Strait, and like Zarraga, is characterized by level plains, with slightly higher slopes towards the northwest of Lapayon and Calaboa. The Municipality of Oton mainly consist of flat to rolling terrains. The slope of the entire municipality varies from 0-3% only. Pavia is a totally flat plain with no coastal area. Like Oton and Pavia, the Municipality of San Miguel is generally flat (0-3%) with very limited rolling terrains with 3-8% only. Cabatuan is the only municipality with moderate to steeply sloping terrains.

1.1.2 Geology

Panay Central Plain

The oldest rocks considered as the basement, consist of an assemblance of igneous & metamorphic rocks. The igneous rocks are predominantly basic & include fine grained, porphyritic and amygdaloidal basalts; volcanic breccias and agglomerates and coarse tuffs. The metamorphic rocks are greenstones, serpentines & quartzites.

Unconformably overlying or in fault contact is a sequence of Oligocene to Miocene conglomerate, sandstone, shale & reefal limestone designated by Corby, et., al., as the Singit Formation, which was later subdivided by Santos (1968) into the Sewaragan Complex Member, Tanian Limestone, Igtalongon Shale and the Barasan Sandstone.

The Sewaragan Complex Member is dated Oligocene to Middle Miocene. It is of three lithologic types: Meta-sandstones; argillites and slates; and basalt flows, sills and dikes.

The Middle Miocene Tanian Limestone includes a downslope facies interlayered with the metasandstone and argillites of the Sewaragan and an upslope facies that makes up the bulk of the rock unit and directly caps the pre-Singit rocks. Overlying conformably the Tanian, is the Middle to Upper Miocene Igtalon Shale, essentially a shake-silt unit with local occurrences of sandstone and thick layers of calcareous greywacke and conglomerate.

The Barasan Sandstone, the uppermost member of the Singit Formation conformably overlies the Igtalongon Shale. It is of Late Miocene and is predominantly greywacke with sporadic thin bands of shale-siltstone.

Conformable on the Singit is the Tarao Formation (Corby, et.al.) which is subdivided into two distinct members: the Upper Miocene Tubungan Siltstone (chiefly stratified sequence of siltstone, claystone and sandstone) and the Lower Pliocene Guimbal Mudstone (which is highly calcareous and fossiliferous).

Overlying the Tarao is the Iday Formation (Corby, et.al.), a Pliocene sequence of conglomerate sandstone & claystone.

The Upper Pliocene Ulian Formation consist mostly of claystone or mudstone. Where the Ulian overlies the Iday Formation, pebbles & granules of volcanic rocks concentrated in aligned lenses randomly occur in the lower beds of the Ulian; and where the Ulian underlies the Dingle Formation in the eastern side, the mudstone beds are more calcareous and gritty grading to the hard, massive, pure limestone easily recognized as part of the Dingle Formation.

The youngest unit in the Panay Central Plain is the Pleistocene Cabatuan Formation (Corby, et.al) which is subdivided into three members based on lithology, stratigraphic relations and faunal evidences. These are the Balic Clay (thick bedded mudstone), Santa Barbara Silt (consist of siltstone, silty sandstone with minor claystone layers) and the Margaret Sandstone (which is the only member of the Cabatuan represented in northeastern Panay, is unconformable with the Ulian and conformable with the Balic Clay, and is dominantly crossbedded sandstone).

Alluvium covers the Jaro and Jaluar flood plains in the center of Panay Central Plain. The Lambunao and Janiuay Plateaus are capped by loosely consolidated gravels.

1.1.3 Meteorology

1) Climate Type

The closest meteorological station in the study area is located in Iloilo City, Iloilo. Modified Corona's Classification shows that climate in the project area belongs to Types III and I. A not very pronounced season describes climate Type III. Two (2) pronounced seasons, the wet and dry on the other hand typified climate Type I. In both climate types, the dry spell is felt starting December and stretches up to April, while it is wet the rest of the year.

2) Rainfall

The annual rainfall in the study area is approximately **2194.6 mm**. The highest amount of precipitation was recorded in August, which was measured at **388.8 mm**. However, the most number of rainy days (**20**) occurred in July. During the dry season, the lowest amount of rainfall of **30.4 mm**, which was recorded in February .

3) Temperature

Relatively cool temperature in the study area is felt during the months of December to February. This normally ranges between **22.6°C-23.4°C**. Warm temperature in March of **32.4°C** could heat up to **33.8°C** the following month. The annual mean temperature is **27.8°C**. From July to November, relatively high

humidity of **84%** is felt in the study area. A low of **73%** on the contrary is experienced in April.

4) Air Streams

The North Northeasterly and Southwesterly Winds are the principal air streams that considerably influence the study area. The North Northeasterly wind prevails from October to April, while the Southwesterly predominates from May to September. The North Pacific Trades is the southern portion of the North Pacific anti-cyclone. Having passed over a vast expanse of the North Pacific Ocean, this air stream is classified as a maritime tropical air mass. This air stream, which is extremely warm, is generally dominant over the entire Philippines in April and early May. It commonly arrives in the country from an easterly direction but may come from any direction from northeast to southeast.

TABLE 1.1-1 CLIMATOLOGICAL NORMALS

STATION : 637 – ILOILO CITY
 LATITUDE : 10° 35' N
 LONGITUDE : 122° 34' E
 ELEVATION : 8.0 m
 PERIOD : 1971-2000

MONTH	RAINFALL		TEMPERATURE °C					VAPOR PRES MBS.	REL. HUM. %	MSLP MBS.	WIND		CLOUD AMT (OKTA)	NO. DAYS w/	
	AMT (mm)	No. Of RD	MAX (°C)	MIN (°C)	MEAN (°C)	DRY BULB (°C)	WET BULB (°C)				DIR (16-pts)	SPEED (mps)		THUNDR STORM	LHTNG
JAN.	39.5	9	30.5	22.6	26.5	26.2	23.7	27.6	81	1011.4	NNE	4	5	1	1
FEB.	30.4	6	31.2	22.8	27.0	26.6	23.8	27.5	79	1011.7	NNE	4	5	0	0
MAR.	41.2	5	32.4	23.4	27.9	27.7	24.3	28.0	75	1011.3	NNE	4	4	1	1
APR.	70.1	6	33.8	24.5	29.1	29.0	25.2	29.4	73	1010.0	NNE	4	4	4	4
MAY	113.5	10	33.7	24.9	29.3	29.2	25.9	31.1	77	1009.2	SW	3	5	13	14
JUNE	308.1	19	32.0	24.5	28.2	28.2	25.7	31.3	82	1009.0	SW	3	6	15	16
JULY	347.6	20	31.1	24.3	27.7	27.6	25.5	31.2	84	1008.9	SW	3	7	11	10
AUG.	388.8	19	31.0	24.4	27.7	27.7	25.6	31.4	84	1008.8	SW	3	7	11	10
SEPT.	296.3	19	31.2	24.2	27.7	27.6	25.5	31.2	84	1009.3	SW	3	6	12	13
OCT.	283.2	19	31.6	24.1	27.9	27.6	25.4	30.9	84	1009.2	NNE	3	6	14	15
NOV.	171.9	14	31.4	24.0	27.7	27.4	25.2	30.5	84	1009.6	NNE	3	6	7	10
DEC.	103.9	12	30.8	23.2	27.0	26.7	24.5	29.2	83	1010.7	NNE	4	5	3	4
ANNUAL	2194.4	158	31.7	23.9	27.8	27.6	25.0	29.9	81	1009.0	NNE	3	6	94	101

SOURCE: CDS/CAB/PAGASA

1.1.4 Natural Calamities

Flooding is the main natural calamity that affects the Metro Iloilo Study Area. This is true particularly in Iloilo City and the municipalities of Leganes, Pavia, and San Miguel. Based on Iloilo City's Comprehensive Land Use Plan (CLUP), the city started suffering from heavy floods since 1993 when the significant part of the area was submerged after only two (2) days of continuous downpour. In the succeeding years, several typhoons such as Oyang in July 1994, Mameng in September 1995, and Pepang in October 1995, the last of which devastated the city killing five people and dislocating more than half of its residents. Based on the same document, massive siltation, erosion, and accumulation of solid waste have decreased the flow capacity of Jaro River (formerly Salog River). Convergence of two more rivers, the Aganan and Tagum, into the clogged Jaro River caused it to overflow and inundate the nearby areas, one of which is the municipality of Pavia. As a result, a 100-year flood is now being used as the design standard of limit for the City. Flooding hazard areas were also reported in San Miguel, particularly along the low-lying areas which are regularly submerged in water when during heavy downpours.

1.2 SOCIO-ECONOMIC PROFILE

1.2.1 Demographic Trend

Population growth trend of the Metro Iloilo from 1990 to 2000 is shown in Table 1.2-1, comparing with those of the Philippines, Region VI and Province of Iloilo. The annual average growth rates (AAGRs) of the Region VI and Province of Iloilo are considerably lower than the national average through 1990s, although the gaps are reducing. It means that people are still out-migrating from the Region and Province to the advanced areas like Metro Manila, Cebu and foreign countries, because the national average growth rate can be considered as the natural rate of increase based on the births and deaths. During the period of 1995-2000, the Metro Iloilo registered a fairly higher rate of 2.32% compared to 1.41% during the previous period. It is nearly at the same level of the national average, which means that out-migration is becoming to be offset by in-migration.

TABLE 1.2-1 POPULATION GROWTH TREND, 1990-2000

Administration	Census Population			Annual Average Growth Rate (%)	
	1990 (May 1)	1995 (Sep 1)	2000 (May 1)	1990-95	1995-00
Philippines	60,703,216	68,616,536	76,498,735	2.32	2.36
Region VI	5,393,333	5,776,938	6,208,733	1.30	1.56
Province of Iloilo	1,647,486	1,749,561	1,925,002	1.13	2.07
Metro Iloilo	515,660	555,620	618,510	1.41	2.32
Iloilo City	309,505	334,539	365,820	1.47	1.93
Oton	52,125	56,821	65,374	1.63	3.05
San Miguel	17,606	18,819	20,754	1.26	2.12
Pavia	23,814	26,756	32,824	2.21	4.48
Leganes	18,505	19,235	23,475	0.73	4.36
Santa Barbara	37,730	39,667	46,076	0.94	3.26
Zarraga	15,483	17,519	18,252	2.34	0.88
Cabatuan	40,892	42,264	45,935	0.62	1.80

Source: National Statistics Office (NSO)

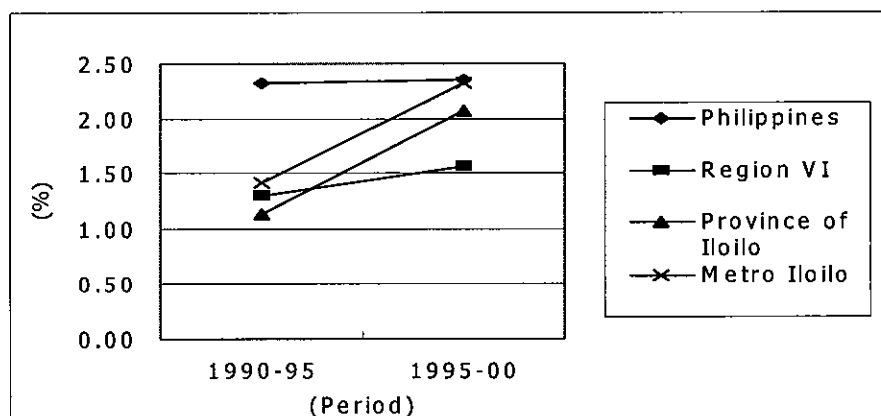


FIGURE 1.2-1 TREND OF AAGR FROM 1990/95 TO 1995/00, NATIONAL TO METRO ILOILO

According to the Medium Assumption of the "1995 Census-Based National and Regional Population Projections" (NSO, 1999), the national population was expected to increase at an annual average rate of 2.24% during the period of 1995-2000. The Medium Assumption projection is based on the assumption that the net reproduction rate (NRR) will reach one (1) in 2020 at a moderate pace of fertility decline. The 2000 Population Census, however, showed that the national level AAGR from 1995 to 2000 was 2.36%, a little higher than 2.32 % recorded during the previous quinquennium. It means that the fertility decline has not been proceeding at the expected pace. (See Figure 1.2-1)

On the other hand, the out-migration from the Region VI continued and resulted in a decrease of its share of population to the country from 8.9% in 1990 to 8.1% in 2000. The population of the Province of Iloilo keeps 30-31% of the Region. (See Figure 1.2-2)

In these circumstances, the population of Metro Iloilo increased from 515.7 thousand in 1990 to 618.5 thousand in 2000 and its share to the Province rose from 31.3% in 1990 to 32.1% in 2000. (See Figure 1.2-2).

