



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



DAVAO INTEGRATED DEVELOPMENT PROGRAM(DIDP)
THE REPUBLIC OF THE PHILIPPINES

THE STUDY ON THE DAVAO INTEGRATED DEVELOPMENT PROGRAM MASTER PLANNING

THE REPUBLIC OF THE PHILIPPINES

FINAL REPORT

SPATIAL/INFRASTRUCTURE SECTOR REPORT

March 1999

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THE STUDY ON THE DAVAO INTEGRATED DEVELOPMENT PROGRAM

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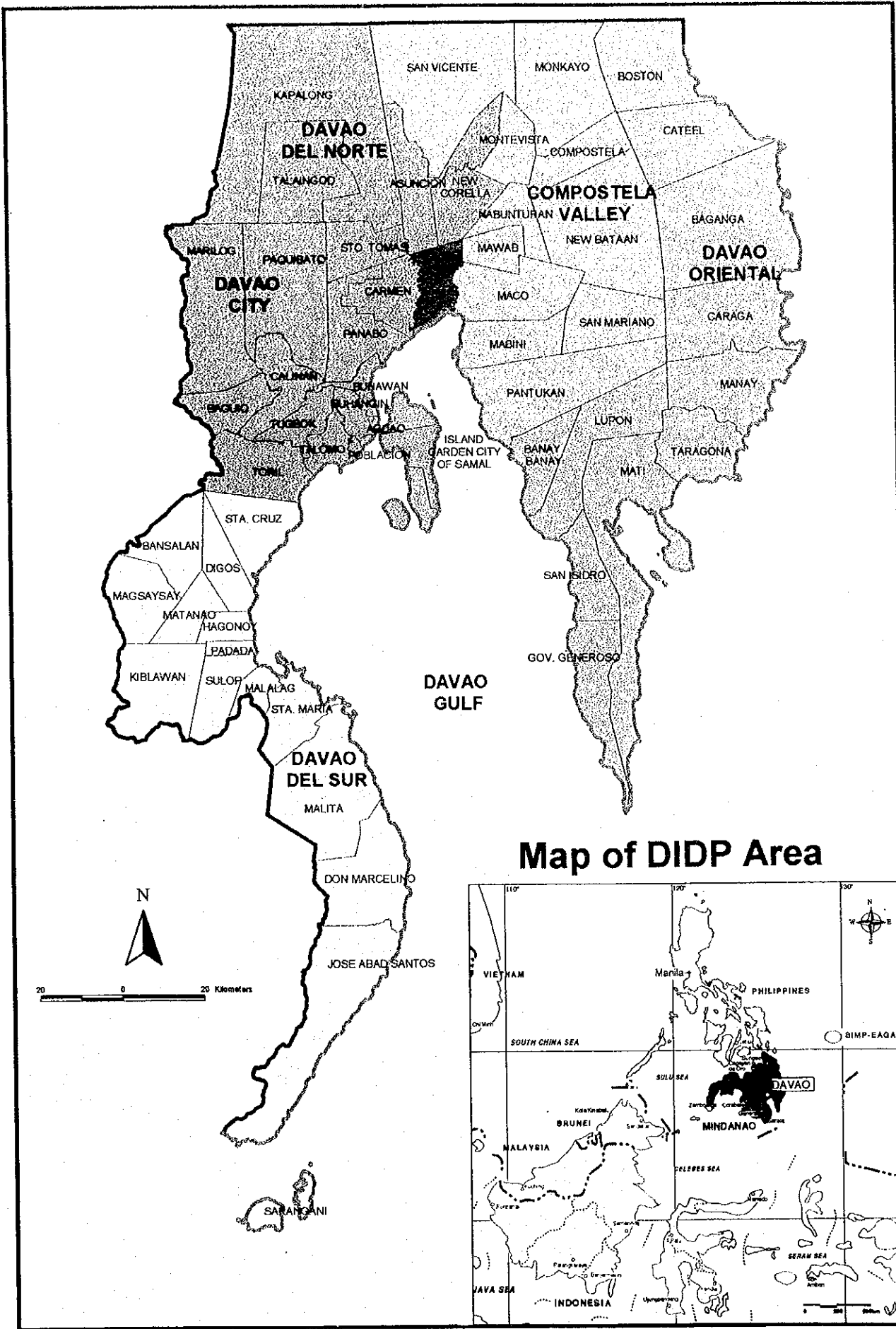
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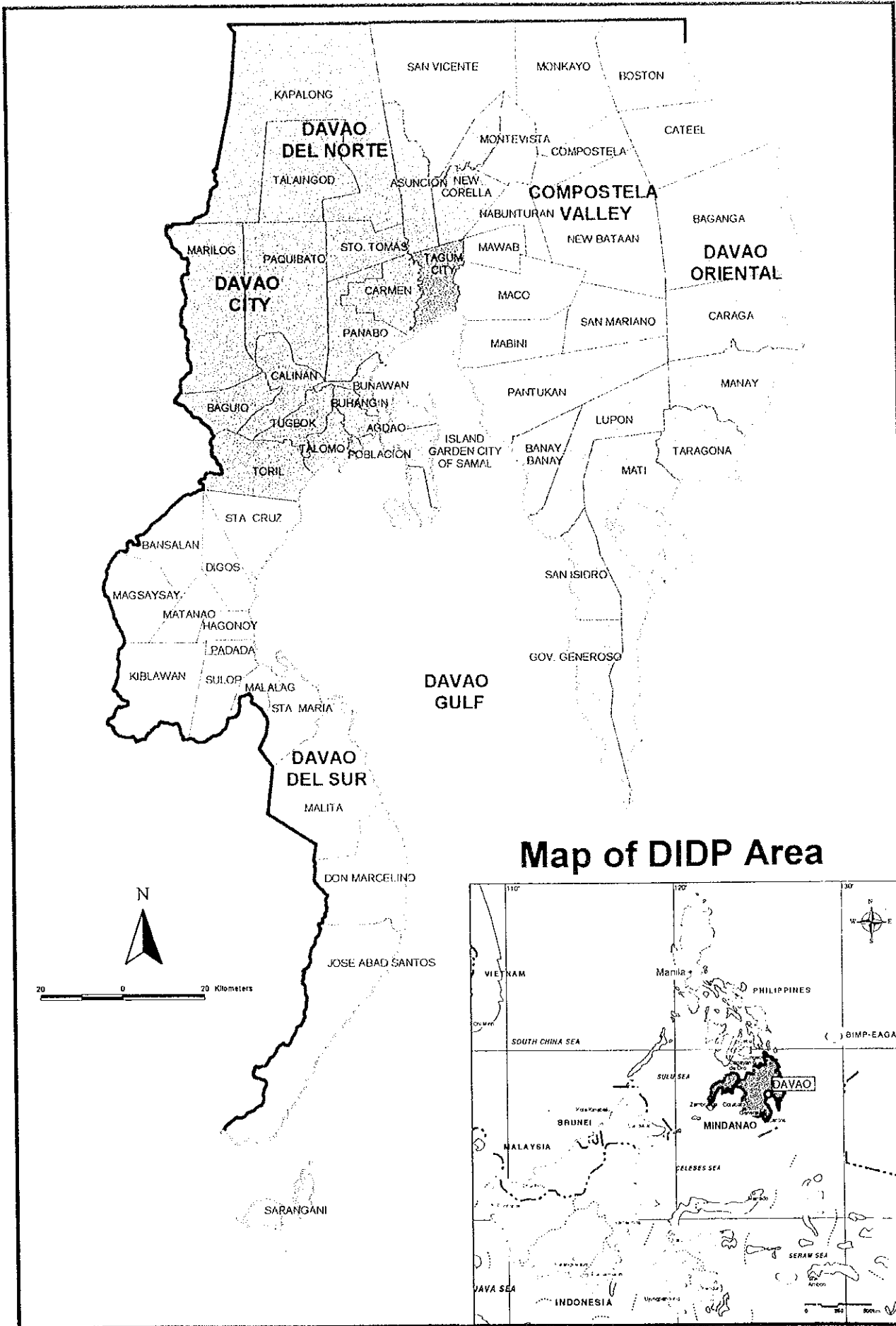
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SPATIAL/INFRASTRUCTURE SECTOR REPORT

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Abbreviations

AADT	Annual Average Daily Traffic
AAGR	Annual Average Growth Rate
ADB	Asian Development Bank
ADZs	Area Development Zones
AIDAB	Australian International Development Assistance Bureau
ARMM	Autonomous Region of Muslim Mindanao
ASEAN	Association of Southeast Asian Nations
ATO	Air Transportation Office
BCD	Business Center Davao
BFPE	Barrels Fuel-Oil Equivalent
BIMP-EAGA	Brunei-Indonesia-Malaysia-Phillipines East Asean Growth Area
BOD	Board Of Directors
BPP	Build Operate Own
BPT	Bureau Of Transportation
BWSA	Barangay Waterworks and Sanitation Association
CAB	Civil Aeronautics Board
CAMP	Civil Aviation Master Plan
CBD	Central Business District
CBFM	Community Based Forest Management
DAMECP	Davao del Norte Electric Cooperative, Inc.
DASIRECP	Davao del Sur Rural Electric Cooperative, Inc.
DBM	Department of Budget and Management
DBP	Development Bank of Philippines
DCWD	Davao City Water District
DDA	Davao Development Authority
DENR	Department of Environment and Natural Resources
DIA	Davao International Airport
DIADP	Davao International Airport Development Project
DICTF	Davao City International Container Terminal Facilities
DIDP	Davao Integrated Development Program
DIDPMP	Davao Integrated Development Program and Management Planning
DILG	Department of Interior and Local Government
DLPC	Davao Light and Power Corporation
DOE	Department Of Energy
DOF	Department Of Finance

DOH	Department Of Health
DORECO	Davao Oriental Rural Electric Cooperative, Inc.
DOST	Department of Science and Technology
DOTC	Department of Transportation and Communication
DPWH	Department of Public Works and Highways
DSM	Demand Side Management
DTI	Department of Trade and Industry
DUCC	Davao Union Cement Corporation
ECE	Energy Consumption Elasticity
EDC	Energy Development Corporation
EIB	European Investment Bank
EPZ	Export Processing Zone
ER	Electrification Ratio
ERB	Energy Regulatory Board
GDP	Gross Domestic Product
GRDP	Gross Regional Domestic Product
GSC	General Santos City
HIGC	Home Insurance and Guaranty Corporation
HLURB	Housing and Land Use Regulatory Board
HPI	Hijo Plantation Inc.
HUDCC	Housing and Urban Development Coordination Council
IBRD	International Bank for Reconstruction and Development
IEC	Information and Education Campaign
IFMA	Industrial Forest Management Agreement
IOUs	Investor Owned Utilities
IPPs	Independent Power Procedures
IQS	Industrial Questionnaire Survey
IRA	Internal Revenue Allotment
JICA	Japan International Cooperation Agency
LEGOIL	Legaspi Oil Company, Inc.
LGU	Local Government Unit
LRT	Light Railway Transit
LTFRB	Land Transportation Franchising and Regulatory Board
LTO	Land Transportation Office
LWUA	Local Water Utilities Administration
MARINA	Maritime Industry Authority
MBN	Minimum Basic Needs

MEO	Municipal Engineer's Office
MMBFOE	Million Barrels of Fuel-Oil Equivalent
MMLF	Moro National Liberation Front
MPDO	Municipal Planning and Development Office
MTBS	Mindanao Terminal Brokerage Services, Inc.
NCR	National Capital Region
NEA	National Electrification Administration
NEDA	National Economic and Development Authority
NGO	Non-Governmental Organization
NIA	National Irrigation Administration
NLUC	National Land Use of Committee
NPC	National Power Corporation
NPFD	National Physical Framework Plan
NTCP	National Traffic Count Program
NWRB	National Water Resources Board
ODO	Original Destination
ODA	Official Development Assistance
OECE	Overseas Economic Cooperation Fund
PACINTER	Pacific International Terminal
PAGASA	Philippine Atmospheric Geophysical and Astronomical Service Administration
PAIC	Provincial Agri-Industrial Center
PCMI	Per Capita Municipal Income
PDOs	Port District Offices
PEO	Provincial Engineer's Office
PEP	Philippine Energy Plan
PEZA	Philippine Export Processing Zone Authority
PGSEP	Philippine German Solar Energy Project
PMOs	Port Management Offices
PNOC	Philippine National Oil Corporation
PPA	Philippine Port Authority
PPDO	Provincial Planning and Development Office
PUV	Public Utility Vehicle
RAIC	Regional Agri-Industrial Center
RDC	Regional Development Council
RDF	Residue Derived Fuel
RDIP	Regional Development Investment Program

RECs	Rural Electric Cooperatives
REREDP	Rural Electrification and Renewable/Energy Development Program
RIC	Regional Industrial Center
RPPF	Regional Physical Framework Plan
RWSA	Rural Waterworks and Sanitation Association
SCBCS	Solar Central Battery Charging System
SEP	Special Energy Program
SEZ	Special Economic Zone
SOSKSARGEN	South Cotabato-Sultan Kudarat Sarangani General Santos City
SWIM	Small Water Impounding Management
SWIP	Small Water Impounding Project
TADECO	Tagum Agricultural Development Corporation, Inc.
TEFASCO	Terminal Facilities and Services Corporation
TSS	Total Suspended Solids
UHLP	Unified Housing Lending Program
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
WB	World Bank
WBA	World Bank Atlas
WD s	Water Districts
WRR	Water Resources Region

SPATIAL/INFRASTRUCTURE SECTOR REPORT

Part 1: National and Regional Spatial Development

Chapter 1 National Policy and Institution

1.1. Existing National Spatial/Urban Policies

1.1.1. Vision for regional development

The Philippine National Development Plan: Direction for the 21st Century specifies the country's regional development vision: 1) the geographically-fragmented islands are economically integrated; 2) comparative advantages and regional resource endowments are fully utilized without destroying their regenerating capacities; and 3) access to productive opportunities and minimum desirable levels of social welfare is guaranteed.

