



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**

### **EXECUTIVE SUMMARY**

March 1999



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**Exchange Rate**

(as of beginning of December 1998)

**US\$ = P 39.6**

**US\$ = ¥ 120.0**

## Preface

In response to the request from the Government of the Republic of the Philippines, the Government of Japan decided to conduct the Study on "The Davao Integrated Development Program (DIDP) Master Planning" and entrusted the Study to the Japan International Cooperation Agency (JICA).

JICA sent to the Republic of the Philippines the study team headed by Mr. Itaru MAE, Pacific Consultants International, five times over the study period between September 1997 and January 1999.

The study team held a series of discussions with the officials concerned of the Government of the Philippines and conducted field surveys in the study area. After the team returned to Japan finishing the field work in January, 1999, further studies were made and the final report was prepared for official submission.

I hope that the final report will contribute to the promotion of the DIDP and to the enhancement of friendly relations between the two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Philippines for their close cooperation extended to the study.

March, 1999



Kimio Fujita

President

Japan International Cooperation Agency

March 1999

Mr. Kimio FUJITA

President  
Japan International Cooperation Agency  
Tokyo, Japan

Letter of Transmittal

Dear Sir,

We are pleased to formally submit herewith the final report of "The Study on The Davao Integrated Development Program Master Planning".

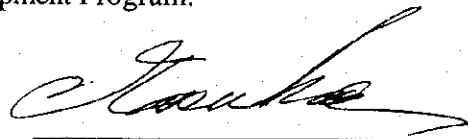
This report compiles the results of the Study which was undertaken in the Republic of Philippines from September 1997 through January 1999 by the Study Team, represented by Pacific Consultants International.

We had been assisted by many people for the accomplishment of the Study, and we would like to express our sincere gratitude and appreciation to all those who extended their kind assistance and cooperation to the Study Team, particularly relevant officials of Davao City, Davao del Norte Province, Compostela Valley Province, Davao del Sur Province, Davao Oriental Province, Tagum City and Island Garden City of Samal, who had worked as the counterpart agencies.

Also, we acknowledge the effective assistance by all the officials of your agency, the JICA advisor, Embassy of Japan in the Philippines and the Ministry of Foreign Affairs.

We hope that the report will be able to contribute to formulating appropriate policies and measures for future ODA to the Davao region, and to promote the projects/programs for the Davao Integrated Development Program.