TABLE 1.2-2 SHARES OF POPULATION TO THE NEXT UPPER LEVEL OF ADMINISTRATION

Administration	1990	1995	2000
Region / Nation	8.9	8.4	8.1
Province / Region	30.5	30.3	31.0
Metro / Province	31.3	31.8	32.1

Source: NSO

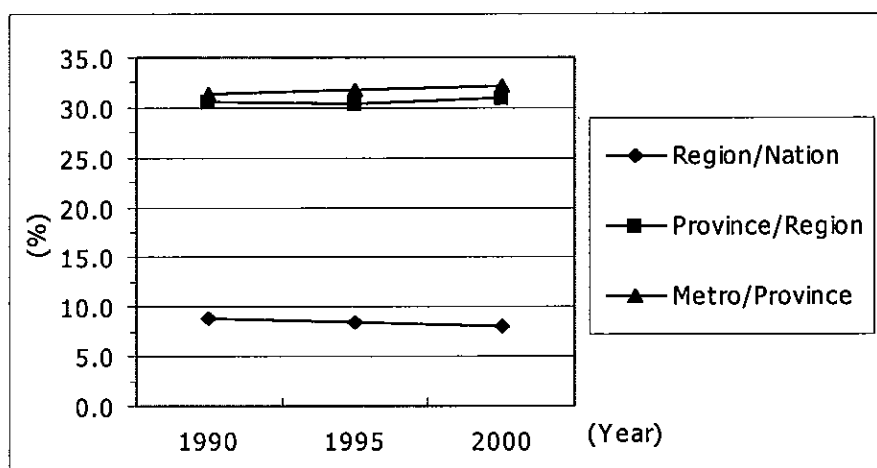


FIGURE 1.2-2 TRENDS IN THE SHARE TO THE NEXT UPPER ADMINISTRATION UNIT

In the Metro Iloilo, Iloilo City, the provincial capital, has a population of 365.8 thousand and occupies 59.1% of the metropolitan total in 2000. However, its population growth rate between 1995 and 2000 is lower than the metropolitan average, resulting in its share decline. Instead, the shares of neighboring

municipalities like Oton, Pavia and Leganes are increasing with higher population growth rates during the same period. (See Figure 1.2-3 and Table 1.2-3).

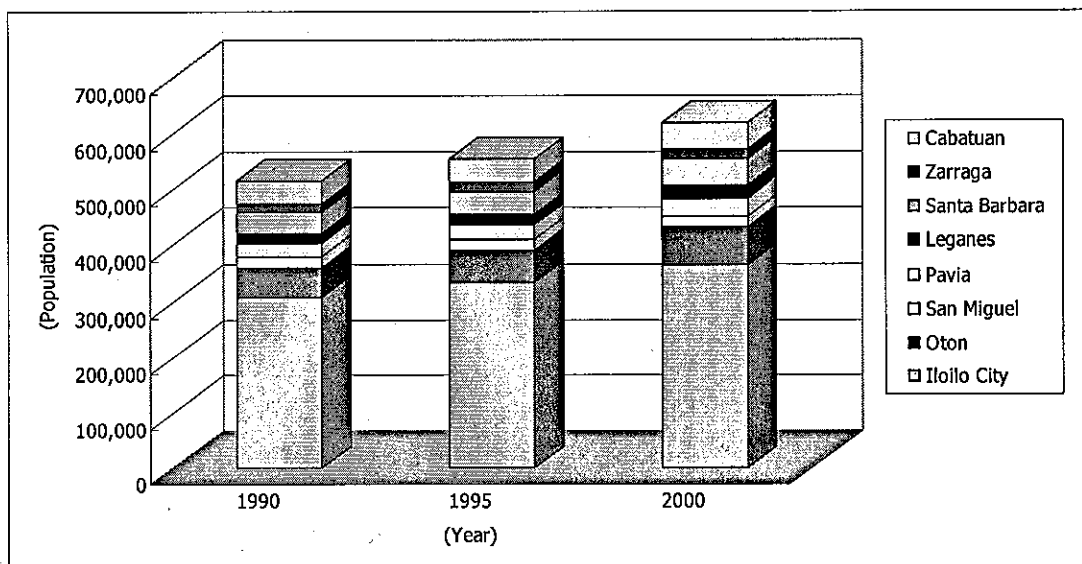


FIGURE 1.2-3 POPULATION GROWTH OF METRO ILOILO BY CITY/MUNICIPALITY, 1990-2000

TABLE 1.2-3 SHARES OF POPULATION OF CITY/MUNICIPALITIES IN METRO ILOILO, 1990-2000

LGUs	1990	1995	2000
Iloilo City	60.0%	60.2%	59.1%
Oton	10.1%	10.2%	10.6%
San Miguel	3.4%	3.4%	3.4%
Pavia	4.6%	4.8%	5.3%
Leganes	3.6%	3.5%	3.8%
Santa Barbara	7.3%	7.1%	7.4%
Zarraga	3.0%	3.2%	3.0%
Cabatuan	7.9%	7.6%	7.4%

Source: NSO

1.2.2 Economy

1) Regional Economic Growth

Metro Iloilo belongs to the Region VI, and its economy affects greatly the Region's economic growth. The Gross Regional Domestic Product (GRDP) of Region VI occupies around 7% of GDP, and grew with fluctuation at an annual average rate of 2.91% from 1990 to 2001, which was almost equal to the rate of GDP growth of the Philippines during the same period. The GRDP growth rate of Region VI was higher than the national average during the first half of 1990s, but it changed to be lower after 1995.

The annual average growth rate (AAGR) of the primary sector (agriculture and fishing) of the Region from 1990 to 2001 was 1.89%, almost the same as the nation. But it is due to a comparatively high rate of 2.24% during the period 1990-95. After 1995 the sector experienced a two-year continuous negative growth in 1997 and 1998, which caused an average low growth rate of 1.63% during the period 1995-2000 and the low growth still continues after 2000. The secondary sector (mining, manufacturing, utilities and construction) has registered higher growth rates than the national average through the period, although the pace slowed down after 2000. The tertiary sector (commerce and services) continues to grow at high rates, though it's a little lower than the national average. These facts show that the Regional economic growth has been pulled by the secondary and tertiary sectors, especially the secondary sector of the Region has enlarged its percentage share to the nation from 4.7% in 1990 to 5.2% in 2001. (See Table 1.2-4 and Figure 1.2-4).

TABLE 1.2-4 ECONOMIC GROWTH OF REGION VI

	Sector	GRDP/GDP at 1985 Prices (million pesos)				Annual Average Growth Rate (%)			
		1990	1995	2000	2001	1990-95	1995-00	2000-01	1990-01
GRDP of Region VI	Primary	16,718	18,672	20,248	20,552	2.24	1.63	1.50	1.89
	Secondary	11,892	13,675	17,303	17,616	2.83	4.82	1.81	3.64
	Tertiary	22,137	25,250	30,145	31,389	2.67	3.61	4.13	3.23
	Total	50,747	57,597	67,696	69,557	2.56	3.28	2.75	2.91
GDP	Primary	160,734	172,848	190,691	197,737	1.46	1.98	3.69	1.90
	Secondary	255,548	283,858	332,258	336,697	2.12	3.20	1.34	2.54
	Tertiary	304,408	345,518	435,462	454,824	2.57	4.74	4.45	3.72
	Total	720,690	802,224	958,411	989,258	2.17	3.62	3.22	2.92
% Share of Reg. VI's GRDP to GDP	Primary	10.4%	10.8%	10.6%	10.4%				
	Secondary	4.7%	4.8%	5.2%	5.2%				
	Tertiary	7.3%	7.3%	6.9%	6.9%				
	Total	7.0%	7.2%	7.1%	7.0%				

Source: NSO

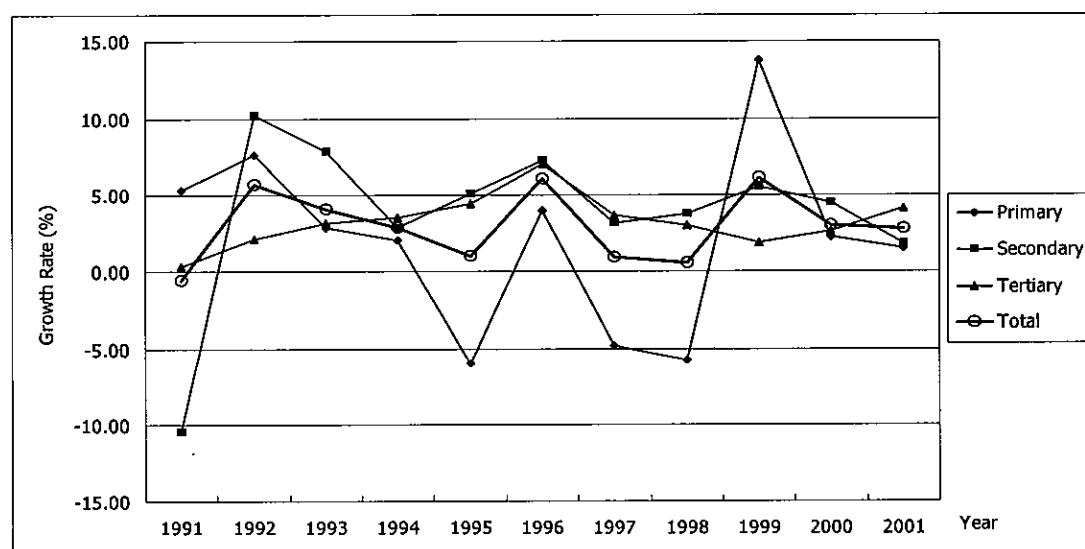


FIGURE 1.2-4 REGION VI'S GROWTH RATES OF GRDP BY SECTOR, 1991-2001

2) Position of Metro Iloilo in the Province and Region VI

GRDP or Gross Value Added (GVA) by sector is not estimated officially at the provincial or city/municipal levels. However, the employment by sector in Metro Iloilo demonstrates an aspect of its economic position in the province and the Region. Table 1.2-5 shows the number of employed persons by sector (workplace base) in 2000 for Metro Iloilo, the province and the Region VI.

TABLE 1.2-5 NUMBERS OF EMPLOYED PERSONS BY SECTOR, 2000

Administrative	Unit	Primary	Secondary	Tertiary	Total
Region VI	Number	1,087,866	288,474	977,371	2,353,711
	Percentage	46.2%	12.3%	41.5%	100.0%
Province of Iloilo	Number	312,905	103,314	383,359	799,578
	Percentage	39.1%	12.9%	47.9%	100.0%
Metro Iloilo	Number	34,347	43,978	202,267	280,591
	Percentage	12.2%	15.7%	72.1%	100.0%
% Share of Province to Region		28.8%	35.8%	39.2%	34.0%
% Share of Metro Iloilo to Province		11.0%	42.6%	52.8%	35.1%

Source: Study Team Estimates based on the 2000 Census (NSO)

Employment in the primary sector occupies the largest percentage of 46.2% in the Region VI. In the Province of Iloilo, the largest one is in the tertiary sector but that in the primary sector still occupies 39.1%. On the contrary, employment in the Metro Iloilo in the primary sector occupies only 12.2%, while that in the tertiary sector is the overwhelming majority of 72.1%. The percentage shares of the Metro Iloilo to the Province for the primary, secondary and tertiary sectors are 11.0%, 42.6% and 52.8%, respectively. The Metro Iloilo occupies about a half of the non-agricultural activities in the Province. This means that the economic position of the Metro Iloilo in the province and the Region is more important in the non-primary sectors despite keeping a considerable role in the primary sector.

A comparison of Table 1.2-4 and 1.2-5 gives values of labor productivity by sector in the Region VI in 2000. The values of the primary, secondary and tertiary sectors are 18,613 pesos/person, 59,981 pesos/person and 30,843 pesos/person, respectively. Labor productivity of the secondary sector is the highest, about 3.2 times of that of the primary sector and 1.9 times of that of the tertiary sector. Labor productivity of the tertiary sector is around 1.7 times of that of the primary sector. The fact that the percentages of employment in the secondary and tertiary sectors with higher labor productivity are large in the Metro Iloilo indicates a considerably higher GRDP per capita of Metro Iloilo than the regional and provincial averages.

1.2.3 Economic Activities by Sector

1) Primary Sector

Although weight of the primary sector is comparatively lower in the Metro Iloilo than in the province as a whole, land area used for agricultural production, including fishpond, occupies 86% of the total land area of the Metro Iloilo. The main crop is rice,

and according to the documents of city/municipalities for the preparation of their comprehensive land use plans, the area of rice field is about 24,000 ha, equivalent to 80% of the total cropland of 30,000 ha (see Table 1.2.6). Of the 24,000 ha, 13,700 ha (57.4%) is irrigated and the rest of 10,200 ha is rain fed. The most of irrigated areas are served by the canal system of the National Irrigation Administration (NIA). In the areas not covered by canal irrigation, other support structures such as shallow tube wells, small farm reservoirs and check dams are used for irrigating the fields. The percentages of irrigated area vary with location of city/municipalities. Iloilo City, municipalities of Oton, Pavia, Leganes and Zarraga located at downstream lowlands are covered widely by the canal irrigation system of NIA. On the other hand, in San Miguel, Sta. Barbara and Cabatuan rain fed rice fields occupy larger percentages than the irrigated ones.