Economic integration is expected to be a network of urban centers to realize from economies of scale and scope of industries, infrastructure and services, and to take place through greater interdependence and complementarity between urban and rural areas. New urban areas will provide market for rural produce and provide employment opportunities in industries, services and other non-agricultural activities. On the other hand, the expansion of rural economies, micro-industries and increase of income will induce demand for goods produced in and services provided by urban centers.

Regional development under the national development will be guided by appropriate land use policy, as well as appropriate planning, development and management balancing economic, socio-cultural and environmental considerations. Specific areas will develop based on their resource potentials and local initiatives. The private sector will be encouraged to lead or to participate in development activities within a competitive environment, while the government focuses on policy making and on ensuring the delivery of minimum standards of services throughout the country.

An efficient infrastructure system, especially transport and telecommunications, will enhance the broad-base development for the country's geographically fragmented islands, thereby facilitating the mobility of people, goods and services. The city planning, particularly determination and allocation of land uses within the urban area shall provide appropriate access to space, shelter, employment opportunity and basic services.

1.1.2. Regional development strategy

To pursue this vision for the regional development, five strategies have been identified. They are 1) national dispersion through regional concentration, 2) strengthening the urban-rural links, 3) resource and area-based development, 4) effective regional development administration, and 5) delivery of minimum desirable level of welfare.

A notable feature of the current National Medium Term Development Plan (1993-1998) is apparent lack of urban development policies excluding the urban growth centers development. In fact, urban development policies in the Philippine are embedded in regional or rural development policies, which in essence encourage industrial dispersal or promotion of industries in areas other than Metro Manila.

A general consensus exists among relevant government agencies that selected urban centers having superior industrial potential and/or better infrastructure should be encouraged for accelerated industrial development. NEDA and DTI have respectively designated regional centers as the focal points in industrial dispersal.

Among the policies in the current Medium Term Plan for the infrastructure sector are the following related more to growth centers and urban infrastructure.

- To strengthen infrastructure support to socially depressed areas and to growth centers and areas with the highest growth potential;
- To adopt the integrated area development approach in the planning, programming and implementation of complementary support infrastructure (e.g. roads, irrigation facilities, water supply, etc.) for regional growth centers, tourism areas, and identified poverty areas; and
- To give priority to appropriate sanitation infrastructure in areas other than urban centers, especially in depressed areas.

In all policy statements above, socially depressed areas are designated together with urban/growth centers. Another reflection of this rural orientation even in the urban area development is the renaming of the Regional Industrial Center Program launched by DTI in 1988, which is now called the Regional Agro-industrial Growth Center Program.

1.1.3. Shelter and urban development policy

Under the National Shelter Plan, the urban development agenda are considered as follows:

- To serve as an overall framework towards the formulation of more specific, detailed and comprehensive urban development plans not as action plans, but rather a framework intended to guide local actions in dealing with urban concerns and challenges;
- To facilitate effective decision making by local and national governments in partnership with the private sector; and
- To effect a greater and more rational amount of public investments into urban development projects.

The urban development goals shall be pursued with 1) development of an integrated urban centers system, 2) provision and delivery of adequate and efficient basic infrastructure and services, 3) higher quality living environment and 4) effective economic and urban planning and management through appropriate planning approaches.

The national shelter and urban policy thrusts and strategies are summarized in Table 1.

1.2. Urban Related Organizations

NEDA and its regional offices are responsible for preparing spatial development plans for the Country and all the regions. NEDA has established a regional hierarchical classification of urban centers and designated regional centers with a view to accelerating the growth of less developed regions radiating development impact of the designated centers.

Table1 Shelter and Urban Policy Thrusts and Strategies

	Policy Thrusts	Strategies
1	Housing as a means of social intervention and catalyst for economic activity	<ul style="list-style-type: none"> - long term and continuing financial support for social housing production - new and appropriate housing technology - linkage with livelihood programs
2	People-centered and aided self-help approach to housing	<ul style="list-style-type: none"> - creation of housing cooperatives
3	Maximum multi-sectoral participation	<ul style="list-style-type: none"> - incentive and enabling mechanisms for all private sector/NGO participation
4	Easier land access for housing	<ul style="list-style-type: none"> - land banking - rationalized land use and town planning - streamlining of procedures on and related to land access
5	Development of growth poles	<ul style="list-style-type: none"> - provisions of housing support services - creation of enabling supportive condition of the growth pole development
6	Sustainability and matching of housing finance with beneficiaries' affordability	<ul style="list-style-type: none"> - conversion and coverage broadening of Abot-Kaya Pabahay-fund - reversion of Pag-Ibig fund to mandatory membership - automatic 5-year loan agreement with UHLP funding agencies - active participation of private banks as mortgage originators - adoption of alternative non-traditional and innovative fund mechanisms
7	Maintenance of ecological balance in urban development and housing	<ul style="list-style-type: none"> - integration of environmental concerns in planning and development
8	Improvement of housing delivery system	<ul style="list-style-type: none"> - establishment of monitoring and feedback mechanism - establishment of one-stop shops - regionalization - development of the data bank - capability building of different actors involved in shelter delivery

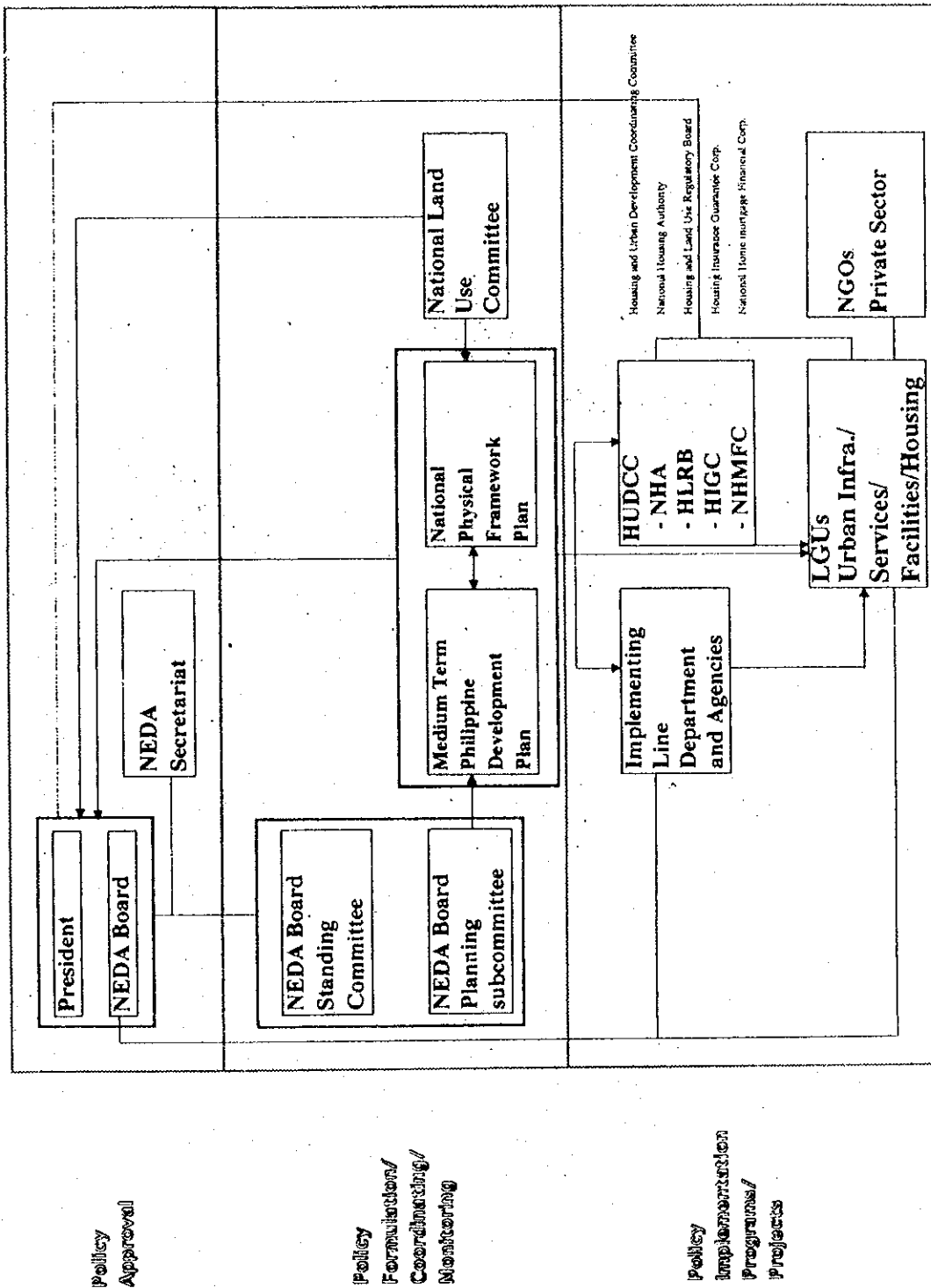
Source: National Shelter Program, HUDCC

There are two major institutions dealing with urban development: the Housing and Urban Development Coordination Council (HUDCC) and the National Land Use Committee (NLUC), an inter-agency committee headed by NEDA concerned mainly with preparation of the National Physical Framework Plan (NPFP). This long-term plan has four main components of production, protection, settlement and infrastructure proposals. Existing institutional structure for urban development is illustrated in Figure 1.

Various line agencies such as DPWH implement urban related programs and projects at the national level. LGUs formulate local policies pertaining to urban development and are responsible for implementation of local programs and projects.

Regarding human settlement development, HUDCC is in charge of a main function of coordinating activities of government agencies to ensure the accomplishment of the National Shelter Program.

This agency provides the structure for housing policy formulation and program coordination among the four housing related agencies: the National Housing Authority (NHA), the National Home Mortgage Finance Corporation (NHMFC), the Housing and Land Use Regulatory Board (HLURB) and Home Insurance and Guaranty Corporation (HIGC). Other related agencies supporting settlement development are the National Economic and Development Authority (NEDA), the Department of Budget and Management (DBM), the Department of Finance (DOF), the Department of Public Works and Highway (DPWH) and the Development Bank of the Philippines.



Source: JICA Study Team based on the Urban Development and Housing Act of 1992

Figure 1 Institutional Structure for Urban Development

Chapter 2 Spatial and Economic Development

2.1. National Spatial and Economic Development

(1) Changes in population distribution

The national population of the Philippines increased by 3.6 times over the past five decades, from 19.2 million in 1948 to 68.6 million in 1995. In more recent years where more reliable population data are available, the national population increased by 43% over 1980-95. The population growth has been slightly accelerating over the same period with the average annual growth at 2.35% during 1980-90 and 2.48% during 1990-95.

Distribution of population among different regions has changed significantly over the past five decades (Table 2). In 1948, the population share of Mindanao was 15.3%, and that of Visayas 33.3%. Mindanao received a large number of immigrants, both voluntary and by settlement schemes, in the next, few decades mainly from Visayas. As a result, the population shares became almost equal in 1980: 23.1% in Visayas and 22.7% in Mindanao. Mindanao maintained relatively high population growth subsequently - 2.75% per annum during 1980-90 and 2.54% per annum during 1990-95, while the population growth in Visayas stayed lower 1.61% per annum during 1980-90 and 1.66% per annum during 1990-95. During this five decade period, population shares of Luzon stayed slightly over 50%. In 1995, population distributed in the three regions with 55.7% in Luzon, 20.6% in Visayas and 23.6% in Mindanao.

Population distribution in the Philippines has changed also to concentrate more people in urban areas. The urbanization ratio in the Philippines reached 48.5% in 1990. By region, the urbanization ratio in 1990 was 57.9% in Luzon, 37.7% in Mindanao and 36.3% in Visayas. Three largest cities are all found in the National Capital Region (NCR): Quezon (1.99 million), Manila (1.66 million) and Caloocan (1.02 million). Population growth rates in the NCR as a whole are still among the highest of all the urban centers in the Philippines. The growth accelerated from 2.98% per annum during 1980-90 to 3.5% per annum during 1990-95.