Very truly yours,

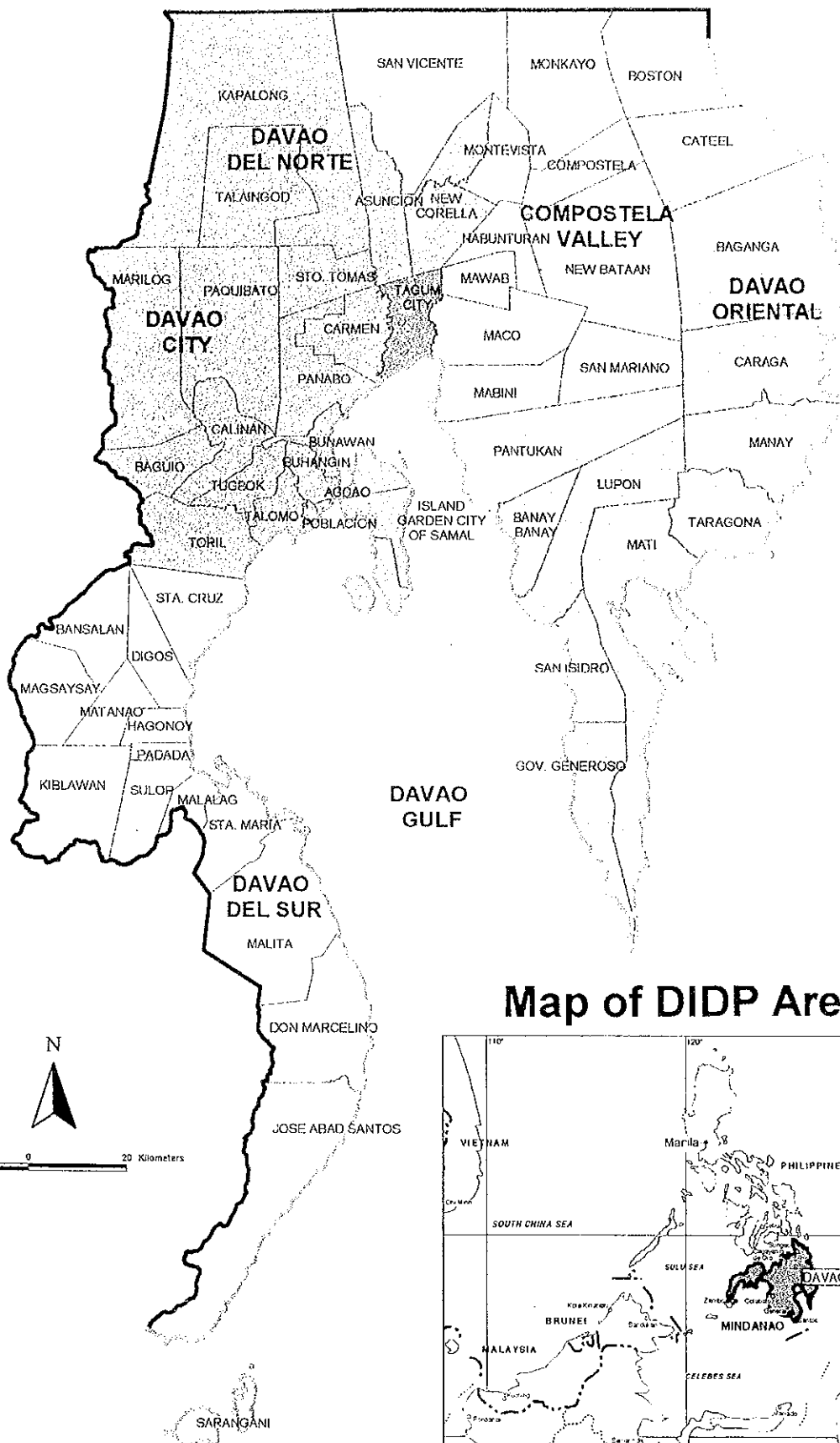


Mr. Itaru MAE

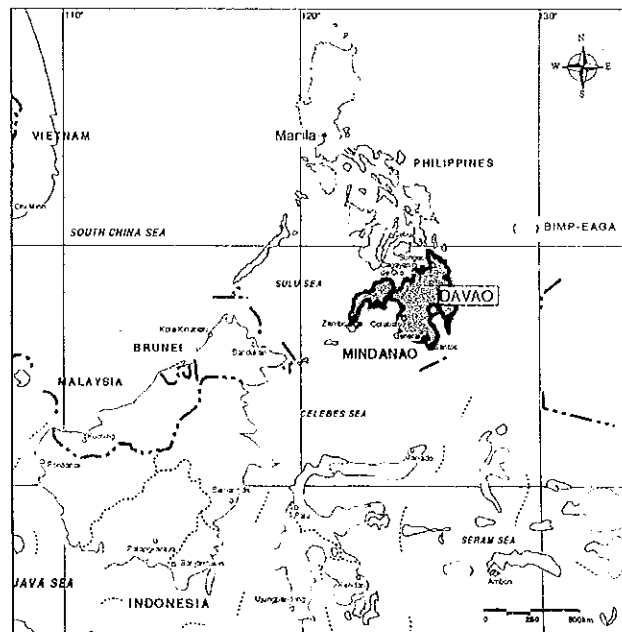
Team Leader,  
The Study Team for the Study on  
the Davao Integrated Development  
Program Master Planning



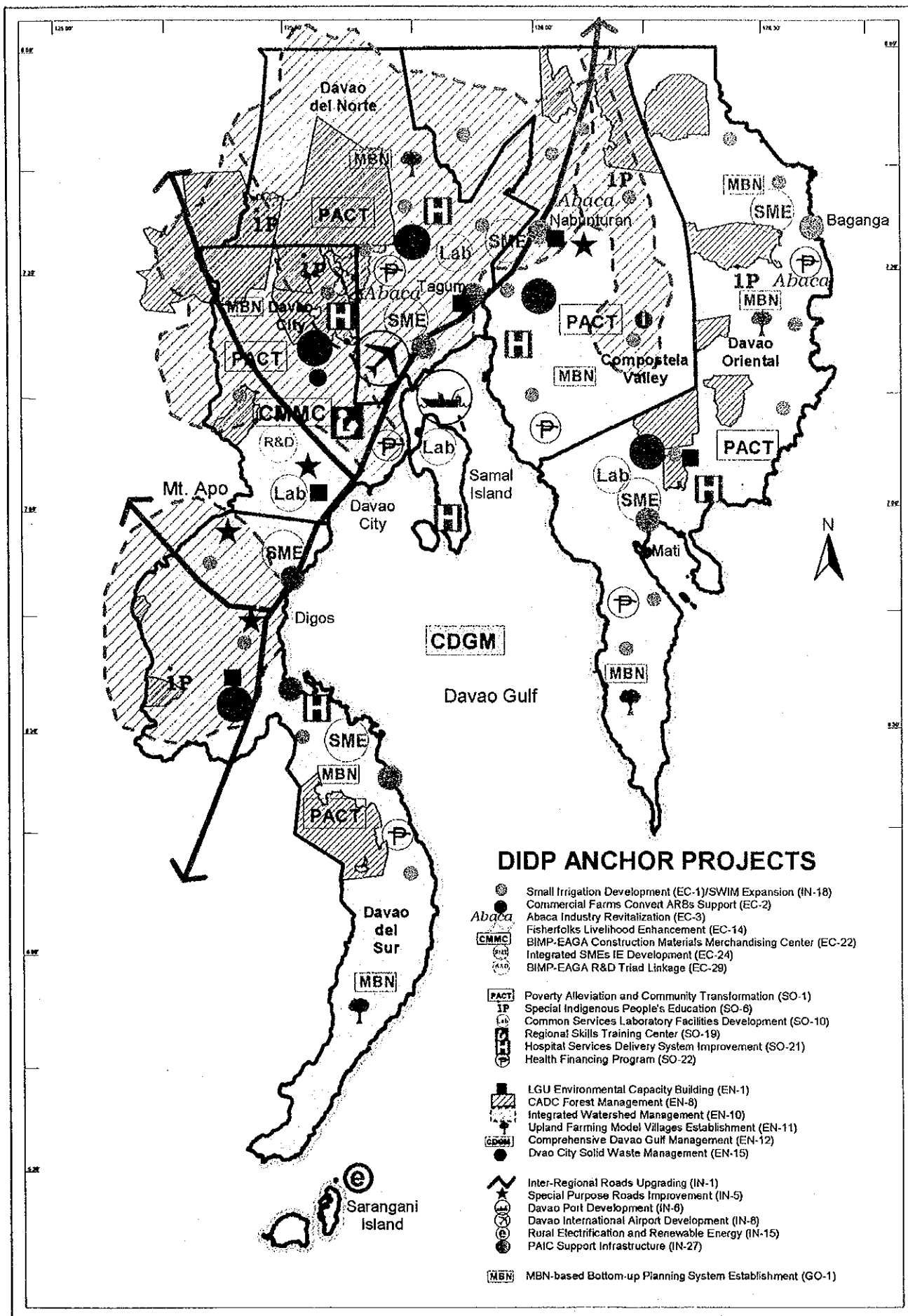




**Map of DIDP Area**









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## **OUTLINE OF THE STUDY RESULTS**

### **1. Introduction**

The Davao Integrated Development Program was originally established with joint development initiative of an alliance of local government units (LGUs) of Davao City, three provinces of Davao, Davao del Norte and Davao Oriental in 1994. Member LGUs consist of four provinces and three cities at present: The province of Davao del Norte and its component cities of Tagum City and Island Garden City of Samal, The provinces of Compostela Valley, Davao del Sur and Davao Oriental, and Davao City. The DIDP Area defined as a combined jurisdiction of the member LGUs of the DIDP area having the area of 19,671km<sup>2</sup> and the total population of 3.29 million in 1995.

The main thrust of the DIDP is to pursue more integrated and effective socio-economic development by mustering various efforts of the LGUs and by combining various resources including not only natural resources but also administrative, financial and human resources. Based on request of the Republic of the Philippines, the Government of Japan has decided to implement this technical cooperation and entrusted Japan International Cooperation Agency (JICA) for the implementation. The Davao Integrated Development Master Plan has been prepared for the target year of 2016.

### **2. Identification of DIDP Area**

#### **(1) Disadvantage**

The DIDP Area excluding Davao City 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, socio-political instability and delayed public investment.