TABLE 1.2-6 LAND AREA USED FOR PRIMARY SECTOR PRODUCTION (HA)

LGUs	Cropland					Fishpond	Total Agri-cultural Land	Year
	Rice			Other Crops	Total			
	Irrigated	Rain fed	Total					
Iloilo City	1,129	97	1,225	408	1,634	668	2,302	1998
Oton	4,556	1,401	5,957	61	6,018	62	6,080	1994
San Miguel	950	1,134	2,084	218	2,302		2,302	2000
Pavia	1,524	244	1,768	298	2,066	1	2,066	1999
Leganes	1,692	35	1,727	12	1,739	703	2,442	2000
Sta. Barbara	1,210	2,751	3,961	1,681	5,642	10	5,652	1998
Zarraga	2,165		2,165	1,339	3,504	695	4,199	2000
Cabatuan	500	4,522	5,022	2,095	7,117		7,118	2000
Total	13,725	10,183	23,909	6,112	30,021	2,139	32,160	

Source: Documents of City/Municipalities for Comprehensive Land Use Plan (CLUP)

In the irrigated areas the farmers practice two cropping patterns growing rice the whole year round, while those in the rain fed areas plant rice alternately with other crops such as mongo, squash and watermelon. However, in the case that the irrigation water is not sufficiently supplied for the second cropping, the farmers are forced to plant other crops instead of rice.

Table 1.2-7 shows the rice production in the Metro Iloilo (excluding Iloilo City) by municipality, as well as a comparison with that of the Province of Iloilo. In 1999, when the Province of Iloilo registered the peak rice production of 759,312 tons, the municipalities in Metro Iloilo produced 144,271 tons in all, which occupies 19% of the provincial total. The share of production in the irrigated areas is 22.1%, while that in the rain fed areas 14.7%.

The yearly area harvested and yields fluctuate depending on the natural disasters such as droughts and typhoons. In 1999 the rice fields in Metro Iloilo were used effectively. It is not possible to compare directly the area harvested in Table 1.2-7 with the area used for rice production in Table 1.2-6, as the data sources are different. From the two tables, however, it can be understood that cropping intensity is around

two (2) for the irrigated rice field and more than one (1) for the rain fed field when they are fully utilized.

TABLE 1.2-7 RICE PRODUCTION IN METRO ILOILO (EXCLUDING ILOILO CITY), 1999

Municipalities	Irrigated			Rain fed		
	Area Harvested (ha)	Production (ton)	Yield (ton/ha)	Area Harvested (ha)	Production (ton)	Yield (ton/ha)
Oton	7,495	29,975	4.00	1,552	3,785	2.44
San Miguel	2,838	11,418	4.02	1,914	5,332	2.79
Pavia	3,356	11,746	3.50	538	1,345	2.50
Leganes	4,144	14,063	3.39	64	152	2.38
Sta. Barbara	2,625	10,039	3.82	3,893	10,945	2.81
Zarraga	4,919	16,725	3.40	-	-	-
Cabatuan	1,081	3,610	3.34	8,939	25,136	2.81
Metro Iloilo Total	26,458	97,576	3.69	16,900	46,695	2.76
% to the Province	21.0%	22.1%		14.4%	14.7%	
Province of Iloilo	125,932	441,167	3.50	117,284	318,145	2.71

Source: Socio-Economic Profile 2001, Province of Iloilo

In Metro Iloilo, the average yield of irrigated land and rain fed land is 3.69 tons/ha (87.9 cavans/ha) and 2.76 tons/ha (65.7 cavans/ha), respectively, which are higher than the provincial average. One (1) cavan is equivalent to 42 kg and every municipal agricultural office (MAO) uses a yield of 80-100 cavans/ha for the irrigated area and 60-80 canvas/ha for the rain fed area, for the estimation or projection of yearly rice production within its jurisdiction.

The Province of Iloilo is known as a rice-exporting province as well as the Province of Aklan in Region VI. As Table 1.2-8 shows, the province as a whole has an enough surplus of rice being able to export it to other provinces. The Metro Iloilo, however, is at a marginal point of self-sufficiency mainly due to the existence of Iloilo City with an estimated population of 366,949 in 2000 (nearly 60 % of the metropolitan population) and negligible production of rice. Assumptions on the percentage of feeds/wastage, milling recovery and especially on per capita requirement for rice are not unchangeable, but the situation will become harder in future due to the decrease of rice field, especially rain fed one, by reclassification to other uses in the process of urbanization.

The other crops planted in the area are corn, peanut, vegetables, commercial crops like sugarcane, coconut and coffee, and fruits such as mango, banana and watermelon.

Livestock and poultry have its share in the metropolitan economy. In Cabatuan, there are five (5) poultry farms in the municipality engaged in contract growing arrangement with private corporations. Each contract grower produces an average of 5,000 heads for every 38 to 45 days per harvest. Five (5) contract growers produced 183,000 heads in all in 2000. The households are also engaged in

small-scale piggery, the smallest size of which consists of 10 heads while the largest has 120 heads. The livestock products are sold to the local market with only very few shipped out of the province. Backyard producers supply local demand.

TABLE 1.2-8 DEMAND/SUPPLY BALANCE OF RICE, 2000

Item	Unit	Province of Iloilo	Metro Iloilo
Supply	Area harvested (ha) 1)	204,385	36,489
	Palay production (ton) 1)	700,528	132,482
	Reserve for seeds (ton) 2)	42,921	7,663
	Feeds/wastage (ton) 3)	45,534	8,611
	Food consumption (ton)	612,073	116,208
	Milled rice (ton) 4)	367,244	69,725
Demand	Population 5)	1,931,339	620,817
	Per capita requirement (kg/year) 6)	124	124
	Required rice (ton) 7)	239,486	76,981
Balance	Surplus rice (ton)	127,758	-7,257

Note:

1) Provincial data: Obtained from "Profile 2001, Province of Iloilo"

Metro Iloilo: Estimated based on its position in the province obtained from 1999 data

2) 210 kg/ha

3) 6.5 % of production

4) Milling recovery 60 %

5) Estimated midyear population based on the 2000 Census population as of May 1

6) Food requirement for "cereals and cereal products" shown in HLURB guideline

7) Rice is assumed to meet the total food requirement for cereals and cereal products

In Leganes, a poultry farm produces 35,000 heads of broiler for every 45 days, which employs 10 persons with an area of 1.5 ha. Another egg farm holds 3,500 heads of layer with 8 employed persons and an area of 1.5 ha.

Fishing, especially aquaculture, is an important industry in Metro Iloilo. In Iloilo City and municipalities of Leganes and Zarraga, there are a number of large and small-scale brackish-water fishponds. There are also fresh-water fishponds. As for species cultured, milkfish occupies an overwhelming majority in the brackish-water fishpond, and tilapia and catfish in the fresh-water fishpond. A large-scale fishpond with an area of 514 ha located in Leganes is operated by two-cropping pattern and produces 1,000 kg/ha/crop. But the average fishpond's productivity is 500-800 kg/ha/yr. The unit price is P60/kg-P80/kg. Coastal fishing is operated in Oton, Leganes and Zarraga. The scale is not so large. In the case of Leganes, the number of fishermen is 150 and the average catch is 2 kg/day/person.

Table 1.2-9 shows the recent situation of fishing industry in Metro Iloilo. The total sales value is estimated at 174.5 million pesos. Comparing it with the rice production value of 1,115.5 million pesos (applying a revised 2000 palay price of 8.42 pesos/kg to palay production of 132,482 tons), the economic size of fishing industry in Metro Iloilo is about 1/7 of rice production.

TABLE 1.2-9 FISH PRODUCTION AND VALUE BY CITY/MUNICIPALITY, 2000

Municipality	Production (ton)		Value (1000 P) ¹⁾		Fishpond (ha) ³⁾	
	Aqua-Culture ¹⁾	Coastal Fishing ²⁾	Aqua-Culture	Coastal Fishing	Brackish Water	Fresh Water
Iloilo City	801		48,071		668	
Oton	50	12	2976	935	62	
San Miguel						
Pavia	1		64			1
Leganes	1,155	123	69,273	9,834	703	
Sta. Barbara	7		420			10
Zarraga	554	122	33,210	9,786	670	25
Cabatuan						
Total	2,567	257	154,014	20,555	2,103	36

Source: 1) Study Team estimation based on the City/municipalities data

2) Profile 2002, Province of Iloilo (Values are as of 2001)

3) Documents of City/municipalities for CLUP

2) Secondary Sector

As shown in Table 1.2-10, the registered establishments of the secondary sector concentrate in Iloilo City. According to the City's data, 53 manufacturing and 28 construction establishments were newly registered in 2001. Many establishments still want to be located in the City. The industrial zone of the City is located at La Paz District. Main establishments/corporation included in the list of top fifty (50) by gross sales are Panay Electric Company, Inc., Zuellig Pharma Corporation, Nestle Philippines, Inc., San Miguel Corporation, Philip Morris Philippines, Philippine Phosphate Fertilizer Corporation, and Matsushita Electric Philippines Corporation.

TABLE 1.2-10 NUMBER OF SECONDARY SECTOR ESTABLISHMENTS IN METRO ILOILO

	Mining	Manufacturing	Construction	Utilities	Total	Year
Iloilo City	1	646	169	3	819	1997
Oton						No data
San Miguel		49			49	2000
Pavia		58			38	2002
Leganes		25			25	2000
Sta. Barbara		42			42	2000
Zarraga						No data
Cabatuan		24			24	2000
Total	1	844	169	3	997	

Source: Documents of City/municipalities for CLUP. For Pavia, data as of year 2002 were specially collected.

Outside Iloilo City most of the establishments shown in the table are small-scale cottage industries such as bakeries, hollow blocks making, printing press, tailoring, dried fish making and so on. Large-scale factories located in the municipalities except Pavia are only Pepsi Cola Philippines, Majestic Distillery and Egger Farm in the Municipality of San Miguel, and Jazcola Bottling Plant (recently bought by San Miguel Corporation) in the Municipality of Zarraga.

Industrial activities in Pavia are more extensive than those in the other municipalities of Metro Iloilo. According to the latest data (2002) obtained from the Municipal Planning and Development Office (MPDO), there are 58 manufacturing establishments operating in Pavia. Of the 58 factories, comparatively large 26 ones are shown in Table 1.2-11. As seen in the table these factories produce a variety of products such as furniture, industrial and medical gas, ready mix asphalt, milled rice, soft-drink, poultry feeds, banana chips, farm implements, noodles, cooking oil, distilled water, fire extinguisher, metal products, and alcohol. Most of them are located along the National Highway and Mandurriao-San Miguel Road (see Figure 1.2-5).

TABLE 1.2-11 MAJOR INDUSTRIAL ESTABLISHMENTS IN PAVIA (2002)

Name	Product
1. Noel's Upholstery	Furniture
2. Solid Gas, Inc.	Industrial and Medical Gas
3. KIMWA Construction	Ready Mix Asphalt and Aggregates
4. New Pavia Rice Mill	Milled Rice
5. Coca-Cola Bottlers Phils., Inc.	Soft-drink
6. Pryce Gases	Industrial and Medical Gas
7. Mandaue Foam	Foam/Furniture
8. IBC (International Builders Corp.)	Concrete Piles, Ready Mix Asphalt
9. Pavia Feed Mill	Poultry Feeds
10. BFC Worldwide Inc.	Banana Chips
11. Jaspe Light Steel Industries	Rice Thresher/Farm Implements
12. Alojado Rice Mill	Milled Rice
13. Ungka Meke Factory	Noodles
14. Globe Meke Factory	Noodles
15. Panay Tropical Grains Milling Corp.	Milled Rice
16. Prestress International, Inc.	Concrete Piles and Slabs
17. New Panay Agri-Ventures Dev't., Inc.	Poultry Feeds
18. Vitarich Corporation	Poultry and Livestock Feeds
19. Visaya Coco Dev't., Inc.	Cooking Oil
20. Phil. Beverage Partners, Inc.	Distilled Water
21. Hontarciego Metal Craft	Farm Implements
22. Bulls Metal Craft	Farm Implements
23. Jamerlan Integrated Industries	Furniture
24. Raychin Industries	Fire Extinguisher
25. PE Aristoza Foundry Shop	Metal Products
26. Kay Chemical Industries	Alcohol