If the NCR or Metro Manila is taken as a single urban agglomeration, Davao City with the total population of 1.01 million in 1995 and the urbanization ratio of 76.7% in 1995 is effectively the second largest urban area in the country. The urbanization ratio in Luzon excluding the NCR is calculated at 44.0% in 1990, still higher than the ratio in Mindanao. Population growth in Davao City averaged 3.37% per annum in 1980-90 and 3.45% per annum in 1990-95. Taking only the urbanized area, the population growth of this second largest urban area exceeds that of Metro Manila in the recent years.

(2) Economic performance by region

Economic growth of the Philippines has accelerated recently with an annual average growth rate of the GDP increased from 1.2% during 1982-90 to 2.2% during 1990-95. More recently, the GDP growth has been accelerating steadily from 2.1% in 1993, 4.4% in 1994 and 4.8% in 1995.

Table 2 Population Trend by Region

Region	Total Population (thousand)				Land (km ²)		Share (%)			Population Growth Rate (%)					Population Density (Pop./km ²)						
	1948	1970	1980	1990	1995	Area I	1948	1970	1980	1990	1995	1948-70	1970-80	1980-90	1990-95	1948-95	1948	1970	1980	1990	1995
NCR	1,569	3,967	5,926	7,948	9,454	636.0	8.2	9.9	12.3	13.1	13.8	4.3	4.1	3.0	3.5	3.9	2,467	6,237	9,318	12,497	14,865
CAR	365	731	914	1,146	1,255	18,293.7	1.9	1.8	1.9	1.9	1.8	3.2	2.3	2.3	1.8	2.7	20	40	50	63	69
I	1,686	2,488	2,923	3,551	3,804	12,840.2	8.8	6.2	6.1	5.9	5.5	1.8	1.6	2.0	1.4	1.7	194	194	228	277	296
II	669	1,512	1,919	2,341	2,536	26,837.6	3.5	3.8	4.0	3.9	3.7	3.8	2.4	2.0	1.6	2.9	25	56	72	87	94
III	1,838	3,714	4,803	6,199	6,933	18,230.8	9.6	9.2	10.0	10.2	10.1	3.2	2.6	2.6	2.3	2.9	101	204	263	340	380
IV	2,084	7,074	6,119	8,263	9,941	46,924.4	10.8	17.6	12.7	13.6	14.5	5.7	-1.4	3.0	3.8	3.4	44	151	130	176	212
V	1,666	2,967	3,477	3,910	4,325	17,632.5	8.7	7.4	7.2	6.4	6.3	2.7	1.6	1.2	2.0	2.1	94	168	197	222	245
Luzon	9,877	22,453	26,081	33,358	38,248	141,395.2	51.3	55.9	54.2	55.0	55.7	3.8	1.5	2.5	2.8	2.9	70	159	184	236	271
VI	2,531	3,618	4,526	5,393	5,777	20,223.2	13.2	9.0	9.4	8.9	8.4	1.6	2.3	1.8	1.4	1.8	125	179	224	267	286
VII	2,120	3,096	3,787	4,594	5,015	14,951.5	11.0	7.7	7.9	7.6	7.3	1.7	2.0	2.0	1.8	1.8	142	207	253	307	335
VIII	1,764	2,381	2,800	3,055	3,367	21,431.7	9.2	5.9	5.8	5.0	4.9	1.4	1.6	0.9	2.0	1.4	82	111	131	143	157
Visayas	6,415	9,095	11,113	13,042	14,159	56,606.4	33.3	22.6	23.1	21.5	20.6	1.6	2.0	1.6	1.7	1.7	113	161	196	230	250
IX	522	1,443	1,973	2,460	2,795	15,997.0	2.7	3.6	4.1	4.1	4.1	4.7	3.2	2.2	2.6	3.6	33	90	123	154	175
X	641	1,262	1,765	2,197	2,483	14,033.0	3.3	3.1	3.7	3.6	3.6	3.1	3.4	2.2	2.5	2.9	46	90	126	157	177
XI	467	1,942	2,969	4,007	4,604	27,140.7	2.4	4.8	6.2	6.6	6.7	6.7	4.3	3.0	2.8	5.0	17	72	109	148	170
XII	264	1,794	1,468	2,033	2,360	14,571.3	1.4	4.5	3.1	3.3	3.4	9.1	-2.0	3.3	3.0	4.8	18	123	101	140	162
ARMM	658	1,240	1,360	1,837	2,021	11,409.7	3.4	3.1	2.8	3.0	2.9	2.9	0.9	3.1	1.9	2.4	58	109	119	161	177
CARAGA	392	951	1,371	1,764	1,942	18,847.0	2.0	2.4	2.9	2.9	2.8	4.1	3.7	2.6	1.9	3.5	21	50	73	94	103
Mindanao	2,944	8,632	10,906	14,298	16,205	101,998.7	15.3	21.5	22.7	23.6	23.6	5.0	2.4	2.7	2.5	3.7	85	107	140	159	159
Philippine 1	19,234	36,684	48,098	60,703	68,614	300,000.3	100.0	91.3	100.0	100.0	100.0	3.0	2.7	2.4	2.5	2.7	64	122	160	202	229
Philippine 2	19,236	40,180	48,100	60,698	68,612	300,000.3	100.0	100.0	100.0	100.0	100.0	3.4	1.8	2.4	2.5	2.7	64	134	160	202	229

Source: 1996 Philippine Statistical Yearbook.

Remarks: Philippine 1 shows whole nation's figure in the 1996 Philippine Statistical Yearbook
 Philippine 2 shows accumulated total figure of each region in the 1996 Philippine Statistical Yearbook

Contributions of different regions to the GDP have changed in recent years (Table 3). The share of the GRDP in Visayas to the GDP decreased only slightly from 16.5% in 1982 to 16.2% in 1995, despite the larger decline in population share. The share of GRDP in Mindanao to the GDP decreased more significantly from 19.9% in 1982 to 18.4% in 1995, while the population share increased during the same period. The shares of Luzon's GRDP to the GDP have been at similar levels during this period, and particularly the NCR's share has been more or less 30%.

GRDP growth accelerated in all the three regions during 1982-95: from 1.6% to 2.2% in Luzon, from 0.9% to 2.5% in Visayas, and from 0.3% to 2.1% in Mindanao. In the NCR, however, the GRDP growth declined from 1.8% per annum during 1982-90 to 1.6% per annum during 1990-95.

2.2. Spatial Development in Mindanao

(1) Position of Mindanao

Mindanao is the second largest island in the Philippines with 102,043 km² or 34% of the Nation's total land area. Both the population share (23.6% of the national population in 1995) and the GRDP share (18.4% of the GDP in 1995) are substantively smaller than the share of land area. This represents comparatively larger land area still available for development and less developed economy in Mindanao.

Mindanao economy is mainly agriculture based. Agriculture contributed 40.0% to the GRDP of Mindanao in 1995, while the agricultural GDP had a 21.5% share in the same year. Both industry and services had much smaller shares of the GRDP in Mindanao than the respective shares in the GDP of the Philippines in 1995: 25.4% against 35.5% for industry and 33.6% against 43.0% for services.

The agriculture sector still employs close to 60% (58.2% in 1994) of the total employment in Mindanao, while at the national level the share was 43.3% in 1995. The industrial employment is very small in Mindanao (9.4% in 1994), much smaller than the share (16.1% in 1995) at the national level. The share of services sector in the total employment was 32.4% in Mindanao in 1994 and 40.4% in the Philippines in 1995.

Mindanao has been considered as less developed part of the country, confined largely to the supplier of food and raw materials for the NCR and other urban centers. It has been trapped in a vicious cycle of under-development with limited employment opportunities and low-income levels, weak purchasing power of the populace, high poverty incidence and low economic growth. The following have been considered as main reasons for the underdevelopment in Mindanao:

- distance from Manila,
- basically food and raw material supplier to the NCR and other urban centers;
- high population growth;
- unstable security problems perceived by people outside the island;
- high development cost of agricultural output and input due to lack of adequate farm-to-market roads;

Table 3 GRDP Trend

Region	GRDP (million Pesos at constant 1985)				Growth Rate (%)			Share (%)			
	1983	1985	1990	1995	1983-85	1985-90	1990-95	1983	1985	1990	1995
National Capital Region	201,703	164,246	221,753	240,317	-9.8	6.2	1.6	30.3	28.7	30.8	29.9
LUZON	223,093	196,097	250,412	285,196	-6.2	5.0	2.6	33.5	34.3	34.7	35.5
VISAYAS	109,718	94,390	115,262	129,793	-7.2	4.1	2.4	16.5	16.5	16.0	16.2
IX Western Mindanao	20,896	18,561	21,132	21,760	-5.8	2.6	0.6	3.1	3.2	2.9	2.7
X Northern Mindanao	37,252	32,412	37,099	41,615	-6.7	2.7	2.3	5.6	5.7	5.1	5.2
XI Southern Mindanao	47,959	43,727	50,074	53,953	-4.5	2.7	1.5	7.2	7.6	6.9	6.7
XII Central Mindanao	25,097	22,452	24,959	22,271	-5.4	2.1	-2.3	3.8	3.9	3.5	2.8
ARMM	-	-	-	7,962	-	-	-	-	-	-	-
MINDANAO	131,204	117,152	133,264	147,561	-5.5	2.6	2.1	19.7	20.5	18.5	18.4
PHILIPPINE	665,718	571,885	720,691	802,866	-7.3	4.7	2.2	100.0	100.0	100.0	100.0

-
- inadequate infrastructure and utility facilities; and
 - low level of private investment due to all of the above.

Despite these unfavorable factors, Mindanao is known for the following advantages:

- rich forestry resources with 41% of the total national forest land;
- rich mineral resources such as gold with 48% of the national reserve and nickel with 63% of the country's endowment;
- fishery resources;
- human resources, especially of young age with 15 to 19 years old age class constituting one-third of the total population and 90% literacy rate;
- proximity to countries/regions of the East ASEAN Growth Area; and
- recent policy change at the national level giving high priority to Mindanao.

As a peace agreement with MNLF was concluded, the Government has a new vision for Mindanao: a vibrant island-wide economy which is integrated internally and open to global market opportunities. The ultimate goal for Mindanao is to formulate the globally competitive agricultural and agri-industrial sector. The Government gives the priority on development in Mindanao, and the broad-based growth approach for Mindanao has the following features:

- Agriculture and agri-industrial sectors will be pillars of the economic growth;
- Sustained growth will be ensured through the prudent use and management of natural resources and continuous human resources development;
- Growth measures are market-oriented and employment-generating; and
- Macro-economic stability serves as a foundation for the rapid and sustained growth.

(2) Spatial development of Mindanao

Recent changes in subdivision of Mindanao make it difficult to trace spatial development within the island. Confining to the most recent years, it is observed that all the regions (Region IX, X, XI and XII) except ARMM and Caraga attained the population growth of 2.5 - 3.0% per annum during 1990-95, which is higher than the national average. Recent economic performance is more varied among regions. The average annual growth of the GRDP in 1990-95 was the highest in Region X (Northern Mindanao) at 2.4%, followed by Region XI (Southern Mindanao) at 1.6% and Region IX (Western Mindanao) at 0.4%. Region XII (Central Mindanao) recorded a negative growth.

Spatial development of Mindanao has been pursued by two distinct approaches: countryside agri-industrial development and the development of East ASEAN Growth Area. The basic ideas of these approaches are respectively as follows:

- Promoting greater complementarity between the urban growth centers and rural areas through processing agricultural products and indigenous raw materials; and
- Strengthening direct trade and economic links with the East ASEAN Growth Area, Brunei Darussalam, Indonesia and Malaysia (BIMP-EAGA including Philippines), and other parts of the world.

There are seven Area Development Zones (ADZs) defined in Mindanao as shown in Figure 2. The ADZs could be further consolidated into the economic growth clusters on the basis of products, marketing, infrastructure and natural resource endowments. The three economic growth clusters are defined as follows:

- North Coast Agri-Industrial Corridor and gateway to the domestic market;
- Southern Mindanao Food Triangle and agri-industrial hub of EAGA; and
- Western Mindanao Marine Center and trading hub of EAGA.