The DIDP socioeconomy is not integrated as represented by the dichotomy between large agri-businesses with established production and marketing systems linked to the international market and many enclave-type traditional socioeconomies, more or less self-contained and segregated from the rest. The DIDP Area may be facing a booming economy driven by the realization of peace and order in Mindanao and the promotion of BIMP-EAGA cooperation. It may aggravate the already existing intra-regional disparities and problems associated with a large number of immigrants and resultant environmental loads.

#### **(2) Advantage**

Despite these risk factors, the DIDP Area is known for such advantages as rich forestry resources, rich mineral resources, fishery resources, human resources including the presence of many ethnic people and several institutes of higher education and research, proximity to countries/regions of the BIMP-EAGA and recent political change at the national level giving high priority to Mindanao.

### **3. Development Objectives**

Considering the above development constraints and current regional development strategy, the DIDP Area development pursues a balance between economic, social and environmental development with the following objectives:

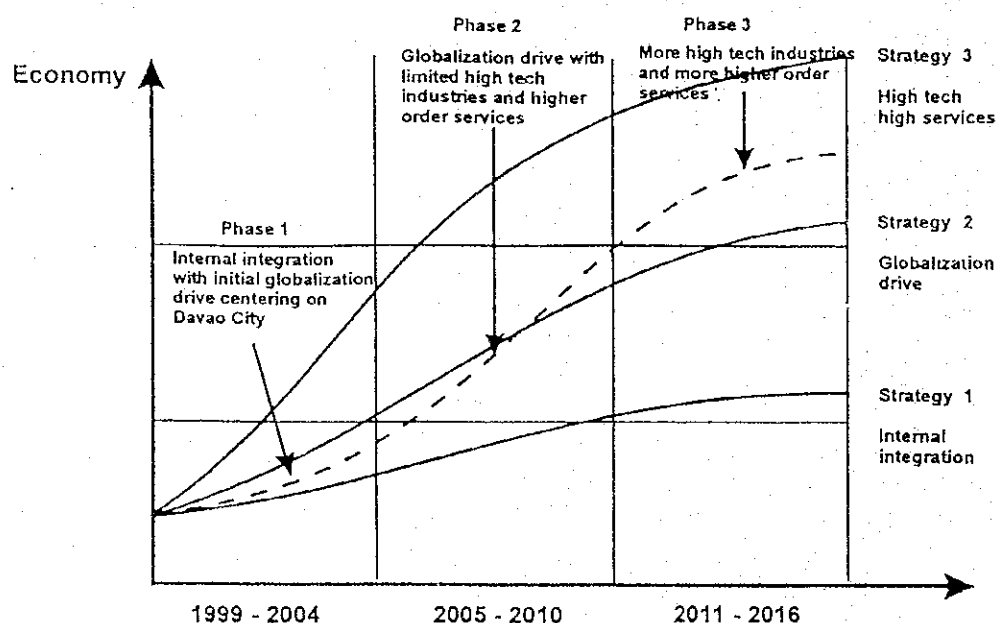
- 1) To expand/diversify employment opportunities and increase income levels of the majority of local people, correcting the biased ownership patterns of economic wealth and resources;
- 2) To protect or even enhance the environmental quality in the face of rapidly increasing population and the presence of marginalized people; and
- 3) To utilize, as a source of energy and dynamism for socioeconomic development, a mixture of peoples and cultural pluralism that may become even more pronounced through borderless communications within the BIMP-EAGA and beyond.

#### 4. Development Strategy

The DIDP strategy is to combine the following three strategies in time and space, shifting emphasis from the Internal Integration strategy during Phase 1 (1999-2004), through Globalization Drive strategy during Phase 2 (2005-2010), to the High Tech-Hith Services strategy during Phase 3 (2011-2016). The DIDP Strategy is shown in Figure 1.

Strategy	Definition
Internal Integration	To utilize indigenous resources by and for the benefit of local people and to localize value-added
Globalization Drive	To utilize indigenous and domestic resources for export markets to attain higher economic growth
High Tech-High Services	To introduce external resources to establish high-tech industries and higher-order services

**Figure 1 Schematic Presentation of DIDP Area Development under Alternative Strategies**



Socio-economic target is presented toward 2016 and during the period for the DIDP development through attaining the development objectives and the DIDP strategy in Table 1.

**Table 1 Socio-economic Target**

Item	1995	2004	2010	2016	Growth rate (%) (1995-2016)
<b>Socio-economic Framework</b>					
Population (1,000)	3,217.4	4,034.0	4,538.0	5,045.0	2.08
Urban	1,361.5	1,904.3	2,359.6	2,883.0	3.64
Rural	1,909.9	2,129.8	2,178.4	2,162.0	0.59
Urbanization Ratio (%)	41.6	47.2	52.0	57.1	-
GRDP (P million)	87,967	135,225	223,203	338,347	6.6
Agriculture	31,104(35.4%)	37,771(27.9%)	46,759(20.9%)	56,694(16.8%)	2.9
Industry	22,306(25.4%)	41,084(30.4%)	77,018(34.5%)	123,849(36.6%)	8.5
Services	34,587 (39.3%)	56,430(41.7%)	99,425(44.5%)	157,804(46.6%)	7.5
Employment (1,000)	1,216	1,463	1,724	2,058	2.4
Agriculture	636	673	717	766	0.8
Industry	123	178	255	364	5.0
Services	457	613	753	928	3.3

Source: JICA Study Team

## 5. Development Paradigm

The DIDP Area development pursues an original development paradigm by utilizing effectively unique characteristics and resources of the Area. Development paradigm is a key-word for development of the DIDP Area presenting DIDP strategy more in detail.

### 1) Diversification (D)

To diversify opportunities particularly for the marginalized, alternative systems/mechanisms for production and marketing need to be established as against large scale estate type operations by major agri-business. Socio-cultural diversity should be source of dynamism of the society.

### 2) Agri-industrialization (A)

Promising tree crops have higher value-added, and some of them may be processed within the Area for further value-added. Thus the agri-industrialization fits even better to the Area. Agri-industrialization in the DIDP context means naturally more than agriculture and agro-processing but include, more importantly, distribution, marketing and other related services as well.

### 3) Value development (V)

Value development means entrepreneurship development, training in business and financial management for cooperatives, R & D for products development and new processing technology, and innovative management among others. Integration of indigenous cultural peoples without assimilation in moral and family value, which should be guided by proper value development. Enhancement of environmental awareness is important part of value development in the environmental sector.