Source: Pavia MPDO data, 2002

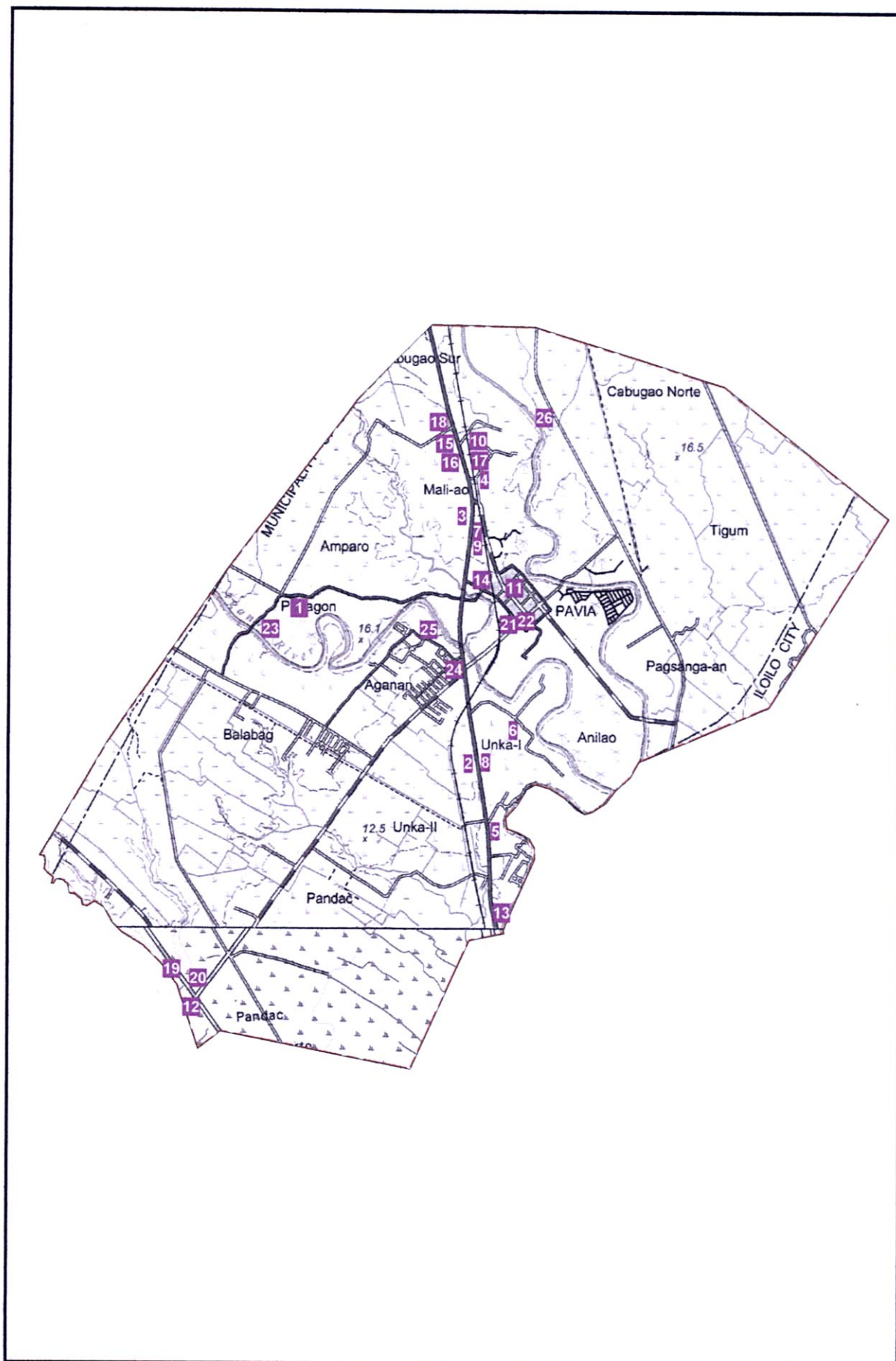


FIGURE 1.2-5 LOCATION OF MAJOR INDUSTRIAL ESTABLISHMENTS IN PAVIA

Pavia is the site of the Regional Agro-Industrial Center (RAIC) for Western Visayas (Region VI), one of 13 established nationwide. Being undertaken by the Department of Trade and Industry (DTI), it aims to attract industries and investments into Region VI. An area of 1,109 ha of land is demarcated for RAIC purposes. The municipality offers the following investment incentives:

- a) First and second year of operation:
Free from business tax and local taxes
- b) Third year of operation:
50% of business tax based on total gross sales
- c) Fourth year of operation:
75% of business tax based on total gross sales
- d) Fifth year of operation:
100% of business tax based on the total average gross sales of its four years of operation

According to the "Cabatuan, Sta. Barbara and Pavia Integrated Area Development Plan, 2000-2010", about 100 ha were occupied by 38 RAIC industries in 2000 with the average site size of 2.63 ha/factory. The RAIC occupancy rate is still only around 10%. But an interview survey carried out by the Study Team shows a considerable impact of located industries on employment and agricultural revenue of the local community. For example, a furniture industry hired 100 local residents not only living in Pavia but from the adjacent City/municipalities. A poultry and livestock feeds factory employed 66 persons and made a contract with 24 farmers for breeding broilers, the production size of which is 15,000-20,000 heads a year.

3) Tertiary Sector

Table 1.2-12 shows the number of tertiary sector establishments registered in Metro Iloilo. Nearly 90% of them are concentrated in Iloilo City. As the City is the financing center of Region VI, the number of banks located there is 41 with 102 branches. In 2001, 1,787 establishments are newly registered in the City, of which 582 in City Proper and 396 in the district of Jaro. Besides these private sector establishments, there are many public sector establishments such as governmental, educational and cultural institutions in Iloilo City where various national government agencies put their regional offices and the provincial government agencies are located. In the City there are three public/state universities such as University of the Philippines in the Visayas (UPV), West Visayas State University (WVSU) and Western Visayas College of Science and Technology (WVCST).

Iloilo City recently intends to extend the commercial zone towards the district of Mandurriao beyond the Iloilo River. A large retail building of SM City was opened along the Iloilo-Sta. Barbara-Kalibo Road. The area around the shopping mall is designated as a large commercial zone in Comprehensive Land Use Plan (CLUP) and is expected to become a new commercial sub-center of the City.

TABLE 1.2-12 NUMBER OF TERTIARY SECTOR ESTABLISHMENTS IN METRO ILOILO

	Commerce	Financing	Services	Transport	Total	Year
Iloilo City	5,924	1,190	2,566	206	9,886	1997
Oton						No data
San Miguel	285	1	20		306	2000
Pavia	314	10	24	3	351	2000
Leganes	302				302	2000
Sta. Barbara	284	5	14		303	2000
Zarraga						No data
Cabatuan	108	2	14		124	2000
Total	7,217	1,208	2,638	209	11,272	

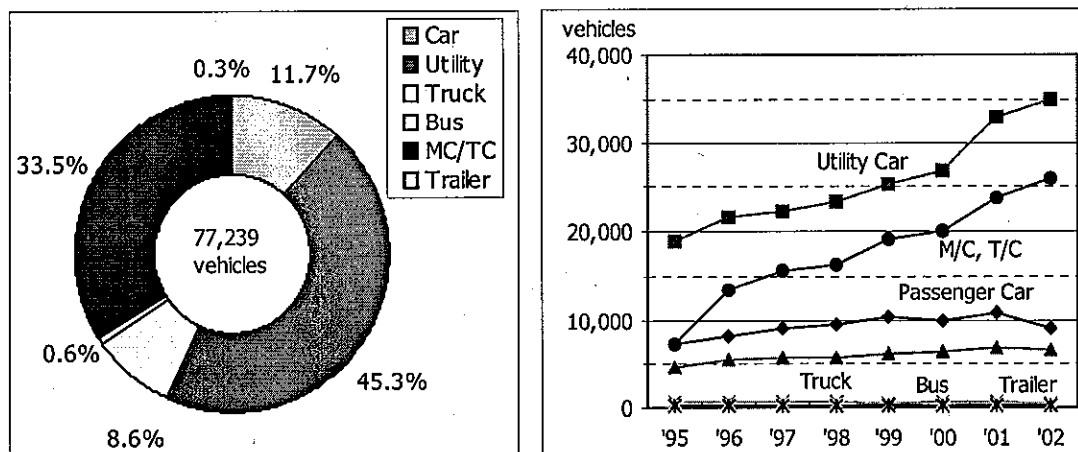
Source: documents of city/municipalities for CLUP

For other municipalities in Metro Iloilo trade and service activities are of limited scale. Every municipality has at least one public market in its central urban district called "poblacion". Generally it is a building of 5,000 to 10,000 square meters divided into the dry and wet areas according to the commodities. It is open every day for the residents of the municipality. In addition, during market days, one or more days a week, inhabitants of surrounding rural barangays (sometimes in the adjacent municipalities) bring their farm products to the market place, and in return buy their farm and household needs from the different commercial establishments inside and around it.

The most popular commercial establishment is sari-sari store. It is a small retail shop of around 10 square meters operated by 1-2 persons servicing barangay residents a variety of commodities. Generally one sari-sari store services 10-20 households or 50-100 persons at the barangay level. It means that a barangay with a population of 1,000 has 10-20 sari-sari stores.

1.2.4 Vehicle Ownership

There are five district offices of Land Transport Office (LTO) for vehicle registration in the Iloilo Province: Iloilo City, Barotac, Guimbal, Calinog and City of Passi. The total number of car registration in the province in 2002 was 77,239 vehicles, of which about two thirds, 51,333 vehicles were four-wheel types. Among above, utility car has the largest share, about 45% of the total vehicles. It is also noted that the growth rates of motorcycles/motor-tricycles and utility cars have been very high; 19.7% and 9.1% per annum respectively during the recent seven years from 1995 to 2002. (See Figure 1.2-6 and 1.2-7)



Source: Land Transport Office Source: Land Transport Office

FIGURE 1.2-6 & 1.2-7 VEHICLE REGISTRATION IN ILOILO PROVINCE, 2002 & PAST TREND OF VEHICLE REGISTRATION IN ILOILO PROVINCE

Since the vehicle registration has not been compiled by the owner's residence but by district office basis, the number of vehicles by municipality or barangay is not available from the record published by LTO.

However, some vehicle ownership data by barangay can be obtained from the "Barangay Accessibility Survey" conducted during the years from 2001 to 2002, within the framework of the Integrated Rural Accessibility Planning Information System. The system was developed by the Department of Interior and Local Government (DILG), in collaboration with the Government of the Netherlands. As the Survey was made only for selected municipalities in the Metro Iloilo, an estimation formula was established by using the Survey results in order to estimate the vehicle ownership by barangay in the Study Area.

The vehicle ownership for four-wheel vehicles is estimated by using the following formula:

$$N = K \times \alpha \times I^{\beta}$$

Where N: Number of persons per vehicle by barangay base

K: Constant (=478572)

α : Adjustment factor :

1.585 for the annual income more than P300,000.

1.070 for the annual income range P200,000 ~ P300,000.

0.872 for the annual income less than P200,000.

I: Family income per year by barangay base

β : -1.70201

R: Correlation coefficient: 0.72

As a result, the vehicle ownership in 2002 is estimated as shown in Figure 1.2-8 and is summarized by city/municipality as shown in Table 1.2-13. The vehicle ownership in Iloilo City was estimated as 76.8 vehicles per 1000 persons, whereas that for the other cities/municipalities in the Metro Iloilo ranges from 11.0 to 16.6 vehicles per 1000 persons.

TABLE 1.2-13 VEHICLE OWNERSHIP IN METRO ILOILO, 2002

City/Municipality	Population	Number of Vehicles	Vehicles /1000 persons
Iloilo City	365,820	28,095	76.8
Leganes	23,475	390	16.6
Zarraga	18,252	201	11.0
Sta. Barbara	46,076	522	11.3
Pavia	32,824	376	11.5
Oton	65,374	757	11.6
San Miguel	20,754	291	14.0
Cabatuan	45,935	553	12.0
Total	618,510	31,185	50.4