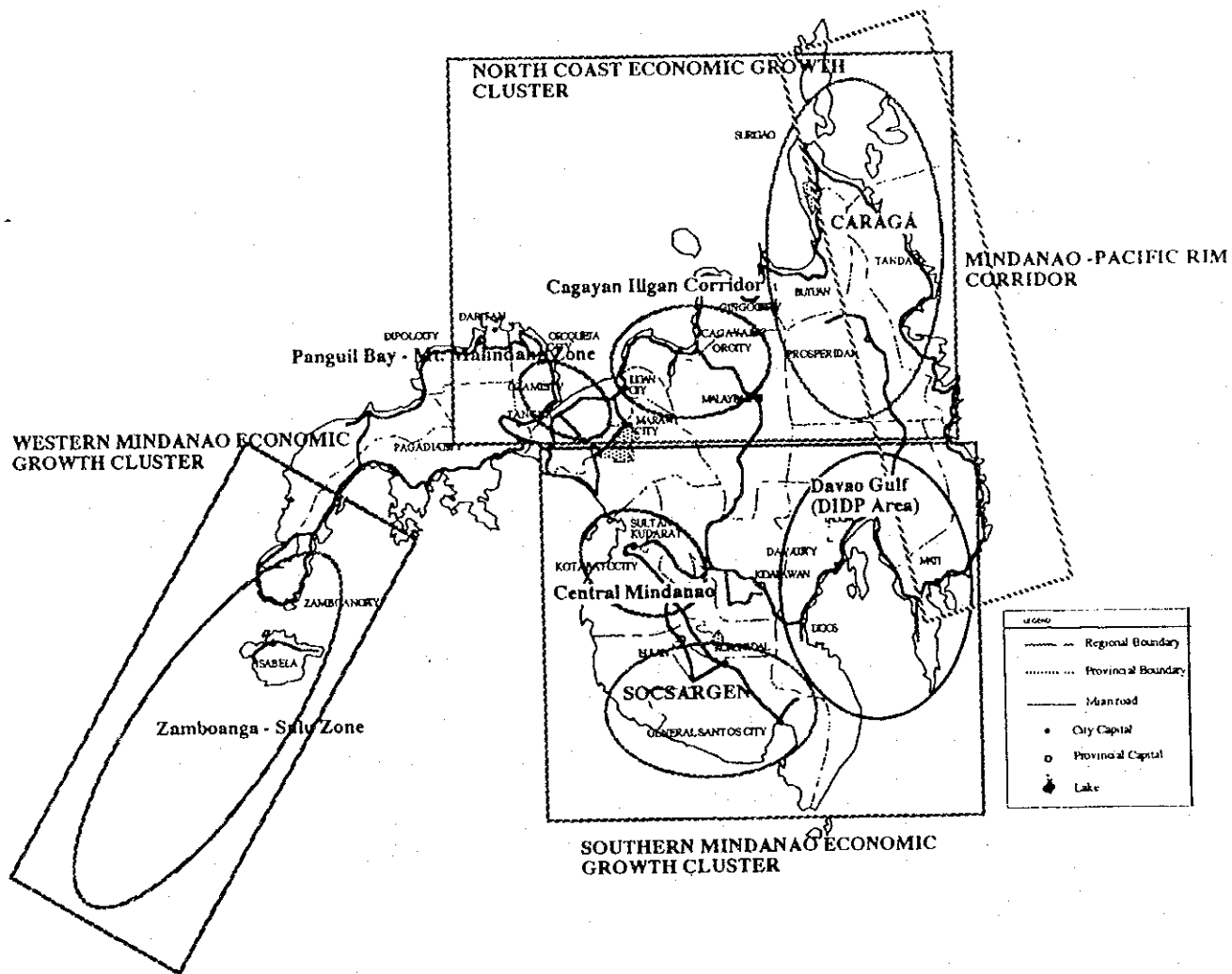
The detailed information of the ADZs and the growth clusters are summarized in Table 4.

(3) Spatial development of Southern Mindanao

In order to support the twin development approaches of countryside agri-industrial development and the BIMP-EAGA development, two ADZs are defined in Region XI: the Davao Gulf ADZ and the SOCSARGEN ADZ. The former is effectively the DIDP Area covering Davao City and the four provinces of Davao del Norte, Compostela Valley, Davao del Sur and Davao Oriental, and the latter comprises the three provinces of South Cotabato, Sultan Kudarat and Sarangani, and General Santos City.

The Bipolar Strategy has been adopted linking Davao City and General Santos as spelled out in the 1990 to 2020 Regional Physical Framework Plan (RPFPP). It will entail full implementation of the Regional Agri-Industrial Center (RAIC) in Davao City and the industrial estate in General Santos City to serve as growth centers for the neighboring municipalities. Both Cities are selected as the major economic growth centers in the region due to the presence of required infrastructure support facilities, potential for agri-processing and strategic location to establish trade, tourism and other economic linkage with the BIMP-EAGA countries.

The Dispersed Concentric Strategy is undertaken by means of establishing 10 Provincial/Regional Agri-Industrial Centers (PAICs/RAICs) throughout the region inter-linked with the major agri-industrial centers. The Samal Island tourism estate is another core development for the region under this strategy. Member municipalities and locations of PAICs and the Samal Island tourism estate are shown in Figure 3.

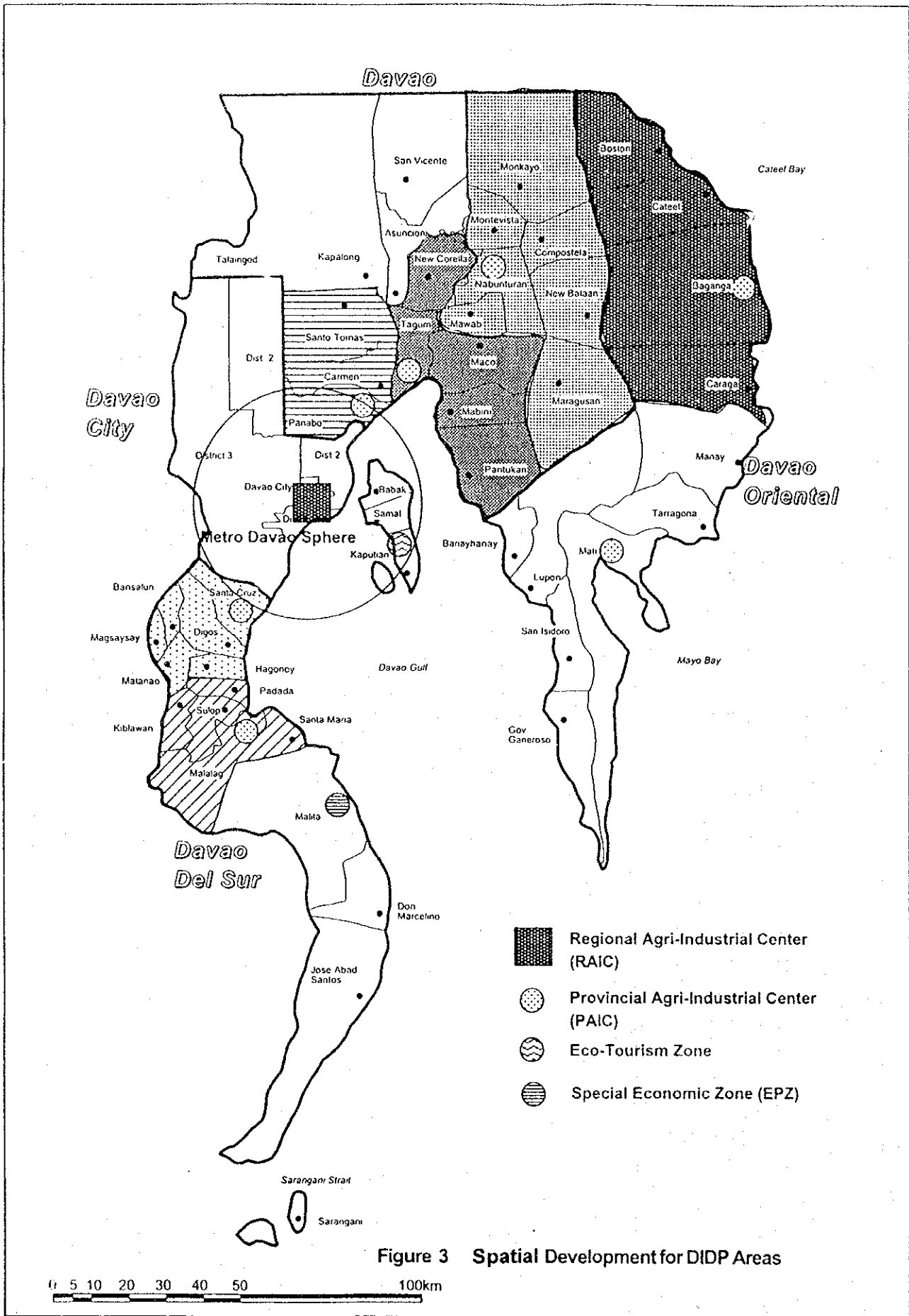


Source: Mindanao 2000 Development Framework Plan

Figure 2 Area Development Zones in Mindanao

Table 4 Growth Areas in Mindanao

Growth Cluster	Prospect	Area Development	Related Province/City	Salient Feature	Infrastructure and Utility Facilities
Southern Mindanao Economic Growth Cluster	Southern Mindanao Food Triangle and Agri-Industrial Hub of EAGA	Davao Gulf	Davao City Davao Davao del Sur Davao Oriental	- regional agri-industrial center - trade and tourism core - most urbanized center in Mindanao and EAGA	- presence of Davao international airport - presence of Sasa seaport - relatively well developed telecom and powers and telecom. facilities
		SOCSARGEN	South Cotabato Sarangani General Santos City	- regional agri-industrial center - fishery products of fresh tuna	- presence of Makar port in Gen. Santos - presence of trunkline/international airport in Gen. Santos
		Central Mindanao	Maguindanao Sultan Kudarat Lanao del Sur North Cotabato (Cotabato City)	- grains center of Mindanao (biggest producer of rice and corn) - second largest producer of cassava and rubber	- trunkline airport in Cotabato city - Polloc port in Cotabato city - inadequate arterial road - shortage of telecom. facility
North Coastal Economic Growth Corridor	North Coastal Agri-Industrial Corridor and Gateway to Domestic Market - strong economic linkage with Cebu and Manila) - Producer and supplier of traditional crops(pineapple, banana, cassava, corn) nontraditional crops(asparagus, white potato,tomatoes, durian, etc. and livestock	CARAGA	Butuan City Surigao City Agusan del Norte Agusan del Sur Surigao del Norte Surigao del Sur	- Leading producer and processor of agri-industrial crops (e.g. palm oil, coconut, rubber, bamboo) - wood-base product - natural tourism attraction	- well developed arterial roads - Nasipit feeder port Agusan del Norte
		Cagayan-iligan Corridor	Cagayan de Oro City Iligan City Marawi City Misamis Oriental Lanao del Norte Bukidnon Camiguin	- Heavy industries are prominent such as iron and steel in Iligan and corresponding ferroalloy industries - strong economic linkage with Cebu and Manila - Producer and supplier of traditional crops (pineapple, banana,cassava, corn) nontraditional crops(asparagus, white potato, tomatoes, durian etc. and livestock - existence of Delmonte	- presence of hub port in Cagayan de Oro - Iligan feeder port - trunkline airport in Cagayan de Oro - improvement of telecommunication
		Panguil Bay - Mt. Maindang Zone	Misamis Occidental	- breeding aquaculture like bangus, prawns and crabs for Manila - agricultural production especially cassava, coconut, corn, durian, mangoes	- well developed port - feeder port in Ozamis - improvement of telecommunication
Western Mindanao Economic Growth Cluster	Western Mindanao Marine Venture and Trading Hub of EAGA	Zamboanga - Sulu Zone	Zamboanga City Zamboanga del Sur Zamboanga del Norte Basilan Sulu Tawi-tawi	- aqua-culture and marin-culture area - trading(barter) with EAGA countries - non-diversified agriculture	- presence of Zamboanga hub port - international(alternative) airport - improvement of arterial roads



SPATIAL/INFRASTRUCTURE SECTOR REPORT

Part 2: Urban and Spatial Development

Chapter 1 Existing Conditions in DIDP Area

1.1. Spatial Development of DIDP Area

(1) Population growth and distribution

The total population in the DIDP Area increased from 2.20 million in 1980, to 2.93 million in 1990 and 3.29 million in 1995. The average annual growth was 2.93% during 1980-90 and 2.31% during 1990-95. The population density increased to 167 per km², higher than the average in Mindanao, 159 per km² but lower than the national average, 229 per km². The urbanization ratio in the DIDP Area was 44.1% in 1990, higher than 37.7% in Mindanao but lower than the national average of 48.6%. Population distribution in the DIDP Area is illustrated in Figure 1.

Municipalities/districts having the urbanization rate higher than 75% in 1995 and over 5% of the urban population growth rate in 1990-95 were Buhangin and Talomo districts in Davao City, and only municipality having the urbanization rate higher than 50% in 1995 and over 5% urban population growth rate was Santa Cruz in Davao del Sur (Figure 2). These municipalities and districts are considered as rapidly urbanizing area. Besides these areas, municipalities of Tagum and Panabo in Davao Province also seem to be rapidly urbanizing, but urban population of both municipalities drastically decreased during 1990 to 1995. According to the provincial office, definition of the urban area was changed, urban population of Davao Province should be looked into more carefully to clarify reasons for the decrease.

Poblacion of Davao City is already highly populated and the population growth rate was only 0.5% during 1990 to 1995. Further development in sizeable scale is possible only with redevelopment.

(2) Urban hierarchy and spatial systems

Within the context of national spatial development, Davao City is considered one of national growth centers next to Metro Manila, and the gateway of Southern Philippines. It is the regional center of Southern Mindanao, and due to accumulated socioeconomic activities, diversified urban functions and the strategic location, it is even the regional center of Mindanao and the gateway to the BIMP-EAGA as well.