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#### 4) Amenity Creation (A)

In urban area, various amenity facilities and quality services should be provided. Rural amenity will be supported by rich natural environment with high bio-diversity and well preserved cultural diversity as well as lively rural socioeconomies.

#### 5) Outward Orientation (O)

As the world moves to the free trade regime, information exchanges as well as financial transactions will become increasingly more active and important. The DIDP Area is in the best position to take advantage of the forthcoming free trade regime.

These concepts may be called an attainable "DAVAO Concept" combined the first letter of them.

Further, the DIDP development paradigm should build in good governance to be supported by the local initiative and enlarged people's participation. The DIDP development paradigm is supported by organizational unity from the top to the bottom and across all the segments of the society to allow effective cooperation between the efficient public sector and the dynamic private sector. Schematic presentation of DIDP development paradigm is shown in Figure 2. Relationship between the development paradigm and anchor projects/programs is shown in Table 2.

### 6. Sector Strategy

The Sector Strategies in the DIDP Area are established in response to 1) constraints of the economic, social, environmental and spatial/infrastructure sectors, and 2) "DAVAO Concept". Spatial/infrastructure sector intends to support the other three sectors. More detailed information of sector strategies is shown in Table 2.

Each sector covers some sub-sectors or components as follows:

#### 1) Economic Sector;

Agriculture, fishery, mining, manufacture and tourism sub-sectors

#### 2) Social Sector;

Social welfare, education and health sub-sectors

#### 3) Environmental Sector; and

Watershed/forest environment, coastal environment, living/urban environment and environmental administration components

#### 4) Spatial/Infrastructure Sector.

Transportation, power and energy, water resource and spatial/urban sub-sectors

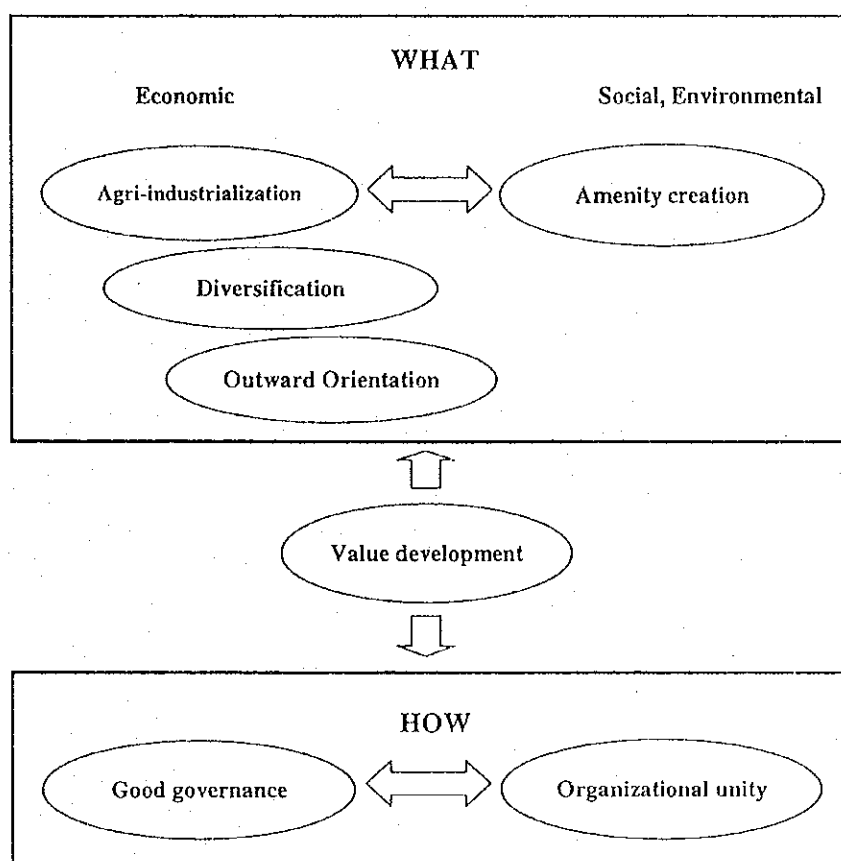
### 7. Development Projects/Programs

Proposed projects/programs are naturally in line with various concepts embodied in the DIDP development paradigm, consistent with sector strategies, and expected to contribute collectively to the attainment of the DIDP Area development objectives and framework.

Table 2 shows relationship among development concept, development strategy by sector and proposed anchor projects/programs.

A total of 136 projects and programs have been proposed and contained in the DIDP Master Plan. They consist of 27 anchor projects, a Special Program for Participatory Development consisting of nine projects, and 100 sector projects. The anchor projects characterize the DIDP Area development upto 2016 due to (1) well defined characteristics consistent with the DIDP development objectives, strategy and paradigm, (2) establishing alternative systems for production, marketing or service delivery, (3) transforming the spatial and/or the socio-economic structure of the DIDP Area and (4) comprehensive coverage of specific segments of society to improve their living conditions. The anchor projects are shown in Table 3.

**Figure 2 Schematic Presentation of DIDP Development Paradigm**



## 8. Institutional Measures for DIDP Implementation

Implementing arrangements for the DIDP should be strengthened, centering around DIDP Project Management Office (PMO), which shall be re-established by some legislative measures as a permanent management office. The following are recommended:

- 1) Planning and coordinating functions need to be strengthened at local and regional levels with PMO working closely with NEDA XI;
- 2) New funding mechanism should be devised to increase regional fund mobilization in a significant way, while utilizing various options allowed by the Local Government Code of 1991;

- 
- 3) Enhanced and more substantive people's participation should be institutionalized by effecting the Minimum Basic Needs (MBN) approach;
  - 4) The private sector should be encouraged to participate actively in the DIDP Area development not only for a wider range of development activities but also for development management; and
  - 5) Government priority policy and commitment should be reflected in the new institutional arrangements in the forms of necessary authorization, approval and initial funding.