Note: Excluding vehicles for hire and motorcycles/tricycles

Source: Barangay Accessibility Survey 2002, Study Team

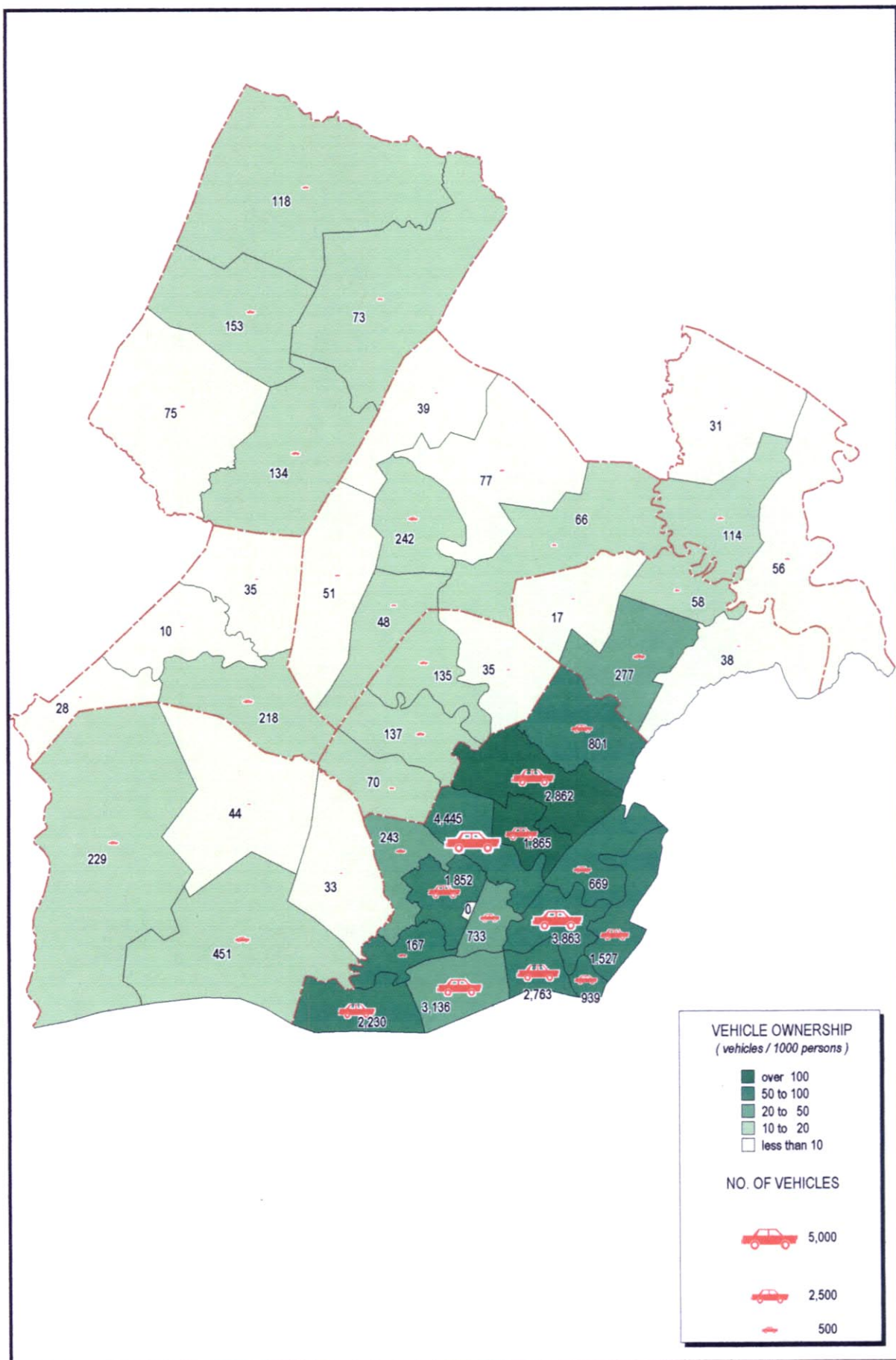
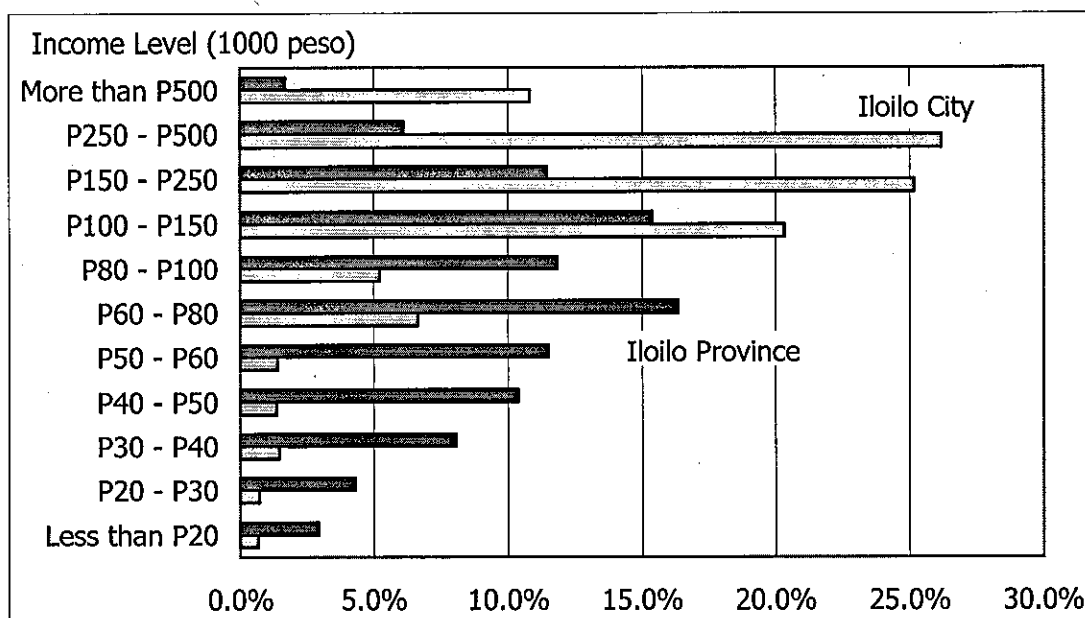


FIGURE 1.2-8 VEHICLE OWNERSHIP IN METRO ILOILO

1.2.5 Income Level

The family income distributions in Iloilo City and Iloilo Province (excluding Iloilo City) are illustrated in Fig 1.2-9, based on the Family Income and Expenditure Survey in 2000. The average annual family incomes in Iloilo City and Iloilo Province are P 283,600 and P 110,100 respectively, both of which are comparatively higher than the national average of P 94, 600.



Source: Family Income and Expenditure Survey 2000

FIGURE 1.2-9 FAMILY INCOME IN ILOILO CITY AND ILOILO PROVINCE

It is difficult to break down the above survey results further to the municipality or barangay level because of the sampling variations of the survey. Hence, the average income by municipality or barangay is estimated by using the relationship between the family income and the floor area of housing unit the family occupies, of which distribution pattern is obtainable at the barangay level from the 2000 Census of Population and Housing. The family income and the floor area of housing unit are highly correlated as follows:

$$\text{Iloilo City: } I = 3.978A + 33.6 \text{ (R} = 0.994\text{)}$$

$$\text{Iloilo Province: } I = 2.728A + 45.7 \text{ (R} = 0.996\text{)}$$

Where I: Average Family Income (P '000 per year)

A: Average Floor Area of Occupied Housing Unit (m²)

R: Correlation Coefficient

Using the above relationship between the family income and floor area of occupied housing unit, the average income levels were estimated by traffic zone. The results are shown in Figure 1.2-10.

In general, the northern zones of Iloilo City are at the highest income level, while the peripheral zones of Metro Iloilo, particularly rural areas are relatively at the lower level.

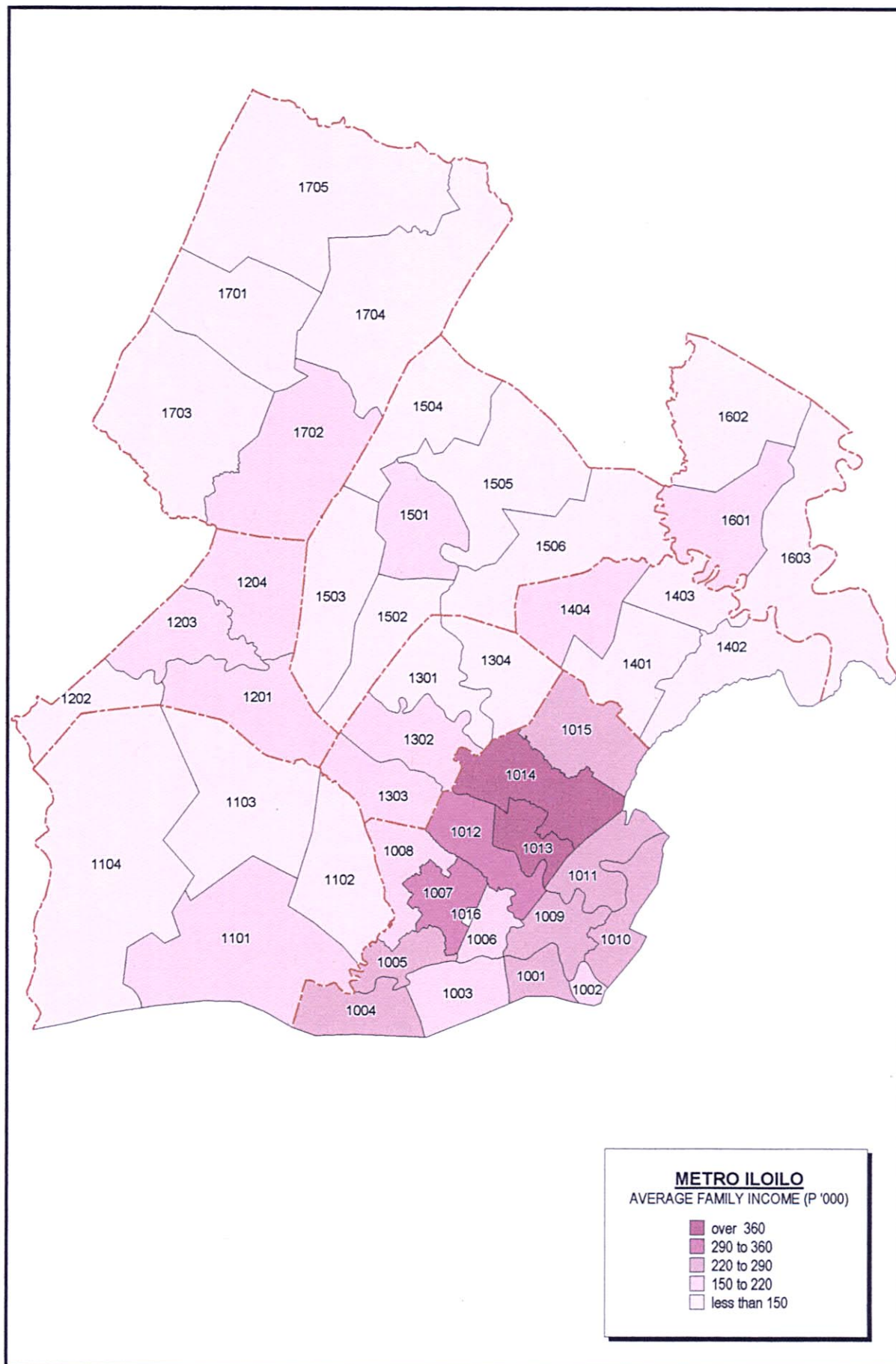


FIGURE 1.2-10 AVERAGE FAMILY INCOME LEVEL BY ZONE

1.3 EXISTING LAND USE AND SOCIO-ECONOMIC FRAMEWORK

1.3.1 Urban Structure

As shown in Figure 1.3-1, the existing physical urban structure of Metro Iloilo is a five-fingered radial pattern focused to the metropolitan center, City Proper of Iloilo City. The City Proper with an area of 333 ha is playing a role of not only metropolitan but provincial and regional center of tertiary sector activities. From there to the west, R-1 (national road, Iloilo - Antique Road) runs through Oton to Antique Province. To the northwest, R-2 (national road, Iloilo-San Miguel Road) connects San Miguel with Iloilo City. To the north, R-3 (national road, Iloilo-Sta. Barbara - Kalibo Road) runs through three municipalities of Pavia, Sta. Barbara and Cabatuan in Metro Iloilo to Kalibo in Aklan Province. To the northeast, R-4 (national road, Iloilo-Roxas Road) connects Leganes and Zarraga in Metro Iloilo and reaches Roxas City, the Capital of Capiz Province. To the east, not yet urbanized, R-5 (national road, Iloilo Coastal Road) runs along the coastal line of Iloilo City, Leganes and Zarraga to Ajuy.

In addition, the Iloilo Port connects Provinces of Guimaras and Negros Occidental in Region VI and other regions including Manila. The Iloilo airport is located in the district of Mandurriao adjacent to City Proper connects Manila, Cebu and other major cities in the Philippines.

This urban structure concentrated to the City Proper of Iloilo City causes traffic congestion on the radial roads connecting component municipalities of Metro Iloilo and outer areas, and on streets within City Proper.

1.3.2 Existing Land Use

The existing land use is shown in Figure 1.3-2. Green-colored areas (agricultural use) are widely extended over the Metro Iloilo. According to the area measurement on the map, the Metro Iloilo covers an area of 46,093 ha, of which 37,903 ha is used for agriculture, 1,728 ha for fishponds and salt beds, and 107 ha is mangrove. An aggregated area of these uses, rural land use, amounts to 39,738 ha, which occupies 86.2% of the total area.

Urban land uses amount to 6,355 ha, equivalent to 13.8% of the total area. Among them residential use covers an area of 5,573 ha, 87.7% of the total urban area. Commercial areas amount to 257 ha in all; most of them are located in Iloilo City. Industrial areas are located in Lapaz District of Iloilo City and in the Municipality of Pavia, where the RAIC of Region VI is designated for the development of agro-industries. The industrial land use covers an area of 221 ha in all.