Davao City is characterized as follows:

- effectively the second largest, pivotal urban economic center in the Philippines, serving Mindanao;
- potentially a predominant destination of direct foreign investments due to proximity to BIMP-EAGA countries and East Asia;
- a predominant location for export industries, trade and other supporting urban services under the Countryside Agri-industrial Development Strategy;
- an international gateway serving as the regional hub in air and sea transport network; and
- an outstanding international tourist destination in the Southern Philippines.

The economic influence sphere of Davao City has more or less 25 km radius, extending to Sta. Cruz in Davao del Sur and Panabo in Davao del Norte Province.

Under the Dispersed Concentric Strategy, there are seven Provincial Agri-Industrial Centers (PAICs) and two Special Economic Zones proposed as well as the Regional Agri-Industrial Center of Davao City (Figure 1).

- 1) Davao City: Regional Agri-Industrial Center
 - 2) Davao del Norte: Tagum and Panabo Provincial Agri-Industrial Centers (PAICs), and Samal ECOZONE
 - 3) Compostela Valley: Nabunturan PAIC
 - 4) Davao del Sur: Sta. Cruz and Malalag bay area PAICs and Malita Special Economic Zone (SEZ)
 - 5) Davao Oriental: Mati and Baganga PAICs
- (3) Urban facilities**

Classification of urban centers and distribution of various urban facilities in the DIDP Area are summarized in Table 1. Criteria for hierarchical classification of urban centers are summarized in Table 2, and detailed population data given in Tables 3 to 6. Other than Davao City, the three provincial capitals have most significant accumulation of various establishments in respective provinces. Of the total number of establishments in respective provinces, 25% are concentrated in Tagum, Davao Province, 45% in Digos, Davao del Sur, and 37% in Mati, Davao del Sur. In Davao Province including newly established Davao del Norte and Compostela Valley, relatively significant accumulation of establishments is found also in Panabo and Nabunturan, followed by Sto. Tomas, Compostela and Monkayo. In Davao del Sur, Padada, Malita and Sta. Maria have some accumulation as well as more developed Hagonoy and Sta. Cruz (data not shown). In Davao Oriental, relatively significant accumulation is found in Lupon and Baganga, followed by Banaybanay, Cateel and San Isidro.

Social facilities largely concentrate in Davao City as shown in Table 1 for hospitals and tertiary schools. In particular, the Poblacion has the Regional Hospital, 10 private hospitals with 690 beds, and 15 tertiary schools. In addition, eight private hospitals with 146 beds and four tertiary schools are found in Toril. The three provincial capitals also have some social facilities accumulated: the Regional hospital and eight tertiary schools in Tagum, a provincial hospital, one private hospital and six tertiary schools in Digos, and a provincial hospital and two tertiary schools in Mati. No other municipality in Davao Oriental has a tertiary school.

Other than Davao City, transport infrastructure concentrates in one or two urban centers in each province. In Davao Province, Panabo has four private airstrips, and two private wharves. In Davao del Sur, municipal ports are found only in Digos and Malalag. In Davao Oriental, Mati has a national airport, terminal port and a jetty.

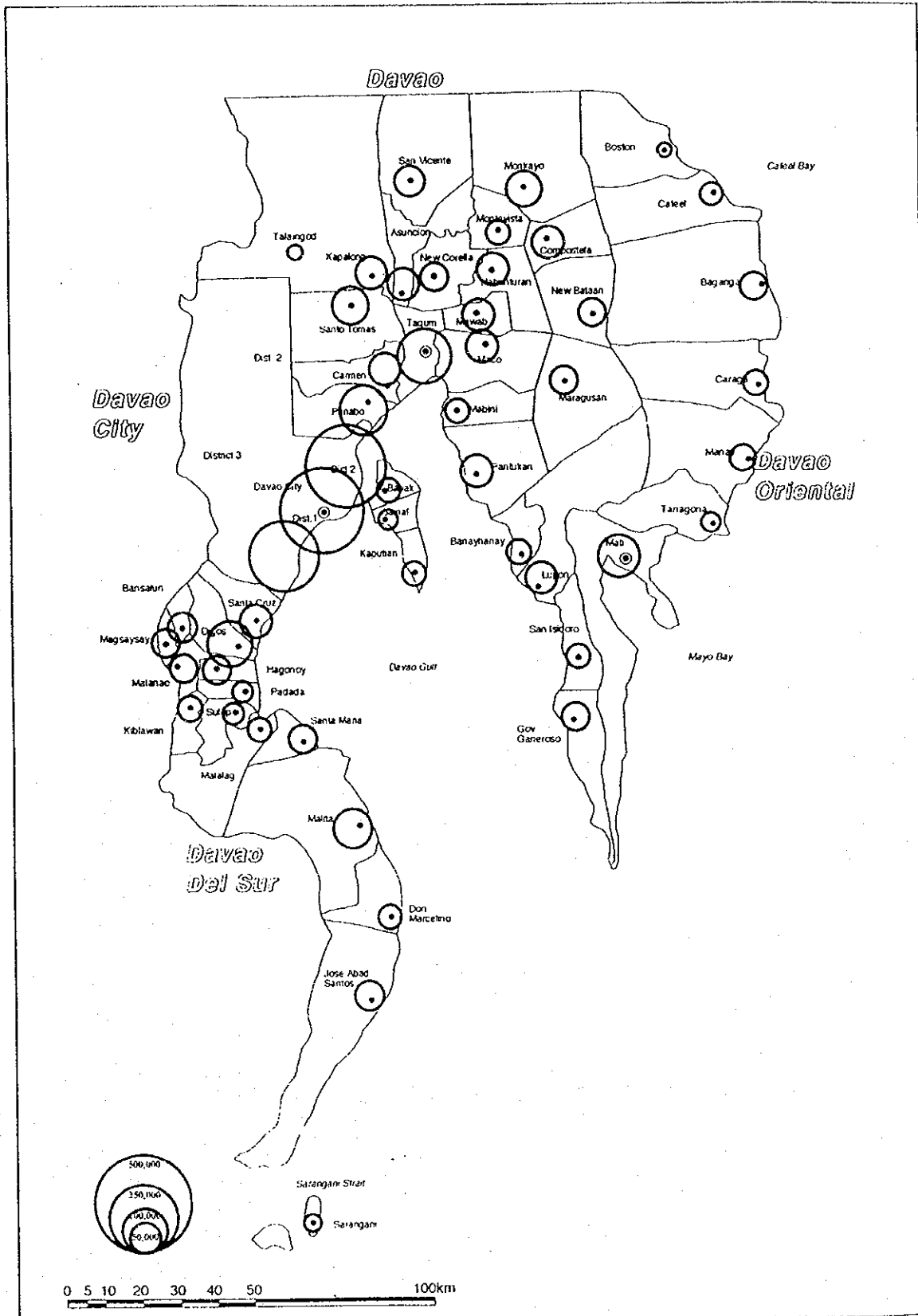


Figure 1 Population Distribution for DIDP Area in 1995

Table 1 Urban Center Classification and Urban Facilities Accumulated

Municipality	1995 Urban Population	Existing Urban Center Classification	Transport Facilities	No. of Establishment			Presence of Hospital	Presence of Tertiary School	Potential for Spatial Development
				Industry	Services	Total			
Asuncion	7,223	Secondary Center B		146	20	166	3.0		
Carmen	8,142	Secondary Center B		104	20	124	2.2		
Compostela	17,254	Secondary Center B	private airstrip	204	97	301	5.4		
Kapalong	9,910	Secondary Center B		171	44	215	3.9	District hospital	
Mabini	5,830	Secondary Center B		80	11	91	1.6	Tertiary school	
Maco	6,713	Secondary Center B	private port	68	3	71	1.3		
Mawab	12,157	Secondary Center B	private airstrip	164	30	194	3.5	Tertiary school	
Maragusan	9,345	Secondary Center B		115	16	131	2.4		
Monkayo	11,456	Secondary Center B		217	63	280	5.0		
Montevista	6,649	Secondary Center B		158	34	192	3.4	District hospital	
Nahuturan	13,994	Secondary Center B	private airstrip	396	64	460	8.3	Tertiary school	PAIC, New provincial capital Maintain hot spring national park tourism
New Bataan	9,001	Secondary Center B		91	28	119	2.1		
New Corella	7,775	Secondary Center B		129	17	146	2.6	Municipal hospital	
Panabo	43,504	Secondary Center A	4 private airstrips TADeco wharf Pacifier wharf	565	221	786	14.1	5 tertiary schools	PAIC
Pantukan	15,423	Secondary Center B		85	21	106	1.9	District hospital	conversion to city
Sto. Tomas	27,483	Secondary Center A	2 private airstrips	260	65	325	5.8	3 tertiary schools	
Laak (San Vicente)	5,125	Secondary Center B		90	13	103	1.8	Municipal hospital	
Taguin	84,163	Primary Center B	private airstrip private port (HFI wharf)	959	480	1,419	25.5	8 tertiary schools	PAIC, provincial capital Major sport complex
Talungod	9,199	Secondary Center B						Municipal hospital	
Babak	7,686	Secondary Center B	Municipal port	125	12	137	2.5	Tertiary school	Tourism development
Kaputian	3,595	Secondary Center B	5 public ports	65	4	69	1.2		Eco-tourism development
Samal	4,426	Secondary Center B	2 municipal ports	109	29	138	2.5	District hospital	Tourism development
Davao province	326,953			4,281	1,292	5,573	100.0		
Poblacion	144,796	Metropolitan B	Sta. Ana terminal port					Regional hospital 10 private hospital (690)	International gateway Regional Agri-Industrial Center CBD for the city
Talomo	232,340							2 private hospital (44)	7 tertiary schools
Agdao	87,964							1 private hospital (60)	2 tertiary schools
Buhangin	157,640		Sasa base port 6 private ports (Caltex etc.) Davao international airport 3 private ports (Caltex, DUCC etc.)					2 private hospital (29)	1 tertiary schools
Bunawan	75,687							4 private hospital (99)	Panacan to Iliang Industrial Zone
Paquibato	0							Secondary hospital	Center for agro-forestry development
Baguio	0								

Municipality	1995 Urban Population	Existing Classification of Urban Center	Transport Facility	No. of Establishment			Share (%)	Presence of Hospital	Presence of Tertiary School	Potential for Spatial Development
				Industry	Services	Total				
Calinan	18,082									
Marilog	0									
Tonil	42,468		Fishing port							New urban center for agricultural production Center for agro-forestry development Urban center for Alternative CBD Eco-tourism center Research and Development Center
Tugbok	12,867									
Davao city	771,844			1,001	972	1,973	100.0			
Bansalan	15,179	Secondary Center B		9	7	16	11.9	2 tertiary schools		
Digos	40,460	Secondary Center A	Municipal port	15	46	61	45.2	Provincial hospital 1 private hospital	2 tertiary schools 6 tertiary schools	Service center as provincial capital
Don Marcelino	0	Tertiary Center		3	0	3	2.2	Municipal hospital		
Hagonoy	13,249	Secondary Center B		2	1	3	2.2			
Jose Abad Santos	4,456	Secondary Center B		2	1	3	2.2	District hospital		
Kiblawan	3,851	Secondary Center B		5	0	5	3.7	District hospital	1 tertiary school	
Magsaysay	6,557	Secondary Center B		3	2	5	3.7			
Malalag	4,455	Secondary Center B		0	3	3	2.2			Provincial Agri-Industrial Center
Malita	12,660	Secondary Center B	Municipal port	1	6	7	5.2	District hospital		Special Economic Zone
Matanao	3,905	Secondary Center B	2 fishing ports	3	2	5	3.7	District hospital		
Padada	4,406	Secondary Center B		3	4	7	5.2	District hospital	1 tertiary school	
Santa Cruz	34,468	Secondary Center A	Private port (Franklin Baker)	5	1	6	4.4			Provincial Agri-Industrial Center Tourism development
Santa Maria	6,568	Secondary Center B		7	0	7	5.2			
Sarangani	2,659	Secondary Center B		0	1	1	0.7	Municipal hospital		Tourism development
Sulop	5,707	Secondary Center B		1	2	3	2.2			
Davao del Sur	158,580			59	76	135	100.0			
Baganga	39,750	Secondary Center A	1 private port (Vorecamo wharf) private airport	158	24	182	8.3			
Baniyanay	33,082	Secondary Center B		103	33	136	6.2			
Boston	2,595	Secondary Center B		15	1	16	0.7			
Caraga	9,018	Secondary Center B		34	4	38	1.7			
Cateel	5,304	Secondary Center B		109	26	135	6.2	District hospital		Tourism development
Gover Generoso	3,022	Secondary Center B		94	25	119	5.4	Municipal hospital Private hospitals (23)		Tourism development
Lupon	24,383	Secondary Center B		302	75	377	17.2	District hospital		
Manay	14,783	Secondary Center B		162	26	188	8.6	District hospital		
Mait	50,701	Primary Center B	Mati terminal port INTELCO jetty Mati national airport	598	220	818	37.4	Provincial hospital	2 tertiary schools	Provincial capital, Provincial Agri-Industrial Center Eco-tourism center
San Isidoro	8,092	Secondary Center B		120	17	137	6.3			
Tarrangona	2,568	Secondary Center B		36	8	44	2.0			
Davao Oriental	193,298			1,731	459	2,190	100.0			