Table 2 Comparison between Development Strategies and Projects/Programs

Development Paradigm	STRATEGY BY SECTOR				DIDP STRATEGY		
	Economic Development	Social Development	Environmental Development	Spatial/Infrastructure Development	Internal-Integration	Globalization	High-Tech High Services
Diversification	<ul style="list-style-type: none"> <li>- Crop Diversification</li> <li>- Alternative farming and marketing systems</li> <li>- Products development and market diversification</li> <li>- Robust economic structure</li> </ul>	<ul style="list-style-type: none"> <li>- Realization of mixed culture society with revitalized indigenous people</li> </ul>	<ul style="list-style-type: none"> <li>- Preservation of watershed with bio-diversity</li> <li>- Sustainable use of coastal and marine resource</li> </ul>	<ul style="list-style-type: none"> <li>- Improvement of rural access and linkage by multi-modal transport system</li> </ul>	EC- 1, EC- 2 EC- 3, EC-14 SO- 1, SO- 6 SO-21, SO-22 EN- 1, EN- 8 EN-10, EN-11 EN-12, EN-15 IN- 1, IN- 8 IN-15, IN-18 GO- 1	EC-24 IN- 1 IN- 5 IN- 6 EC-22	SO-21 EC-29
Agri-Industrialization	<ul style="list-style-type: none"> <li>- Productivity enhancement</li> <li>- Processing for final product</li> <li>- Improvement of marketing facilities and market information</li> </ul>	<ul style="list-style-type: none"> <li>- Efficient use of upland hillyland by Ips with appropriate technology</li> </ul>	<ul style="list-style-type: none"> <li>- Land use rationalization</li> <li>- Sustainable use of forest resource</li> <li>- Pollution control</li> </ul>	<ul style="list-style-type: none"> <li>- Improvement of urban infrastructure, water facilities, post-harvest facilities etc.</li> </ul>	EC- 3 EC-24 IN-27	EC- 1 IN- 1 IN- 6 IN-27 EC-29	EC-29
Value Development	<ul style="list-style-type: none"> <li>- Entrepreneurship development</li> <li>- R &amp; D</li> </ul>	<ul style="list-style-type: none"> <li>- Restoration of indigenous value and cultures</li> </ul>	<ul style="list-style-type: none"> <li>- Enhancement of environmental awareness</li> </ul>	<ul style="list-style-type: none"> <li>- Telecommunication facilities</li> </ul>	EC- 2 EN- 1 EN-12	SO-10 SO-19 SO-21	SO-10
Amenity Creation	<ul style="list-style-type: none"> <li>- Eco-tourism, agro-tourism, factory tours etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Cultural amenity</li> </ul>	<ul style="list-style-type: none"> <li>- Natural amenity</li> </ul>	<ul style="list-style-type: none"> <li>- Urban amenity</li> </ul>	EN-10 EN-12 EN-15		
Outward-Orientation	<ul style="list-style-type: none"> <li>- Export drive</li> <li>- Provision of higher order services to neighbouring countries and regions</li> </ul>	<ul style="list-style-type: none"> <li>- Human communications with people of different backgrounds</li> </ul>	<ul style="list-style-type: none"> <li>- Exchange of environmental information through international networking</li> </ul>	<ul style="list-style-type: none"> <li>- Port and airport development</li> <li>- Establishment of air services network</li> <li>- Establishment of sea lanes</li> </ul>	EC- 3 EC-24 IN- 6	EC-24 EC-22 SO-19 IN- 6 IN- 8	IN- 8 EC-24

**Table 3 List of Anchor Projects / Programs**

Sector	Project/Program Title
Economic Sector	EC- 1 Small Irrigation Development Project
	EC- 2 Commercial Farms Convert ARB's Support Program
	EC- 3 Abaca Industry Revitalization Project
	EC-14 Fisherfolks Livelihood Enhancement Program
	EC-22 BIMP-EAGA Construction Material Merchandising Center Project
	EC-24 Integrated SME's Industrial Estate Development Project
	EC-29 BIMP-EAGA R & D Triad Linkage Program
Social Sector	SO- 1 Poverty Alleviation and Community Transformation Project
	SO- 6 Special Indigenous Peoples Education Program
	SO-10 Common Service Laboratory Facilities Development Project
	SO-19 Regional Skills Training Center Project
	SO-21 Hospital Services Delivery System Improvement Project
	SO-22 Health Financial Program
Environmental	EN- 1 LGU Environmental Management Capability Building Program
	EN- 8 Comprehensive CADC Forest Management Program
	EN-10 Integrated Watershed Management Program
	EN-11 Upland Farming Model Village Establishment
	EN-12 Comprehensive Davao Gulf Management Program
	EN-15 Davao City Integrated Waste Management System
Spatial/Infrastructure	IN- 1 Inter-Regional Roads Upgrading Project
	IN- 5 Special Purpose Roads Improvement Project
	IN- 6 Davao Port Development Project
	IN- 8 Davao International Airport Development Project
	IN-15 Rural Electrification and Renewal Energy Development
	IN-18 SWIM Expansion Project
	IN-27 PAIC Support Infrastructure Program
Governance	GO- 1 MBN-based Bottom-up Planning System Establishment Project

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As PMO accumulates experiences and expands its staff and financial capacity, it is expected to evolve into a genuine regional development authority supported by much strengthened LGUs and the private sector. It may be called the Davao Development Authority (DDA). DDA's functions include those related to public sector management of resource allocation through planning and coordination, those to guide and support private sector activities, and related functions for social marketing, database development and management, and basic studies.

In parallel with the re-establishment of DIDP PMO, a corporate type entity should be initiated to take charge of smaller designated area within the DIDP Area. It may be called the Davao Investment and Development Corporation (DIDC). It will be a "joint stock company" with relevant LGUs and the private sector holding shares. DIDC must be involve in revenue generating activities such as land development projects where LGU share holders may make their contribution in kind in the form of their lands. To support DIDC's activities, land-related institutional measures should be introduced or streamlined. They include the following:

- 1) land re-adjustment system to make sizeable land available for urban renewal without paying massive costs for land acquisition;
- 2) trust system based on land ownership and/or land use rights;
- 3) new local taxes to capture capital gains as a result of land and infrastructure development such as property tax and urban planning tax; and
- 4) new type of bond pegged to a development program such as a housing development bond.

## **9. Public Investment Requirements**

Public investment requirements for all the proposed projects and programs are estimated at ₱ 17.5 billion during Phase 1 (upto the year 2004), ₱ 29.2 billion during Phase 2 (2005 - 2010), and ₱23.6 billion during Phase 3. They do not include costs of additional projects to be formulated through studies during Phase 1. Projects in the spatial/infrastructure sector take up about 70 % of the total investment cost. Excluding this sector, which will benefit all the sectors, investment requirements are well balanced by sector: 33.3 % for economic, 34.6 % for social, and 32.1 % for environmental development.