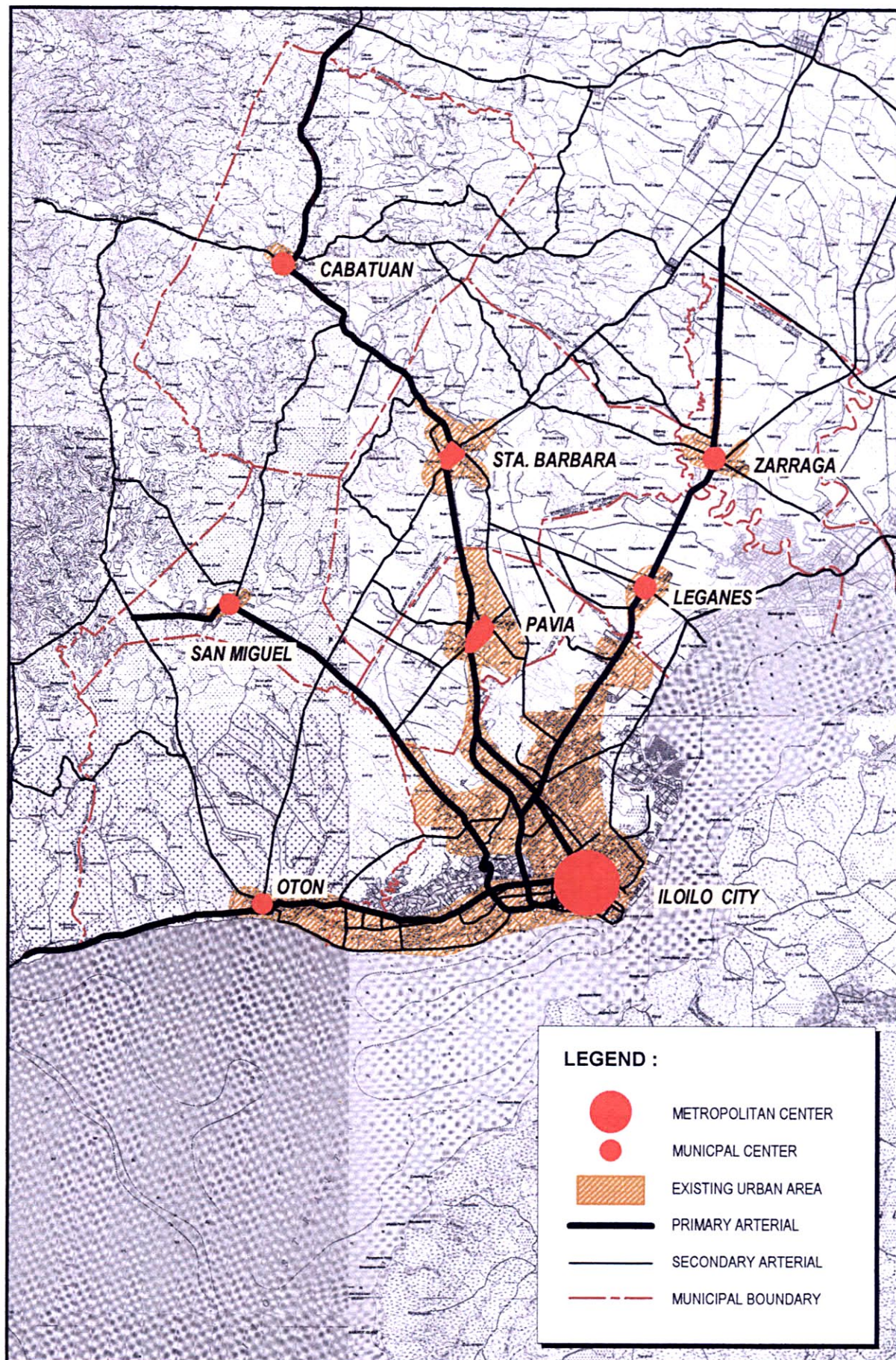


FIGURE 1.3-1 EXISTING URBAN STRUCTURE OF METRO ILOILO

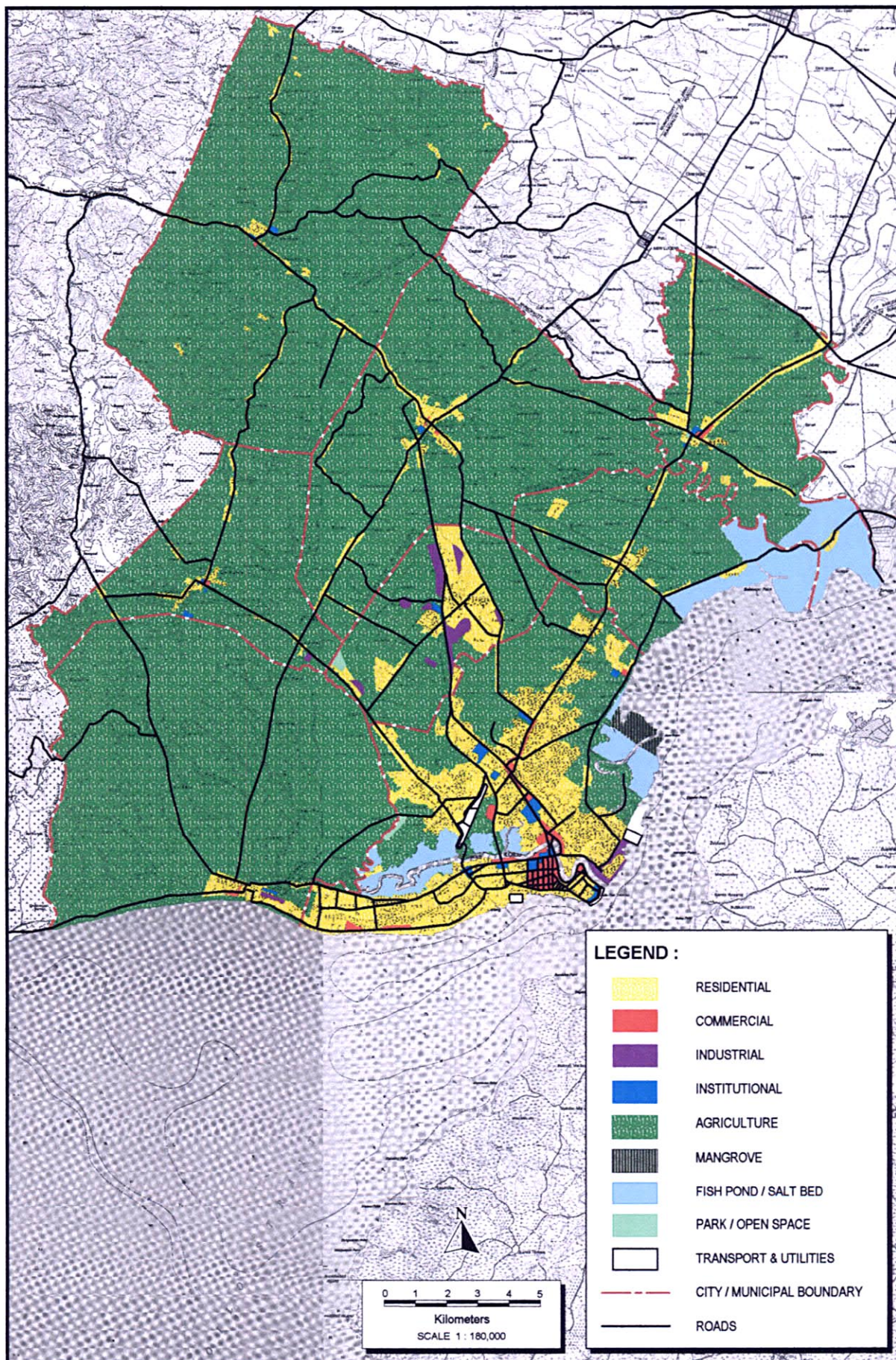


FIGURE 1.3-2 METRO ILOILO EXISTING LAND USE MAP : 2002

TABLE 1.3-1 AREAS BY LAND USE CATEGORY (2000), METRO ILOILO

Land Use Category	Area (ha)	Percentage
Rural Land Use		
Agriculture	37,903	82.2
Fishponds/Salt beds	1,728	3.8
Mangrove	107	0.2
Total	39,738	86.2
Urban Land Use		
Residential	5,573	12.1
Commercial	257	0.5
Industrial	221	0.5
Institutional	178	0.4
Park/Open Space	47	0.1
Transport/Utilities	79	0.2
Total	6,355	13.8
Grand Total	46,093	100.0

Source: Study Team Measurements on the Map

1.3.3 Socio-economic Framework

The followings are a description about the present population and employment distribution in Metro Iloilo. As socio-economic indicators for the analysis of the present situation of traffic and for the future projections of traffic demand in Metro Iloilo, population and employment by economic sector were selected and tabulated by traffic zone. Traffic zones are demarcated aggregating several barangays from the viewpoint of transport planning

1) Population

Population by barangay is available for 1990, 1995 and 2000 from the Population Censuses carried out in respective years. Table 1.3.2 shows the population growth trend by traffic zone. In almost all zones population has increased during the past ten-year period. However, in Zones 1001 (Iloilo City Proper 1) and 1009 (Lapaz 1) population continues to decrease. In Zone 1203 (San Miguel 3), population decreased during the period of 1990-95, but it changed to increase after 1995. On the contrary, in Zone 1602 (Zarraga 2) population increased from 1990 to 1995 but changed to decrease after 1995.

Iloilo City Proper 1 is the central business district (CBD) of the city and Lapaz 1 is an old urban area with mixed land uses of residential, commercial and industrial, located at the opposite side of the CBD over the Iloilo River. In these areas, a change of land use from residential to commercial or other uses is in progress. Although population is still increasing in Zones 1002 (Iloilo City Proper 2), 1003 (Molo), 1012 (Jaro 1), 1013 (Jaro 2) and 1014 (Jaro 3), the recent growth rates are low. Iloilo City Proper 2 is the port area of the city and is already full with port facilities, public institutions and houses. Population density of the zone is the highest at 197.4 persons/ha.

The recent population growth in Iloilo City is proceeding in the suburban zones such as Zones 1011 (Lapaz 3), 1008 (Mandurriao 4), 1004 (Arevalo), 1015 (Jaro 4) and

1005 (Mandurriao 1) with an annual average increase rates of 5- 7%.

In the other municipalities in Metro Iloilo, population increase of Zones 1301 (Pavia 1), 1302 (Pavia 2), 1303 (Pavia 3), 1401 (Leganes 1), 1402 (Leganes 2) and 1404 (Leganes 4) is remarkable, with their annual average growth rates of 4 to 5% during the period 1995-2000. The built-up areas of these municipalities (poblacion) are still small and population densities are below 20 persons/ha. Generally speaking, population densities of the rural area zones are very low and population increase rates are below the national average of 2.36%, which means that out-migration from the rural area is continuing.

2) Employment

Employment distribution is expressed as the number of employed persons by economic sector by zone on the workplace base. However, these data are neither available from the population censuses, nor from the labor force surveys. The 1995 Population Census gives information about the number of employed persons by sector by barangay on the residence base. On the other hand, the 2000 census carried out the workplace base employment survey at the city/municipality level by a 10% sampling. Using these data, the Study Team estimated the employment distribution for the Metro Iloilo in 2000.

The results are shown in Figure 1.3-4. As shown in the figure, employment is concentrated in Iloilo City, especially in City Proper 1 with an employment density of 181.8 persons/ha. Also in other zones such as City Proper 2, Molo, Arevalo, Lapaz 1, Lapaz 2 and Jaro 1, there are considerable volumes of the tertiary and secondary sectors employment. Iloilo City is highly urbanized, but about 5,000 persons are engaged in the primary sector.

The other municipalities of Metro Iloilo are basically of the agriculture-based economy. Except for the built-up area called the poblacion and its vicinity, most zones are rural and employment in the primary sector is dominant. In these zones, however, some secondary and tertiary sector employments exist providing the residents with daily services at the barangay level such as bakeries, sari-sari stores and educational and social institutions.