Source: 1996 Southern Mindanao Statistical Yearbook, Provincial Socio-economic Profile and Provincial Physical Framework Plan
Remarks: Figures of Davao del Sur show only new establishments during 1987-1992

Table 2 Criteria for Indicative Hierarchy of Urban Center

Level of Hierarchy	Roles	Indicator Functions	Urban Population
1 Primary Metropolitan Center (Metropolitan A)	International production and distribution center	International port, airport industry and commerce	more than 1 million
2 Secondary Metropolitan Center (Metropolitan B)	International production and distribution center	International port, airport industry and commerce	more than 250,000
3 Small/Medium City (Primary Urban Center A)	International production and distribution center	International port, airport industry and commerce	more than 100,000
4 Large Town (Primary Urban Center B)	Inter-regional center	Specialized medical facilities Office of governmental agency Tourism Facilities	more than 50,000
5 Medium Town (Secondary Urban Center A)	Provincial services and administration	Comprehensive shopping Tertiary health and educational services	more than 25,000
6 Small Town (Secondary Urban Center B)	Small agro-processing and services	Entertainment Full range of convenience shops Extension services	more than 2,500
7 Village (Tertiary Urban Center)	Rural services	Vehicle maintenance Primary health care Some convenience shops	less than 2,500

Source: Provincial Physical Framework Plans

Table 3 Population Trend for Davao del Norte province

Municipality	Population (person)			Land area (Sq. km)	Pop. Density (person/sq. km)			Growth Rate (%)	
	1980	1990	1995		1980	1990	1995	1985-90	1990-95
Asuncion	42,915	54,954	56,767	187	229	294	303	2.5	0.7
Carmen	30,719	49,507	55,515	308	100	161	181	4.9	2.3
Kapalong	42,869	66,030	61,823	1,113	39	59	56	4.4	-1.3
New Corella	24,926	36,138	41,612	321	78	112	129	3.8	2.9
Panabo	71,098	110,390	129,826	282	252	391	460	4.5	3.3
Sto. Tomas	44,512	67,916	75,902	320	139	212	237	4.3	2.2
Laak (San Vicente)	31,581	35,895	50,167	947	33	38	53	1.3	6.9
Tagum	86,201	135,440	155,343	196	440	692	793	4.6	2.8
Talaingod	-	-	10,744	455	-	-	24	-	-
Babak	21,368	24,824	28,691	73	291	338	391	1.5	2.9
Kaputian	22,192	24,990	26,889	118	189	213	229	1.2	1.5
Samal	18,863	19,826	21,318	90	211	221	238	0.5	1.5
Davao Province	437,244	625,910	714,597	4,410	9,915	14,193	16,204	3.7	2.7

Source: 1990 Census of Population and Housing, Davao Province, the Provincial Profile 1996

Table 4 Population Trend for Compostela Valley Province

Municipality	Population (person)			Land area (Sq. km)	Pop. Density (person/sq. km)			Growth Rate (%)	
	1980	1990	1995		1980	1990	1995	1985-90	1990-95
Compostela	30,538	53,546	53,759	188	163	286	287	5.8	0.1
Mabini	16,517	24,433	29,421	412	40	59	71	4.0	3.8
Maco	41,017	55,991	58,351	244	168	229	239	3.2	0.8
Mawab	20,960	28,072	28,767	170	124	166	170	3.0	0.5
San Mariano	20,220	40,982	39,866	394	51	104	101	7.3	-0.6
Monkayo	37,571	58,239	65,400	693	54	84	94	4.5	2.3
Montevista	20,626	29,789	32,196	265	78	112	121	3.7	1.6
Nabuturan	37,292	53,410	54,437	245	152	218	222	3.7	0.4
New Bataan	32,887	39,629	42,894	689	48	58	62	1.9	1.6
Pantukan	30,281	46,300	54,328	420	72	110	129	4.3	3.2
Laak (San Vicente)	31,581	35,895	50,167	947	33	38	53	1.3	6.9
Compostela Valley	319,490	466,286	509,586	4,667	68	100	109	3.9	1.8

Source: 1990 Census of Population and Housing, Davao City, Davao Province, the Provincial Profile 1996

Table 5 Population Trend for Davao City

District	Population (person)			Land area (Sq. km)	Pop. Density (person/sq. km)			Growth Rate (%)	
	1980	1990	1995		1980	1990	1995	1985-90	1990-95
Poblacion	131,071	141,090	144,796	10	12,748	13,722	14,082	0.7	0.5
Talomo	108,522	183,356	233,255	110	983	1,661	2,113	5.4	4.9
Agdao	50,976	75,295	87,964	5	10,420	15,391	17,981	4.0	3.2
Buhangin	68,289	118,500	162,026	87	782	1,357	1,855	5.7	6.5
Bunawan	52,318	68,785	81,218	66	799	1,050	1,240	2.8	3.4
Paquibato	27,444	27,756	31,772	1	41,813	42,288	48,407	0.1	2.7
Baguio	15,990	19,894	20,706	827	19	24	25	2.2	0.8
Calinan	41,235	53,379	58,768	224	184	239	263	2.6	1.9
Marilog	19,602	35,295	37,794	658	30	54	57	6.1	1.4
Toril	62,786	82,501	94,309	131	478	628	718	2.8	2.7
Tugbok	33,042	44,096	54,233	320	103	138	169	2.9	4.2
Davao City	611,275	849,947	1,006,841	2,440	251	348	413	3.4	3.4

Source: 1990 Census of Population and Housing, Davao City, Davao City Profile 1996

Table 6 Population Trend for Davao del Sur Province

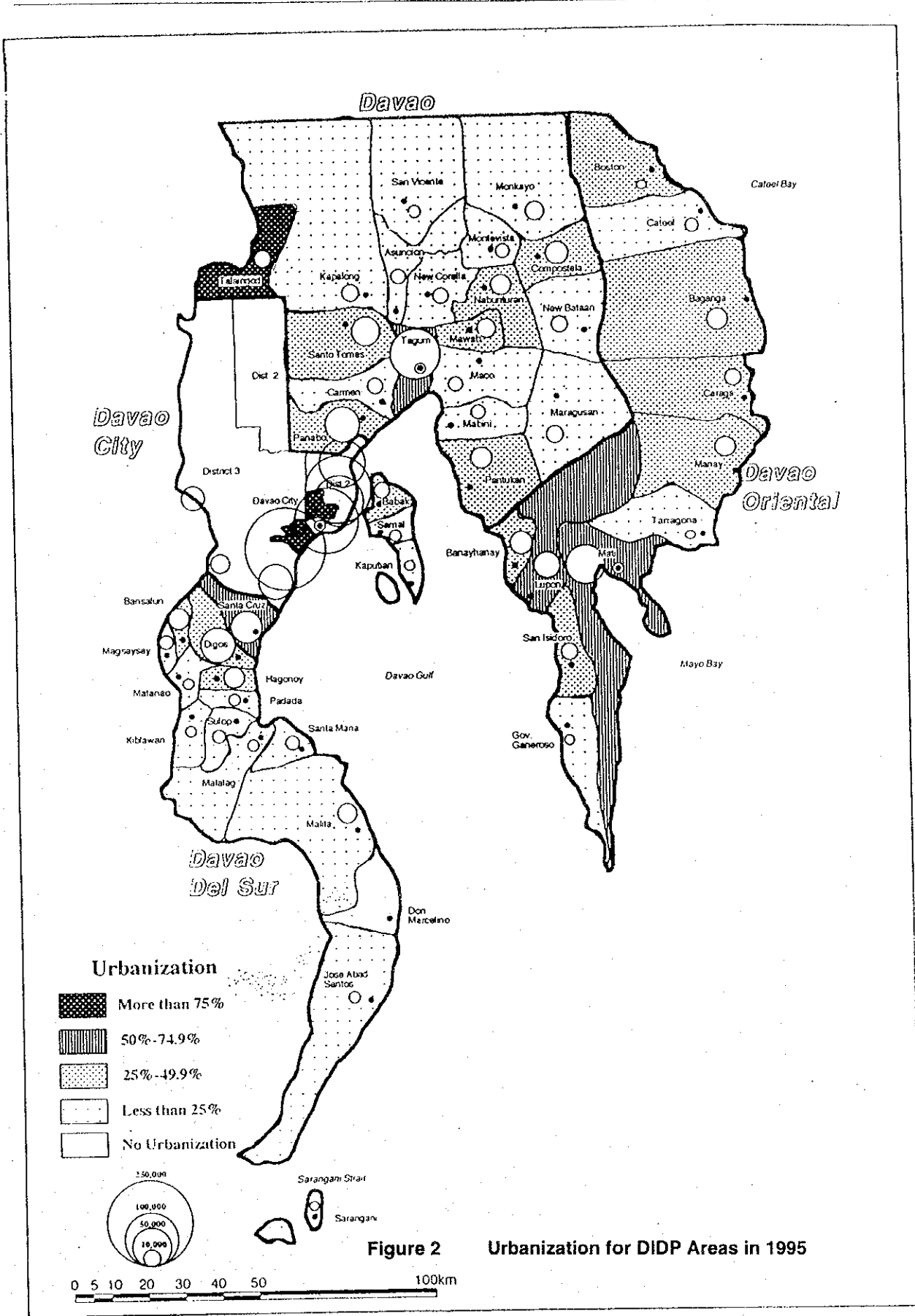
Municipality	Population			Land area (Sq. km)	Pop. Density (person/sq. km)			Growth Rate (%)	
	1980	1990	1995		1980	1990	1995	1985-90	1990-95
Bansalan	40,716	46,691	48,894	158	258	296	310	1.4	0.9
Digos	70,065	96,806	106,565	268	262	361	398	3.3	1.9
Don Marcelino	20,024	27,100	29,968	407	49	67	74	3.1	2.0
Hagonoy	30,261	39,005	41,752	117	259	334	358	2.6	1.4
Jose Abad Santos	38,232	44,504	47,833	734	52	61	65	1.5	1.5
Kiblawan	25,894	31,753	36,375	390	66	81	93	2.1	2.8
Magsaysay	31,538	38,531	41,979	170	186	227	247	2.0	1.7
Malalag	44,690	27,709	30,733	186	240	149	165	-4.7	2.1
Malita	60,638	82,786	83,457	513	118	162	163	3.2	0.2
Matanao	30,106	41,262	43,455	202	149	204	215	3.2	1.0
Padada	17,218	21,051	22,384	45	382	467	497	2.0	1.2
Santa Cruze	48,276	56,048	59,139	278	174	202	213	1.5	1.1
Santa Maria	30,512	40,036	41,919	205	149	196	205	2.8	0.9
Sarangani	11,960	15,003	16,648	106	113	141	157	2.3	2.1
Sulop	23,094	24,513	25,968	155	149	158	167	0.6	1.2
Davao del Sur Prov.	523,224	632,798	677,069	3,934	133	161	172	1.9	1.4

Source: 1990 Census of Population and Housing, Davao del Sur, 1995 Census of Population Southern Mindanao

Table 7 Population Trend for Davao Oriental Province

Municipality	Population			Land area (Sq. km)	Pop. Density (person/sq. km)			Growth Rate (%)	
	1980	1990	1995		1980	1990	1995	1985-90	1990-95
Baganga	40,039	37,719	39,750	1,177	34	32	34	-0.6	1.1
Banaybanay	24,644	29,606	33,082	419	59	71	79	1.9	2.2
Boston	9,660	9,917	10,424	338	29	29	31	0.3	1.0
Caraga	22,831	29,368	31,617	554	41	53	57	2.5	1.5
Cateel	20,084	26,144	27,211	467	43	56	58	2.7	0.8
Gover Generoso	34,803	39,857	41,433	303	115	132	137	1.4	0.8
Lupon	41,081	47,946	50,668	227	181	211	223	1.6	1.1
Manay	25,534	33,686	35,428	480	53	70	74	2.8	1.0
Mati	78,178	93,023	93,801	682	115	136	138	1.8	0.2
San Isidoro	28,955	28,936	30,279	205	141	141	148	0.0	0.9
Tarrangona	14,122	18,495	19,779	313	45	59	63	2.7	1.4
Davao Oriental Prov.	339,931	394,697	413,472	5,164	66	76	80	1.5	0.9

Source: 1990 Census of Population and Housing, Davao Oriental 1995 Census of Population Southern Mindanao



1.2. Development Conditions by Major Town

1.2.1. Development conditions and proposed projects in Davao City

(1) Development conditions

a. Rapid population growth

The population of Davao City has drastically increased by more than 100 times, from 8,560 in 1903 to 1.01 million in 1995. The annual average population growth rate was 3.4%, much higher than the national average of 2.4% within the last 15 years. The population density also increased from 251 person/km² to 413 persons/km² during the same period.

b. Sub-standard living conditions and proliferation of squatted areas

More than half of the housing units was built after 1980 in the City. Majority of housing units has an average floor area less than 30 m² in 1990 and 8.4% of the housing units had more than 70 m².