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**The Study  
on  
The Davao Integrated Development Program  
Master Planning**

**Executive Summary**

Map of DIDP Area

DIDP Anchor Projects Map

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### **Abbreviations**

ADB	Asian Development Bank
ADDU	Ateneo de Davao University
ADMP	Ancestral Domains Management Plan
AFTA	ASEAN Free Trade Agreement
AI	Artificial Insemination
AICO	ASEAN Industrial Cooperation
ARB	Agrarian Reform Beneficiary
ARC	Agrarian Reform Community
ASDAR	Association of Social Development Agencies in Region XI
ASEAN	Association of South-East Asian Nations
ATI	Agriculture Training Institute
ATO	Air Transportation Office
BAS	Bureau of Agricultural Statistics
BFAR	Bureau of Fisheries and Aquatic Resources
BHW	Barangay Health Workers
BIMP	Brunei-Indonesia-Malaysia-Philippines
BOI	Bureau of Investments
BOT	Build-Operate-Transfer
BSIA	Barangay Sanitary Inspectors Association
BSWM	Bureau of Soils and Water Management
BTVE	Bureau of Technical and Vocational Education
CADC	Certificate of Ancestral Domain Claim
CAO	City Agricultural Office
CARP	Comprehensive Agrarian Reform Program
CBD	Central Business District
CBFM	Community-Based Forest Management
CCDO	City Cooperative Development Office
CENRO	Community Environment and Natural Resources Office
CHED	Commission on Higher Education
CIDSS	Comprehensive and Integrated Delivery of Social Services
CVO	City Veterinarian Office
DA	Department of Agriculture
DACS	Davao Association of Catholic Schools
DAR	Department of Agrarian Reform
DCCI	Davao City Chamber of Commerce and Industry
DECS	Department of Education, Culture and Sports
DENR	Department of Environment and Natural Resources
DFPC	Davao Fish Port Complex
DGRDC	Davao Gulf R&D Consortium
DGMB	Davao Gulf Management Board
DIA	Davao International Airport
DIDP	Davao Integrated Development Program
DILG	Department of Interior and Local Government
DLPC	Davao Light and Power Company
DOE	Department of Energy
DOH	Department of Health
DOLE	Department of Labor and Employment

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DOSCST	Davao Oriental State College of Science and Technology
DOST	Department of Science and Technology
DOT	Department of Tourism
DOTC	Department of Transportation and Communications
DPWH	Department of Public Works and Highways
DRHPP	Davao Regional Herbal Processing Plant
DSWD	Department of Social Welfare Development
DTI	Department of Trade and Industry
EAGA	East ASEAN Growth Area
ECC	Environmental Compliance Certificate
EDC	Energy Development Corporation
EDCOM	Congressional Commission on Education
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EPI	Expanded Program of Immunization
EPZ	Export Processing Zone
ERB	Energy Regulatory Board
EU	European Union
FAPE	Fund for Assistance to Private Education
FIDA	Fiber Industry Development Authority
FTZ	Free trade zone
GDP	Gross domestic product
GIS	Geographic information system
GRDP	Gross regional domestic product
GSC	General Santos City
GTH	Gifts, Toys and Housewares
HCDC	Holy Cross of Davao College
HEI	Higher Education Institute
HMS-M	Hospital Maintenance Service-Mindanao
ICOR	Incremental Capital Output Ratio
IE	Industrial Estate
IEC	Information, Education Campaign
IFMA	Industrial Forest Management Agreement
ILGA	Institute for Local Government Administration
IP	Indigenous People
IPRA	Indigenous People's Rights Act
IRA	Internal Revenue Allotment
ISMED	Institute for Science Mathematics Education
JICA	Japan International Cooperation Agency
LARIS	Land Resources Information System
LBP	Land Bank of the Philippines
LCC	Literacy Coordinating Council
LGC	Local Government Code
LGU	Local Government Unit
LRT	Light Rail Transit
LWUA	Local Water Utilities Administration
MAO	Municipal Agricultural Office

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MASCUF	Mindanao Association of State Colleges and Universities Foundation
MBN	Minimum Basic Needs
MCEP	Mindanao Comprehensive Educational Plan
MCPS	Mindanao Center for Policy Studies
MEO	Municipal Engineer's Office
MPZ	Mineral Processing Zone
NAAD	Network of Area for Agricultural Development
NCIP	National Commission of Indigenous Peoples
NCR	National Capital Region
NFE	Non-Formal Education
NGO	Non-Governmental Organization
NHA	National Housing Authority
NHIP	National Health Insurance Program
NIA	National Irrigation Administration
NIN	National Information Network
NIPAS	National Integrated Protected Areas System
NPAA	Network of Protected Agricultural Areas
NPC	National Power Corporation
NSAT	National Scholastic Aptitude Test
NSO	National Statistics Office
OMA	Office for Muslim Affairs
OSCC	Office of Southern Cultural Communities
OSY	Out-of-School Youth
OTEC	Ocean Thermal Energy Conversion
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PAIC	Provincial Agri-Industrial Center
PAO	Provincial Agricultural Office
PCAMRD	Philippine Council for Aquatic and Marine Research and Development
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PCDO	Provincial Cooperative Development Office
PCO	Pollution Central Office
PENRO	Provincial Environment and Natural Resources Office
PFDA	Philippine Fisheries Development Authority
PMO	Port Management Office
PO	People's Organization
PPA	Philippine Ports Authority
PPDO	Provincial Planning and Development Office
PSCB	Productivity Skills and Capacity Building
PTC	Project Technical Committee
PVO	Provincial Veterinarian Office
RACO	Regional Applied Communications Office
RAIC	Regional Agri-Industrial Center
REC	Rural Electronic Cooperative
RFTC	Regional Fishermen's Training Center
RPPF	Regional Physical Framework Plan

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RSS	Rapid Social Survey
RSTC	Regional Science Teaching Center
SALT	Sloping Agricultural Land Technology
SEZ	Special Economic Zone
SMARRDEC	Southern Mindanao Agriculture and Resources Research and Development Consortium
SME	Small/Medium Enterprise
SPAMAST	Southern Philippines Agri-Business, Marine and Aquatic School of Technology
SRA	Social Reform Agenda
SRIP	Small River Irrigation Project
STW	Shallow Tube Well
SUC	State Universities and Colleges
SWIM	Small Water Impoundment Management
TB	Tuberculosis
TESDA	Technical Education and Skills Development Authority
TNA	Training Needs Assessment
TNTS	Tagum National Trade School
TTI	Teacher Training Institution
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific, and Cultural Organization
US	United States
USEP	University of Southeastern Philippines
WTO	World Trade Organization

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## **EXECUTIVE SUMMARY REPORT**

### **1. Introduction**

The three provinces of Davao, Davao del Sur and Davao Oriental and Davao City established in 1994 the Davao Integrated Development Program (DIDP) to pursue more integrated and effective development of their jurisdictions by mustering development efforts of the local government units (LGUs), combining various resources. They submitted, through the Government of the Republic of the Philippines, to the Government of Japan a request for technical cooperation to prepare an integrated regional development master plan for the area covered by the DIDP.