TABLE 1.3-2 PAST TREND OF POPULATION GROWTH BY ZONE IN METRO ILOILO

Zone Code	Zone Name	Land Area (ha)	Population			Annual Average		Pop.Density (pns/ha)
			1990	1995	2000	Growth Rate (%)		
			(May 1)	(Sep 1)	(May 1)	1990-95	1995-00	2000
1001	Iloilo City Proper 1	238	38,995	37,210	32,914	-0.87	-2.59	138.3
1002	Iloilo City Proper 2	95	17,929	18,034	18,749	0.11	0.84	197.4
1003	Molo	557	51,527	56,689	63,212	1.81	2.36	113.5
1004	Arevalo	565	25,109	28,237	36,449	2.23	5.62	64.5
1005	Mandurriao 1	342	1,912	2,110	2,675	1.86	5.22	7.8
1006	Mandurriao 2	272	8,669	12,703	15,123	7.43	3.81	55.6
1007	Mandurriao 3	427	14,881	17,445	19,624	3.03	2.55	46.0
1008	Mandurriao 4	492	4,406	5,528	7,193	4.35	5.80	14.6
1009	Lapaz 1	458	47,575	46,982	46,507	-0.23	-0.22	101.5
1010	Lapaz 2	460	12,915	14,814	17,214	2.61	3.27	37.4
1011	Lapaz 3	539	5,758	6,933	9,552	3.54	7.11	17.7
1012	Jaro 1	595	44,482	45,039	48,413	0.23	1.56	81.4
1013	Jaro 2	351	12,081	13,875	15,138	2.63	1.88	43.1
1014	Jaro 3	915	13,976	17,326	18,144	4.11	0.99	19.8
1015	Jaro 4	795	9,290	11,614	14,913	4.28	5.50	18.8
1016	Iloilo Airport	15	0	0	0			0.0
	Iloilo City Total	7,116	309,505	334,539	365,820	1.47	1.93	51.4
1101	Oton 1	2,114	26,068	28,812	33,725	1.89	3.43	16.0
1102	Oton 2	1,039	4,094	4,469	5,015	1.66	2.50	4.8
1103	Oton 3	1,724	6,003	6,395	6,846	1.19	1.47	4.0
1104	Oton 4	3,649	15,960	17,145	19,788	1.35	3.12	5.4
	Oton Total	8,526	52,125	56,821	65,374	1.63	3.05	7.7
1201	San Miguel 1	1,060	9,376	10,102	11,528	1.41	2.87	10.9
1202	San Miguel 2	543	2,722	3,077	3,240	2.33	1.11	6.0
1203	San Miguel 3	751	1,651	1,486	1,576	-1.95	1.27	2.1
1204	San Miguel 4	970	3,857	4,154	4,410	1.40	1.29	4.5
	San Miguel Total	3,324	17,606	18,819	20,754	1.26	2.12	6.2
1301	Pavia 1	692	9,382	10,502	13,142	2.14	4.92	19.0
1302	Pavia 2	689	7,149	8,466	10,525	3.22	4.78	15.3
1303	Pavia 3	594	3,142	3,217	3,908	0.44	4.26	6.6
1304	Pavia 4	747	4,141	4,571	5,249	1.87	3.01	7.0
	Pavia Total	2,722	23,814	26,756	32,824	2.21	4.48	12.1
1401	Leganes 1	874	7,467	7,494	9,203	0.07	4.50	10.5
1402	Leganes 2	1,000	4,944	5,198	6,371	0.94	4.46	6.4
1403	Leganes 3	530	2,649	3,007	3,407	2.41	2.71	6.4
1404	Leganes 4	811	3,445	3,536	4,494	0.49	5.27	5.5
	Leganes Total	3,215	18,505	19,235	23,475	0.73	4.36	7.3
1501	Sta. Barbara 1	754	13,254	14,357	16,292	1.51	2.75	21.6
1502	Sta. Barbara 2	742	3,323	3,596	4,158	1.49	3.16	5.6
1503	Sta. Barbara 3	1,188	6,182	6,317	7,253	0.41	3.01	6.1
1504	Sta. Barbara 4	1,069	3,602	3,608	4,225	0.03	3.44	4.0
1505	Sta. Barbara 5	1,558	6,271	6,610	8,012	0.99	4.21	5.1
1506	Sta. Barbara 6	1,544	5,098	5,179	6,136	0.30	3.70	4.0
	Sta. Barbara Total	6,855	37,730	39,667	46,076	0.94	3.26	6.7
1601	Zarraga 1	961	6,273	7,287	7,936	2.85	1.85	8.3
1602	Zarraga 2	1,324	3,456	3,777	3,726	1.68	-0.29	2.8
1603	Zarraga 3	1,688	5,754	6,455	6,590	2.18	0.44	3.9
	Zarraga Total	3,973	15,483	17,519	18,252	2.34	0.88	4.6
1701	Cabatuan 1	1,320	10,633	11,035	12,733	0.70	3.11	9.6
1702	Cabatuan 2	1,698	6,511	6,733	7,842	0.63	3.32	4.6
1703	Cabatuan 3	2,007	7,445	7,560	8,112	0.29	1.52	4.0
1704	Cabatuan 4	2,371	6,265	6,451	6,519	0.55	0.22	2.7
1705	Cabatuan 5	2,966	10,038	10,485	10,729	0.82	0.49	3.6
	Cabatuan Total	10,362	40,892	42,264	45,935	0.62	1.80	4.4
	Metro Iloilo Total	46,093	515,660	555,620	618,510	1.41	2.32	13.4

Source: Population Censuses, 1990, 1995, and 2000 (NSO)

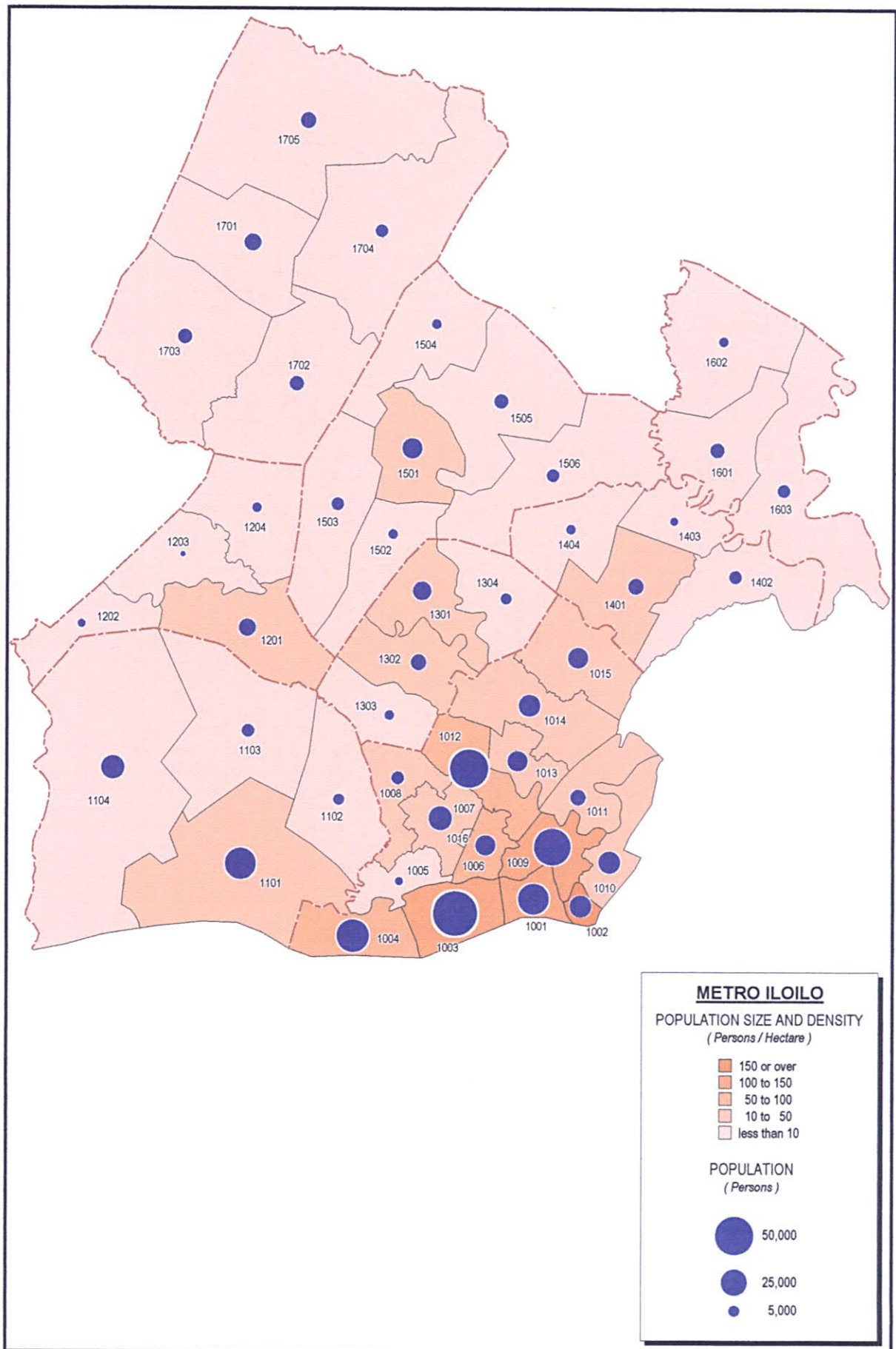


FIGURE 1.3-3 POPULATION SIZE AND DENSITY BY ZONE : 2000

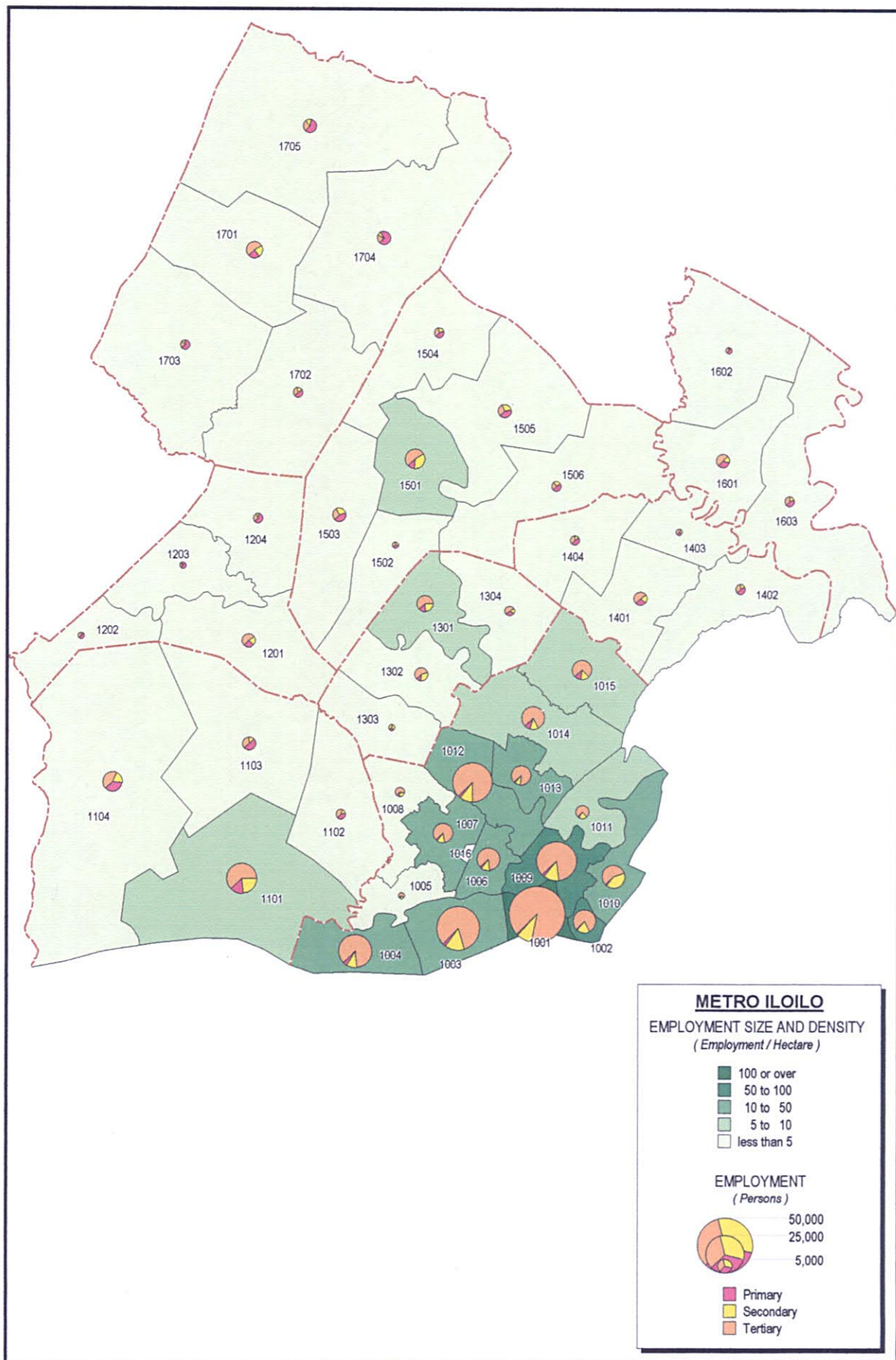


FIGURE 1.3-4 EMPLOYMENT SIZE AND DENSITY BY ZONE : 2000

CHAPTER 2

RELEVANT TRANSPORT AND DEVELOPMENT PROJECTS

2.1 NEW ILOILO AIRPORT DEVELOPMENT PROJECT

1) Background

Construction of a new airport of international standard located in the Municipalities of Sta. Barbara and Cabatuan, Iloilo, to cater the increasing number of air passenger and air cargo traffic in Iloilo and to boost the development of Visayas Region.

2) Relevant Study

There were the following studies for preparation of the project.

- (i) Civil Aviation Master Plan, UNDP, 1992
- (ii) The Study on Selected Airports Master Planning Project, JICA, 1997
- (iii) Pre-feasibility Study on the New Airport Development Project, JICA, 1997
- (iv) Final report on airport master plan and feasibility study", DOTC, 1999

3) Financial Source

Japan Bank for International Cooperation (JBIC)

4) Implementation Schedule

Department of Transportation and Communications (DOTC)

5) The Project Components

The Project is composed as follows.

(i) Civil Work:	Runaway strip	150m each side
	Runaway	2,500m x 45m
	Passenger loading apron	360m x 140m
	Taxiway	375m x 140m
Building Work:	Passenger terminal	10,500m ²
	Control tower & Operations buildings	2,000m ²
	Passenger boarding bridge	1,300m ²
	Cargo terminal buildings	3 no.
Air Navigation Systems:	Radio Navigation Aids	1 lot
	ATC and Communications System	
	Meteorological Observation System	
	Aeronautical Ground Lighting System	
Airport Utilities:	Inst. of Power Supply System	1 lot
	Construction of Sewerage System	
	Inst. of Telephone System	
	Construction of Water Supply System	
Procurement of Equipment	Fire Fighting Vehicles (12,000kl)	2 units
	Fire Fighting Vehicles(6,100kl)	1 unit
	Road Sweeper	1 unit
	Rotary Mower	4 units
	Shovel Tractor with Backhoe	1 unit
	Hand Type Mower	
Dump Truck (4t)		1 units

6) Implementation Program

Bidding	2003
Construction (30 months)	2004 to 2006
Commencement of operation	2007

7) Project Cost (Estimate)

Total Project Cost	6,200 M Pesos.
--------------------	----------------

2.2 ILOILO FLOOD CONTROL PROJECT

1) Background

Iloilo City has been suffering for flood damages almost every year due in part to insufficient flow capacity of the Jaro river and in part to poor drainage in the Iloilo River Basin. In order to solve these problems, early implementation of the flood control project would be imperative to attain a safer and a more pleasant urban environment for the city. The project objectives are as follows.