There are 89 squatter areas along the shorelines, riverbanks, road right-of-way, government lands and private lands in the City with their unacceptable housing units, made of light materials such as barong-barong, numbering 31,853 in 1992. The number of the sub-standard units including double-up households is estimated at 35,289 units as housing backlog.

c. Rapid motorization

The number of registered vehicles rapidly increased from 57,335 to 93,396 during 1990 to 1995 in Davao City and the neighboring three Davao provinces with an average annual growth rate of 8.5%, which is still lower than the national average of 9.8%. The rapid motorization brings a gap between the traffic demand and the supply side in the City and its vicinities.

d. Inadequate road network and traffic control

Shortage of east-west arterial roads forces the traffic to operate on limited existing arterial roads and causes traffic congestion in the urban area especially in the Central Business District (CBD). Lack of the north-south arterial roads in the coastal area cannot ensure a smooth traffic flow for the turnouts. Lack of the traffic signal control system causes locally traffic congestion at many intersections in the urban areas.

Many narrow streets of two-lane carriageway in the CBD cause further stagnation together with shortage of parking space. The entrances to the CBD have bottlenecks during the peak periods due to lack of alternative roads and shortage of their road capacities.

e. Poor drainage condition in the urban area

Poor drainage conditions without sewerage system and inadequate drain water system cause inundation of the CBD and other built-up areas. Some subdivisions have their individual sewerage systems without treatment plants. The existing situation in the disposal of wastewater is through septic tanks and unto the storm drainage which in turn flushes out to rivers and the sea. These conditions bring pollution of the waterway, beach, and underground water from the human and industrial wastes and harmful effects to human beings.

Poor watershed area management, and riverbank and shoreline protection present other problems of deterioration of aquifers for potable water supply, poor drainage conditions and destruction of marine resources through the siltation.

f. Unsanitary solid waste disposal system

The present system of the solid waste disposal is still a throw and burn system. The daily garbage collections currently average 1,200 to 1,400 m³ undertaken by the Department of Public Services. The services are carried out with 17 units dump trucks, eight units garbage trucks, four units of garbage compactor trucks, six units of service vehicles and three units of graders. This situation results in the inefficient collection, dumping to rivers, roadsides and open space and harmful effect to the health of residents.

g. Encroachment of urban area on agricultural land and mixed land use

Another characteristics of the urban land use in the City are the encroachment of the urban development into primary agricultural areas, disordered developments in the vicinities of the CBD, concentration of socioeconomic activities such as commercial establishment, tertiary education facilities, medical facilities and institutions in the CBD, and mixed land use among residential, commercial and industrial purposes. The rapid urban population increase causes conversion from agricultural land to urban land use and from residential area to new commercial area, and these conversions bring the mixed land use and many disordered subdivision developments.

h. Lack of open space and shortage of urban amenity

The urban area of the City is composed of low-rise building and the CBD mainly has low-rise structure of 2 - 3 floors with a shortage of wide streets with more than four lanes. According to the physical-planning standard of the City, the required open space/park areas are 3.5 ha per 1,000 population. Therefore 3,500 ha of the open space/park areas is required for urban people in the City, while the existing open space area is only 214 ha in 1995.

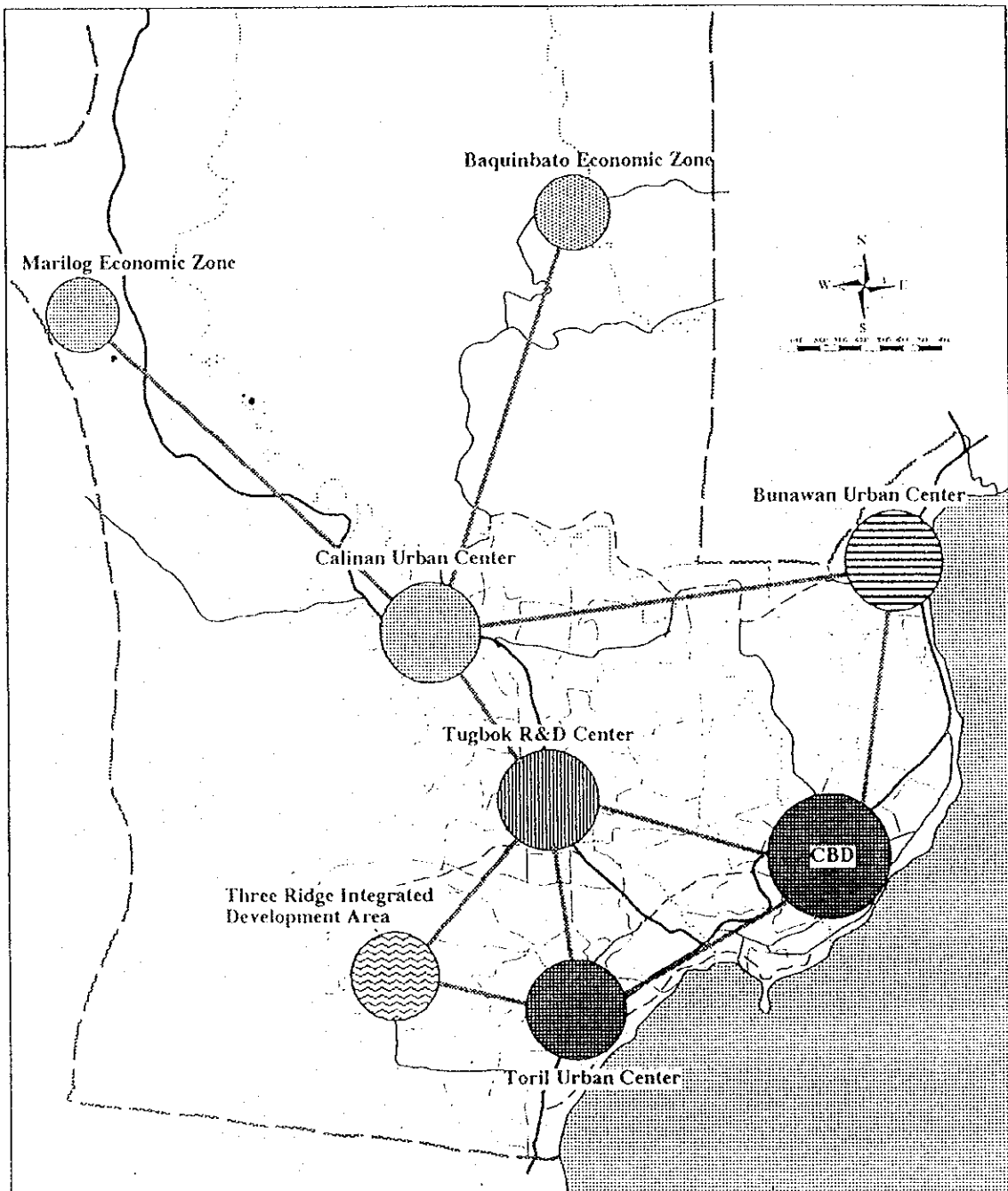
In order to promote agri-industry and tourism development in Davao City as a regional center, tourism destination and a gateway of the Southern Mindanao, the prerequisite conditions are to create a comfortable and attractive urban environment as a modernized international city and to promise providing lands for commercial, industrial, tourism and residential developments with economically and physically satisfactory conditions. The investors are seeking lands with low prices, easy land acquisition, easy access and basic utility facilities furnished.

(2) Proposed projects

Of the fifteen flagship/priority projects identified by the City government as envisaged in the Comprehensive City Development Plan, 1996 - 2021, as essential infrastructure component for enhancing sustainable development in the City, twelve projects are currently undertaken with various stages of implementation. Two projects would be implemented by the end of 1997.

Distribution of urban and settlement centers of Davao City in the Comprehensive Development Plan is shown in Figure 3; and main proposed projects are described.

Figure 3 Urban and Settlement Centers in Davao City



a. Circumferential and radial roads

An intra-city road network system will provide an efficient flow of people, goods and services not only in Davao City and other parts of the DIDP Area. Construction of a coastal road from Sirawan to the Poblacion is crucial to reduce the traffic congestion in the urban area. Other proposals are construction of three circumferential roads complemented by three radial roads which will connect all major urban areas of the City and the envisioned mountain resort, three Ridges Integrated Development Area.

The proposed coastal road is perceived to be a national highway project with 20 km in length with ample median for a right-of-way for the proposed LRT line, toll gates and interchanges. The road will start at Lizada, Toril and traverse through the Davao fishing port complex, Talomo beach, Times beach and end at Magsaysay Park.

b. Davao light railway system

A light railway transit (LRT) system which is proposed in the Comprehensive Development Plan, will operate 60 kilometers in length including Sta. Cruz in Davao del Sur and Panabo in Davao del Norte Province in the long run. The target year of the first phase implementation is the year 2000 taking the phased development under the build - operation - transfer (BOT) scheme.

The number of passengers on the LRT is estimated at 235,000 per day including 40,000 passengers shifted from road transportation in 2000. A feasibility study is necessary to confirm the project viability.

c. Davao City Sport and Commercial Complex

The Comprehensive Plan has envisioned to build a world class sports complex in the Mintal - Tugbok area which incidentally has also been designated as an education center and Research and Development Center for Mindanao and the BIMP-EAGA region. The proposed complex has a minimum area of 20 ha including a modern stadium with 60,000 spectators seat capacity, gymnasium of at least 10,000 capacity, swimming pool, boxing gym and others. The target years are within next 10 to 15 years.

d. Expansion of Davao International Airport

The project aims to upgrade the Davao International Airport (DIA) into full international standard to serve the gateway of the Southern Part of Philippines financed by ADB. The project covers extension of the runway upto 3,000 m with terminals and navigation aids, and operation and maintenance facilities. The implementation year has been changed from 1998 to 2000 due to difficulty in land acquisition.

e. Urban drainage and flood control project

The Davao City Urban Drainage and Flood Control Project is envisioned to upgrade and rehabilitate the existing drainage structures and construct identified drainage mains and sub-mains in order to remedy cases of flooding in low land areas. The project component includes a drainage master plan study, selection of priority projects, detailed design for the selected priority projects and implementation. The total budget is estimated at P1,305,910,000 including Package I of P422,921,000, Package II of P40,043,450 and Package III of P41,097,000. The Package I will be undertaken under the local funds and Package II and III under the Official Development Assistance (ODA).

f. Urban sanitation and sewerage project

The proposed project is the second component of the Water Districts Development Project, a World Bank loan facility, which is focused on the development of sanitation, sewerage and drainage of five identified LGUs. The project involves the provision of sanitation and sewerage facilities for four cities, namely; Cagayan de Oro, Cotabato, Dagupan and Davao and the municipality of Calamba. The project

includes maintenance of the installed sewerage infrastructures, institutional support, detailed engineering and construction supervision.

The project is expected to be completed over a period of five years starting in the second half of 1997 financed by the World Bank.

g. Central bus station

The plan seeks to formulate a medium term development plan to establish a central bus station along the circumferential road-1 (C-1) to cater to the north and south bounds provincial commuters. Central Bus Station will effectively prevent the entry of inter-city provincial buses to the CBD, and thus will largely address the problems of the traffic congestion.

h. Regional Industrial Center (RIC)

Three Industrial estate/parks are proposed in the Panacan area as an Export Processing Zone (EPZ) approved by Philippine Export Processing Zone Authority (PEZA) under the Regional Industrial Center Program. Panacan situates in the strategical location in the proximity of Sasa wharf, Davao International Airport and the vicinity of Davao City proper. The EPZ area has the incentive of tax and duty exemption. These estate are First Mindanao Technical Park by Lapanday Prime Developemnt Corporation, Iliang Agri-Industrial Estate Corporation by Terminal Facilities & Service Corporation and First Oriental Business & Industrial Park by First Oriental Property Ventures.

i. Eden - Bayabas Eco-Tourism Center

This center shall serve as the mountain resort capital for Mindanao and BIMP-EAGA countries. The wholesome tourism development potential in terms of its natural landscape, strategic location, panoramic scenery and its climate which can easily offer a favorable and enduring impression among tourists. The development of this area will complement core tourism activities in the Samal Island.

j. Solid Waste Management Program

Presently, about 600 ton solid wastes are generated daily and hauled for about seven kilometers from Davao City proper and deposited into the open canyon located in the northern side of the circumferential road. The waste is occasionally burned to reduce the volume, but are almost never covered. All types of solid wastes including hospital wastes are dumped together without segregation. The lease of the disposal site had already been expired and the new contract has not been renewed. A preliminary study was already conducted for a new disposal site.

The proposed Integrated Waste Management System will address the worsening disposal issue in Davao City providing an integrated system which will handle domestic and municipal solid wastes and sewerage in an enviromentally-sound manner through a scientific-enhanced composting process (recycling waste as finished products for fertilizer and soil amendmets for use in horticulture, agriculture, reclamation, etc.) and combined with the provision of treatment facilities and sanitary landfill.