In response to this request, the Government of Japan has decided to implement this technical cooperation and entrusted the implementation to the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation program of the Government of Japan. The implementing arrangement for this technical cooperation was agreed upon between the City Government of Davao, Provincial Governments of Davao, Davao del Sur and Davao Oriental and JICA, and signed by respective representatives on April 14, 1997.

The Study Area to be covered by this technical cooperation is the combined jurisdiction of Davao City, Davao del Norte including Tagum City and Island Garden of Samal, Compostela Valley, Davao del Sur and Davao Oriental. It may be alternatively called the Davao Gulf Area. The Study Area has 19,671 km<sup>2</sup> and the total population was 3.29 million in 1995.

The objectives of the Study are:

- (1) **To prepare the Davao Integrated Development Master Plan (DIDMP) for the target year 2016 in order to achieve the balanced and equitable development among economic, social and environmental sectors in the Study Area defined above, of which priority projects and programs shall be identified and shortlisted for subsequent implementation;**
- (2) **To formulate recommendations necessary for the effective implementation of the Master Plan, including investment promotion measures and organizational/ institutional arrangements; and**
- (3) **To conduct technology transfer to the Philippine counterpart personnel in the course of the Study so that the DIDMP should be properly followed up after the Study.**

### **2. DIDP Area**

#### **(1) Characteristics of DIDP Area**

The population growth in the DIDP Area has been generally high in recent years due to immigration mainly from Visayas. The average annual growth of population in the DIDP Area was 2.72 % during 1998 – 95, higher than the Philippine average of 2.40 % and the respective averages in more advanced regions of SOCSARGEN (2.68 % during 1980 – 95), Central Luzan (2.48 %), and Cebu (2.23 %).

The DIDP Area appears to be economically more advanced with a smaller share of agriculture and a larger share of services in the GRDP than the respective shares in Mindanao and Region XI (Table 1). The much larger share of services represents the characteristics of the DIDP Area, centering on Davao City, as a distribution/marketing center in Mindanao. As compared with the economic structure of the Philippines as a whole, the DIDP Area appears less developed economically. The share of industry is particularly small in the Area as compared with the national share of this sector.

**Table 1 Comparison of GDP/GRDP Structure (1995)**

	(%)		
	Agriculture	Industry	Services
Philippines	21.5	35.5	43.0
Mindanao	40.0	25.4	33.6
Region XI	38.1	25.7	36.1
DIDP Area	35.4	25.4	39.3

Source: Estimate by JICA Study Team for DIDP area; 1996 Philippine Statistical Yearbook.

The DIDP Area shares with Mindanao favorable conditions for agriculture including generally fertile soil, more evenly distributed rainfalls and high temperature throughout a year, and no typhoon. The Area, however, has more dominant upland areas and rolling terrains with limited lowland. As a result, shares of the DIDP Area in the national agricultural production are small for cereals (3.7 % in 1995) and vegetables (1.9 %), and large for fruits (29.7 %) and cutflowers (15.1 %).

Large industries in the DIDP Area are concentrated in Davao City and its vicinities having relatively diversified industrial structure. In the DIDP Area as a whole, however, only a few subsectors have shares in the national production larger than the population share (4.8 %) such as mining (17.5 %), food and beverages (5.5 %) and non-metallic material products (5.5 %).

The DIDP Area has much larger shares of designated forest land (61.8 %) and established timber land (52.9 %) than the respective national averages (50.0 % and 33.4 %). However, forest resources have been rapidly decreasing, and as of 1994 the wood land area covers only 25.5 % of the total DIDP land area.

The DIDP Area has several institutes for higher education and research widely known. The Area is known also for the presence of many ethnic peoples including several tribal groups of indigenous peoples and Muslim minorities. The indigenous population in the DIDP Area is estimated at 16.4 % of the total population according to the 1995 census.

## (2) Problem structure of DIDP Area

The DIDP socioeconomy is not integrated as represented by the dichotomy between the modern and the indigenous sectors. On the one hand, there exist large agri-businesses with established production and marketing systems linked to the international market. On the other hand, many traditional socioeconomies are of enclave-type, more or less self-contained and segregated from the rest. This

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situation may not render the DIDP Area balanced development, unless deliberate interventions are made to improve physical and economic linkages between different sectors and areas.

LGUs are expected to take the initiative in effecting more balanced development of the DIDP Area, but despite the provision of the 1991 LGC, most LGUs face limited financial and administrative capacities. The low level of the DIDP economy itself poses a constraint to strengthening the local finance and administration. Limited capital accumulation due to low income levels as well as leakages to other regions provides only a weak tax base for local administration. Most LGUs are far from serving marginalized communities in remote rural areas properly or dealing with the multiplicity of environmental problems in a comprehensive manner.

Mindanao in general and the DIDP Area in particular have been experiencing the "booming economy" driven by the realization of peace and order in Mindanao and the promotion of BIMP-EAGA cooperation. A major concern for the DIDP development is that such a booming economy in the future may not necessarily lead to expansion/diversification of employment opportunities and increase in income levels of the majority of the local people. Given the situation outlined above, it may rather lead to the aggravation of the already existing intra-regional disparities and various problems related to a large number of immigrants and resultant environmental loads.

### **3. Development Objectives and Strategy**

#### **3.1. Development Objectives**

The DIDP Area development pursues a balance between economic, social and environmental development with the following objectives:

- (1) To expand/diversify employment opportunities and increase income levels of the majority of local people, correcting the biased ownership patterns of economic wealth and resources;**
- (2) To protect or even enhance the environmental quality in the face of rapidly increasing population and the presence of marginalized people; and**
- (3) To utilize, as a source of energy and dynamism for socioeconomic development, a mixture of peoples and cultural pluralism that may become even more pronounced through borderless communications within the BIMP-EAGA and beyond.**

#### **3.2. Development Strategy**

The problem structure of the DIDP Area outlined above is caused by five fundamental factors: (1) distance from the NCR, (2) delayed public investment due to ethnic conflicts and socio-political instability, (3) topography of rolling terrains, islands and peninsulas, (4) weak local administration, and (5) dichotomy between modern and traditional/indigenous sectors.