- To mitigate flood damage and inundation with the aim of creating a more sustainable urban community and of providing a safer and amore pleasant living condition for people in the urban area of Iloilo Coty and its vicinity;
- To create a more dynamic regional economy by providing a flood-free urban center as an important part of the strategy for furthering national development; and
- To rehabilitate and restore the urban environment by providing for more ecologically stable conditions that will arrest the progressive deterioration of environmental conditions, health and sanitation in Iloilo City and its vicinity.

The project is scheduled to be implemented in two (2) stages, namely Stage 1 and Stage 2. The Stage 1 aims basically to attain the flood control work within a scale of a 20-years return period, and Stage 2 aims successively to upgrade the project scale to 50-years return period. Thus the overall project is composed of the following scope of work as shown in Table 2.2-1.

TABLE 2.2-1 ILOILO FLOOD CONTROL PROJECT

Work Site	Scope of Work	
	Stage 1	Stage 2
Jaro River Improvement		
Tigum River	- Raising banks and stretching alignment -Excavation of high water channel	
Aganan River	- Raising banks and stretching alignment - Excavation of connection (cutoff) channel	
Jaro Floodway	Excavation and embankment Diversion Structure	
Jaro River Middle Section	-	Raising banks and stretching alignment
Jaro River Mouth Section	Raising banks and stretching alignment	Construction of La Paz Floodway
Iloilo River Improvement		
Iloilo River	Raising both banks and development of riverside park	Dredging banks and stretching alignment
Dungon Creek	-	Raising banks and stretching alignment
Urban Drainage Improvement		
Urban Drainage Channel	Upper Ingore Creek	- Lower Ingore Creek - Rizal Creek - Bo. Obrero Creek

Note: Bold means civil works under Component 1 of Stage 1 Source: DPWH

Other than the construction works stated above, the development of resettlement sites for the project-affected families (PAFs) are added to the project works for which smooth and timely or effective implementation are required. There are two resettlement sites required for the relocation of PAFs for Stage 1 and Stage 2.

2) Relevant Study

- Study on Flood Control for Rivers in the Selected Urban Centers: JICA/DPWH, 1993~1995
- Detailed Design (under 22nd OECF Loan), 1999 ~ 2000

3) Financial Source

Japan Bank for International Cooperation (JBIC)

4) Implementation Schedule

Department of Public Works and Highway (DPWH)

5) The Project Components

(1) Civil Works under Component I of Stage I

- (a) Construction of Jaro Floodway including four bridge construction (L=344m in total)
- (b) Improvement of Tigum River including one bridge construction (L=105m)
- (c) Improvement of Aganan River including one bridge construction (L=105m)
- (d) Improvement of Iloilo River including one bridge construction (L=114m)
- (e) Improvement of Upper Ingore Creek (no bridge construction)
- (f) Improvement Jaro River Mouth Section (no bridge construction)

(2) Development of Resettlement Sites

6) Implementation Program

Bidding	2003~2004
Construction Start	2004
Construction Completion	2007

CHAPTER 3

INTER-CITY TRANSPORT SYSTEM

3.1 ROAD TRANSPORT

Metro Iloilo is situated in the southern coastal area of Panay Island. As shown in Figure 3.1-1, there are two large urban centers in the Island, i.e. Iloilo City and Roxas City.

Almost all major inter-city roads are originated from Iloilo City, connecting almost all city / municipal urban centers. They are as follows:

- Iloilo – Roxas Road
- Iloilo – Kalibo Road
- Iloilo – Antique Road
- Iloilo Coastal Road which runs along east coast of the Island.

3.2 AIR TRANSPORT

There are five (5) airports in the Island, consisting of two trunkline airports at Iloilo City and Roxas City, two secondary airports at Kalibo and San Jose de Buenavista, and one (1) feeder airport at Caticlan (see Figure 3.2-1). Iloilo Airport is connected by air services with Manila, Cebu and General Santos.

3.3 SEA TRANSPORT

Locations of base and terminal ports, passenger ferry ports, and ro-ro routes in the Island are shown in Figure 3.3-1.

Iloilo City is a center of sea transport in the Island. In the City, there are several ports / terminals as follows:

- Base Port (international port)
- Passenger ferry terminal for the routes to Bacolod and Pulupandan in Negros Island
- Passenger terminal for the routes to Manila, Cebu and various cities in Mindanao
- Banca boat terminals for the route to Guimaras Island
- Ro-Ro Terminal for the routes to Guimaras Island and Bacolod City



FIGURE 3.1-1 MAJOR INTER-CITY ROADS IN PANAY ISLAND

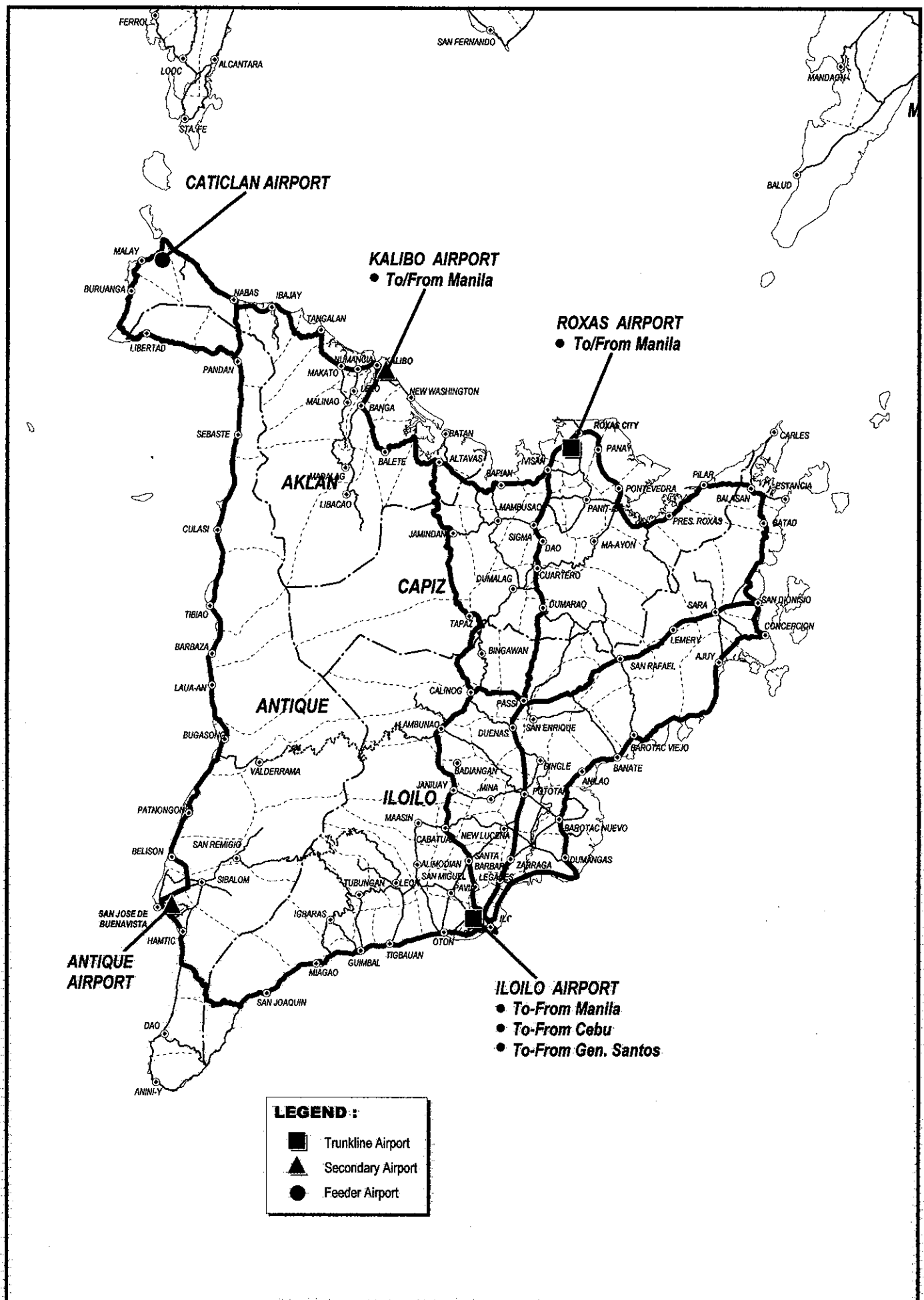


FIGURE 3.2-1 AIRPORTS IN PANAY ISLAND

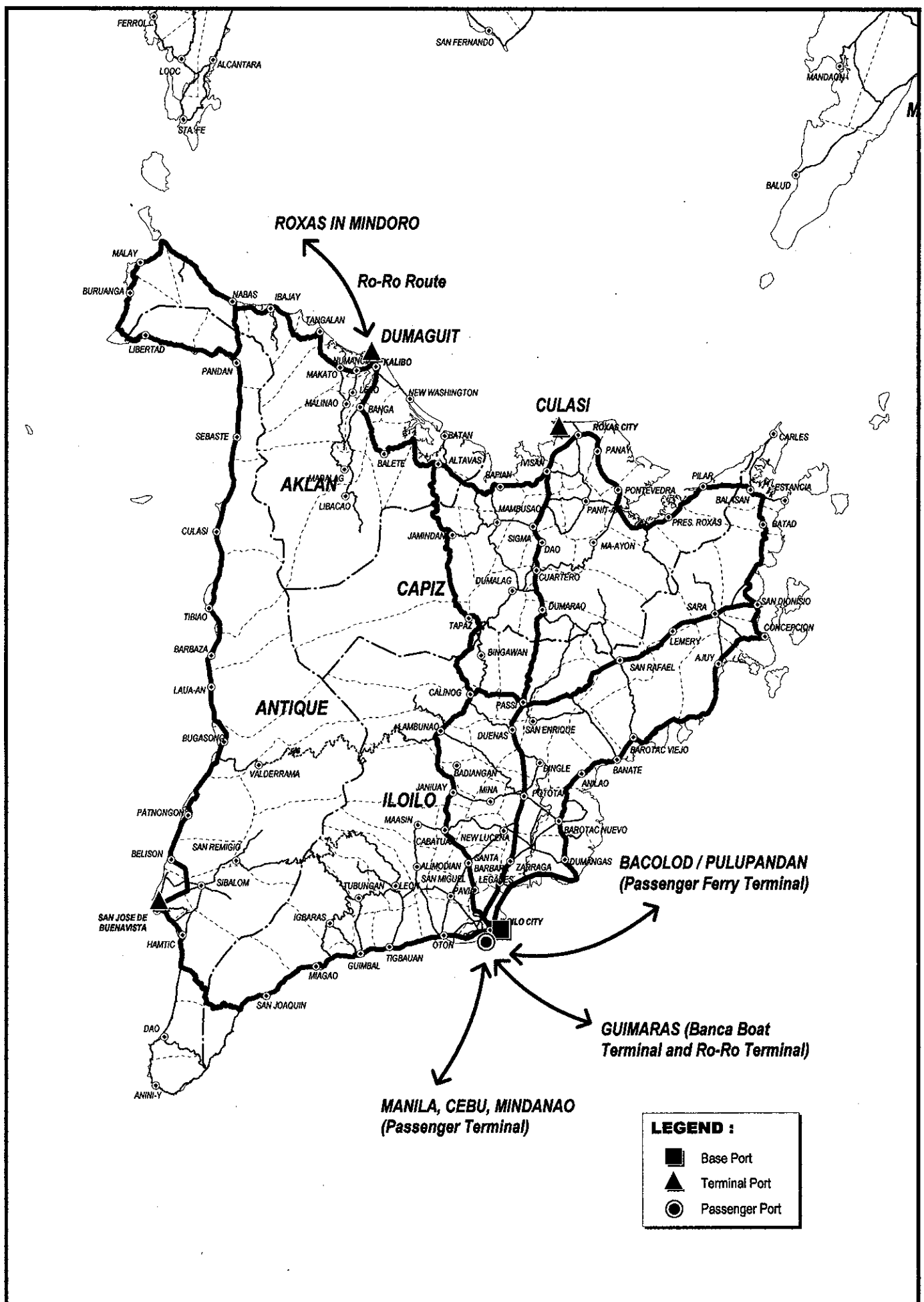


FIGURE 3.3-1 BASE AND TERMINAL PORT, PASSENGER FERRY AND RO-RO ROUTES IN PANAY ISLAND