The main purpose is to prevent the deterioration of the environment by protecting the sea from the damage caused by the garbage pollution. The groundwater aquifers which provide the portable water resource in Davao City will be protected

from the degradation caused by leaching and water leak from sewerage and garbage landfill sites. The project has three components: 1) solid waste collection, handling and disposal, 2) composting, and 3) sewerage treatment plant.

Solid wastes will be collected by 27 garbage trucks operating 24 hours in three shifts. The project cost and the monthly operation costs are estimated at ₱660 million and about ₱8 million respectively.

1.2.2. Existing conditions and proposed projects in Tagum City

Tagum, a component city of Davao del Norte, is situated in a strategic location connected with Davao City, Davao Oriental, Compostela Valley, Agusan del Sur and Surigao del Sur. Therefore, Tagum is considered as a trade and commerce center. Tagum is located at the 56 km northward from Davao City and approximately 85 km westward from Mati, the provincial capital of Davao Oriental. Tagum extends generally on flat plains with certain rolling terrain in the northern part and 78% of the total land area has a slope smaller than 3%. Tagum City has the land area of 192 km² with 19 barangays and 155,343 population in 1995.

Tagum has the largest urban population of 84,000 in Davao del Norte, followed by Panabo of 43,500 and Sto. Tomas of 27,500 in 1995. The urban area accounts for 39.8% of the total land area in the Tagum municipality. Urbanized barangays are Apokon, Madaum, Magugpo Poblacion, Visayan Village and Mankilam.

(1) Development conditions

a. Inadequate infrastructure and utility facilities

All barangays have access to the poblacion during the dry season, but some remote barangays can hardly transport agricultural products and commodities to/ from the Tagum public market due to lack of farm-to-market roads. Most barangay roads, municipal roads and provincial roads are still unpaved with gravel surface.

Some remote barangays have still no water supply system because of inadequate water source, dispersed population and limited payment capacity. Electrification rate of the municipality was 70.7% higher than the provincial average of 37.2% in 1996, but inadequate power supplies system results in regular power interruptions and fluctuations. Communication facilities in the municipal need to be upgraded and expanded to serve the majority of population and to provide the communication access both locally and internationally.

Tagum is being served by the Sasa seaport in Davao City and a private port of Hijo Plantation Inc. Considering the growth of agri-industrial development especially in the Provincial Agri-industrial Center, its owned port would be required to facilitate the delivery and shipment of industrial and agricultural products to local and international markets.

b. Congestion of central business district

The population density of Mangugpo Poblacion increased from 47.5 per ha in 1980 to 80.8 per ha in 1990. Serious traffic congestion areas are at the Saint Mary's College along the national highway and at Pilot Central elementary school and Rizal elementary school along the Sobrecary Street. The traffic congestion occur during 7:00 to 8:00 in the morning, lunch time and 5:00 to 6:00 in the evening, and the market areas have the congestion during 4:00 to 8:00 in the morning and 5:00 to

7:00 in the evening. Traffic accidents occur in Poblacion and its vicinities due to many narrow streets, mixture of various kinds of vehicles and uncontrolled traffic flow.

c. Poor drainage system

A poor drainage system in Tagum has always resulted in flooding of Poblacion, Bincungan, Canocotan, Busaon, etc. Floods occur during April to June on an average five times a year for a duration of five days. These floods affect agricultural production, brackish water fishponds, transportation and water resources. Populace in the municipality often throws solid wastes into drainage canals. These common practices bring about the poor drainage conditions, the sanitary problems and smell pollution.

d. Shortage of housing supply

The ownership of the housing units comprises 69% privately owned 20% tenant lessees, 2% sub-tenant lessees and 9% others. Of all the dwelling units 31% were made of light materials such as nipa, plywood and even carton materials in 1990. According to the Comprehensive Municipality Development Plan, total housing demand is estimated at 10,100 units including the substandard units, unacceptable units and double-up households. Especially the problems occur to marginal income families and the urban poor in urbanized barangays.

e. Pollution hazard

The environment in Tagum is seriously deteriorating due to degradation of the forestland. There is no more forestland except 509 ha of old growth in the coastal area in Madaum barangay, brushland and mangrove areas. There are vast tracks of lands converted to cogon grasslands and are left denuded and unproductive. This situation has resulted in regular flooding in some part of the City, decreased water yields and accelerated soil erosion especially on the riverbanks and along seashores.

The indiscriminate use of mercury, cyanide and nitric acid for gold processing and improper disposal of polluted wastes by other industries resulted in the river and seawater pollution. Water pollution is caused also by the waste disposal site in Tagum.

Out of the total 62 m³ garbage generation per day, only 36 m³ are disposed and the remaining 26 m³ piled up along the roadside and in other vacant areas.

f. Irrational land use

Land utilization of the municipality was not maximized in the implementation of the comprehensive development plan due to the political interference and approval of residential and industrial developments without proper assessment. Therefore the irrational use among the residential, industrial and agricultural land areas occur under the uncontrolled situation.

A poor road system, flat building structure, many tricycles and lack of open space in the urban area contribute to the poor urban amenity and the traffic congestion. Few green areas are found in the Poblacion, and the municipality has no reforestation area, watershed area and conservation area in the coastal area. Relocation of the some commercial facilities and establishment of the zoning ordinance including regulation of floor area to lot area ratio are needed to realize a rational land use.

(2) Proposed projects

a. Circumferential road construction

There are three circumferential roads proposed for the smooth movement in the CBD and its vicinities linking with the Philippine-Japan Friendship Highway and Tagum - Asuncion - Kapitalong Road as shown:

C-1: as inner circumferential road for the CBD area

C-2: as intermediate circumferential road for connecting with the provincial capitol complex, university town etc.

C-3: as outermost circumferential road for connecting with provincial agri-industrial center in Magdaum and as collector road for farm-to-market roads

b. Public market cum terminal

The on-going public market cum terminal project at the northern edge of the Poblacion has already started under the strategy of decentralization and distribution development by means of relocation of public market and bus terminal from the crowded Poblacion under the PREMIUMED program. The terminal integrated with the new public market could contribute to the avoidance of inter-provincial bus into the CBD. The complex occupies an area of 7 ha.

c. Trade, design and exposition center (TDEC)

A trade, design and exposition center is proposed in Visayan Village in line with the recommendation of the RFPF for Region XI. It would provide an attractive showroom of products and a venue for the commerce and trade transactions.

d. Provincial Agri-Industrial Center

Under the Countryside Agri-Industrial Development Strategy, Tagum City is designated one of PAICs to spur industrial development in the DIDP Area. The PAIC occupies a total area of 745 ha in Madaum, 445 ha for an industrial estate and 300 ha for eco-tourism.

1.2.3. Development conditions and proposed projects in Panabo municipality

Panabo Municipality situated in a strategical location between Davao City and Tagum City. Panabo is located at 32 km northward from Davao City and approximately 28 km westward from Tagum. Panabo extends generally on flat plain with certain rolling terrains in the northern part and about 70% of the total land area has a slope less than 3%. Panabo Municipality has the land area of 383 km² with 43 barangays and 129,826 population in 1995.

Panabo has the second largest urban population of 43,500 in Davao del Norte in 1995. The urban area accounts for only 1.5% of the total land area in the municipality. Urbanized barangays are Gredu, Sto. Nino, San Francisco and New Pandan.

Presence of two huge banana plantation firms is characteristic of Panabo, which enjoy the fertile soil condition, favorable climate and private ports.

Panabo is designated as Provincial Agri-Industrial Center (PAIC) under the agri-industrial strategy and could be a commuters' town for Davao and Tagum cities due to proximity to the both cities. The urbanization of Panabo will accelerate in the near future. The urbanized area may be expanded to barangays of Cagangohan, New Visayas, Salvacion, San Pedro and San Vicente.

(1) Development conditions

a. Deterioration of forest

Degradation of natural resources including primary and even secondary forests, mangrove, and land and marine habitants has been progressing due to population pressure and without countermeasure of environment management. There are problems of soil erosion in the hilly land barangays of Malativas, Cacao, Kauswagan, Consolacion and San Roque.

b. Inadequate infrastructure and utility facilities

There are only four urbanized barangays which are served with relatively adequate and efficient water supply systems. However even in the poblacion area, water supply by the Panabo Water District cannot catch up with the fast growing demand. Therefore the expansion/new construction of the water supply system shall be undertaken in the urban and its peripheral rural areas.

c. Poor drainage system

The existing drainage network in the municipality is not sufficient to prevent the area from floods, especially in the lowland urban areas. In order to alleviate floods, some countermeasures shall be undertaken through establishment of a watershed management system and improvement of the drainage system.

d. No permanent dumping site for solid wastes

The existing dumping site which has about one ha areas on private land is located at 4 km distance from the poblacion. Considering further urbanization, a new solid waste management system shall be established including a new dumping site with sanitary landfill and the equipment for operation and maintenance.

e. Shortages of adequate housing units

There are 1,759 unacceptable housing units such as those made of light materials, deteriorated and double-up units in 1990 as a housing backlog and 5,446 units estimated in 1995 in the municipality. Especially the problems are serious among marginal income families and the urban poor in urbanized barangays.

f. Inadequate education and health facilities and services

The social sector has been adversely affected by the population pressure due to urbanization and the budget constraints caused by the decentralization. High teacher to students ratios, high morbidity rates etc. occur especially in the rural area. Deteriorated school buildings are found in many barangays.

g. Low household electrification rate

Adequate and reliable electrification is crucial to enhance the quality of life and to develop the industry, operate post-harvest facilities and establish small business. Low household electrification rate is identified in the area. Even in electrified barangays, power fluctuation and power failure occur.

h. No clear urban development strategy

In accordance with the rapid urbanization, the municipality has updated the Comprehensive Development Plan to avoid congestion and inappropriate utilization of land resources. However the substantial urban development strategies and plans are not clearly established for the urbanization because it seems that substantial activities of promotion and investment for the agri-industrialization have not been realized yet.

(2) Proposed projects

a. Provincial agri-industrial center

A total about 570 ha is proposed for industrial area with 54 ha of industrial estate by Floirendo Group in three barangays of New Pandan, Sto. Nino and Cagangohan, 60 ha for heavy industrial area in J. P. Laurel and Cagangohan barangays, 384 ha for medium to light industrial area in San Pedro, San Vicente and Cagangohan and 72 ha for agri-industrial area in J. P. Laurel and Salvacion.

b. Farm to market roads

The PAIC covers Carmen and Sto. Tomas municipalities for supply of raw material for agro-processing. In order to stimulate the agricultural production not only for the PAIC initiative, but for the entire barangays as well, farm to market roads shall be provided in the area.

c. Landfill site establishment project

This project includes purchase of 6 ha land located at New Malitobog for the sanitary landfill area and equipments of operation and maintenance.

1.2.4. Development conditions and proposed projects in Sta. Cruz municipality

Sta. Cruz in the northern part of Davao del Sur is situated in a strategic location connected with Davao City and Digos, the provincial capital of Davao del Sur. Sta. Cruz is designated as a PAIC. The municipality is located at the 38 km south-west from Davao City and approximately 16 km northeast from Digos. Its topography is characterized by mountainous features to rolling to flat terrains. The municipality has the Mt. Apo National Park with the rolling to mountainous terrains more than 15% slope accounting for 69%. The municipality has the land area of 335 km² with 19 barangays and 59,139 population in 1995.

Sta. Cruz has much potential for industrial development, compared with other PAICs areas due to its proximity to Davao City. Sta. Cruz has the second largest urban population of 34,500 in Davao del Sur in 1995. The urban population accounts for 21.7% of the total urban population in the province.

The municipality has a sustainable water reserve from springs and groundwater aquifers. Coconut leads in agricultural production followed by sugarcane. Other major crops are rice, corn and coffee.

(1) Development constraints

Sta. Cruz faces the following main constraints: a) inadequate water supply system; b) inadequate telecommunication; and c) shortages of financial institutions.

(2) Proposed projects

a. Industrial estate development

According to the Municipality Comprehensive Development, land area of 1,300 ha is designated as industrial area including Provincial Agri-Industrial Center (PAIC). Approved industrial estates are Sta. Cruz Industrial Estate at Darong, Tan Kim Kee Industrial Estates at Tuban and Tagabuli and Ayala Industrial Estate.

b. Tagabuli port and industrial park

The area with 220 ha is located at Tagabuli and Tuban as mentioned above, approximately 42 kilometers from Davao City. The Tagabuli port is proposed for the industrialization in Sta. Cruz.

c. Farm to market roads

The following sections shall be improved into all-weather farm to market roads for supporting the agri-industrialization and income increase in the municipality: Astorga – Sitio Idong, Darong – Sibulan, Tuban – Millila, Bati – Matitingan – Binaton, and the National highway – Sinoron.

1.2.5. Development condition in other major centers

Preceding sub-sections describes existing condition, development constraints and proposed projects as model cases for other major urban centers in the DIDP Area. Other major urban centers like Digos, Mati and Nabunturan have development constraints of inadequate road development, shortage of water supply, insufficient communication system, traffic congestion etc., in common with major urban centers mentioned in sub-sections 1.2.1 through 1.2.4.

Existing conditions, development constraints and development potentials for other major urban centers are summarized in Sections 2.1 and 2.3.