Of these fundamental factors, the factor (1) may not be a constraint, if the DIDP Area development capitalizes on its locational advantages in the increasingly borderless world. Thus, outward orientation should constitute part of DIDP strategy. The factors (3) and (5) have contributed to enclave type communities, self-



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contained by itself and isolated one another. Integration of these communities is a prerequisite to more balanced development of the DIDP Area. The factors (2) and (4) imply that much efforts are needed in the public sector to guide the DIDP development by providing supports selectively for a wide range of opportunities.

Incorporating these elements, the following three alternative strategies are defined for the long-term development of the DIDP Area.

Strategy	Definition
Internal Integration	To utilize indigenous resources by and for the benefit of local people and to localize value-added
Globalization Drive	To utilize indigenous and domestic resources for export markets to attain higher economic growth
High Tech-High Services	To introduce external resources to establish high-tech industries and higher-order services

The DIDP strategy is to combine the alternative strategies in time and space, to pursue the balanced development between economic, social and environmental sectors. Considerations in defining the DIDP strategy are locational conditions, phasing of development, existing development policies of the Government, and existing and future institutional setups for development planning and administration.

Initially, the DIDP Area development will be pursued largely under the internal integration strategy, but the globalization drive may already be pursued to a limited extent. In particular, Davao City with the established function as a main distribution/marketing and processing center in Mindanao is already at the stage of globalization drive. More foot-loose type industries will be located in the City, as infrastructure facilities are improved. Some port-oriented and energy intensive industries may also be established in selected locations as forerunners of globalization drive.

PAIC development under the internal integration strategy will be supported mainly by agro-processing. Improved road links between central cities and respective hinterlands will expand the resource base. Production of selected crops will also be expanded. Revitalization of livelihood of indigenous cultural communities is expected to further improve the resource base.

PAIC related infrastructure improvements as well as the development initiative of Davao City will prepare the base for globalization drive in the subsequent phase. With reasonable degrees of diversity in economic activities in PAIC areas to be attained by the internal integration strategy, industrial clusters will develop in steps centering around respective strategic industries. They may include confectionery industry in Davao del Sur, food processing and some foot-loose type industries in Davao del Norte, bamboo/rattan and jewelry industries in Compostela Valley, abaca and bamboo/rattan industries in Davao Oriental, and coconut industry.

PAIC/RAIC development will become increasingly based on related industries and services rather than agro-processing. Related industries may include chemical industries based on coconut-derived oleo-chemicals and charcoal, and essential oils

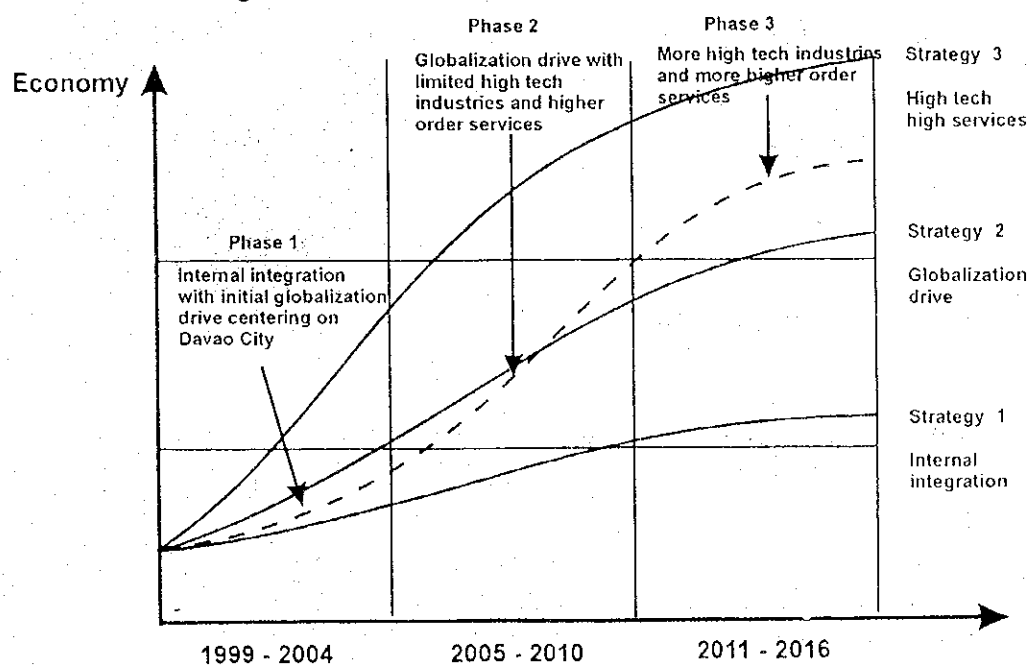
derived from castor beans, cashew and herbal plants, engineering, metal works and machinery industries developed initially from agricultural machinery and implements. Some of them may become sub-contracting industries supplying some parts and intermediate goods to some high tech industries to be introduced subsequently.

A few higher-order services may be established initially in Davao City and a few other urban centers where specialized functions are expected to develop on the basis of local resources under the globalization drive strategy. They may take forms of specialized health and education services such as herbal and traditional medical care and Muslim education. More higher-order services may be established under the high tech – high services strategy such as advanced research on marine and coastal ecosystems, high-grade health services, and international tourism related services. Some of them will cater for needs in the BIMP-EAGA and other countries.

For the DIDP Area as a whole, dominant types of activities will change over time. In the short to the medium term, activities of the internal integration will constitute the main part of the DIDP Area development with improved resource base and better management of indigenous resources. Growth rates during this period will be low. In the medium term, activities of the globalization drive will lead the DIDP Area to attain higher growth rates. In the medium to the long term, such high tech industries that will be environmentally friendly will be selectively introduced, and more higher-order services established to attain sustainable growth, while generating a large number of high earning employment opportunities.

The process of the DIDP Area development is schematically illustrated in Figure 1.

**Figure 1 Schematic Presentation of DIDP Area Development under Alternative Strategies**



## 4. Development Frameworks

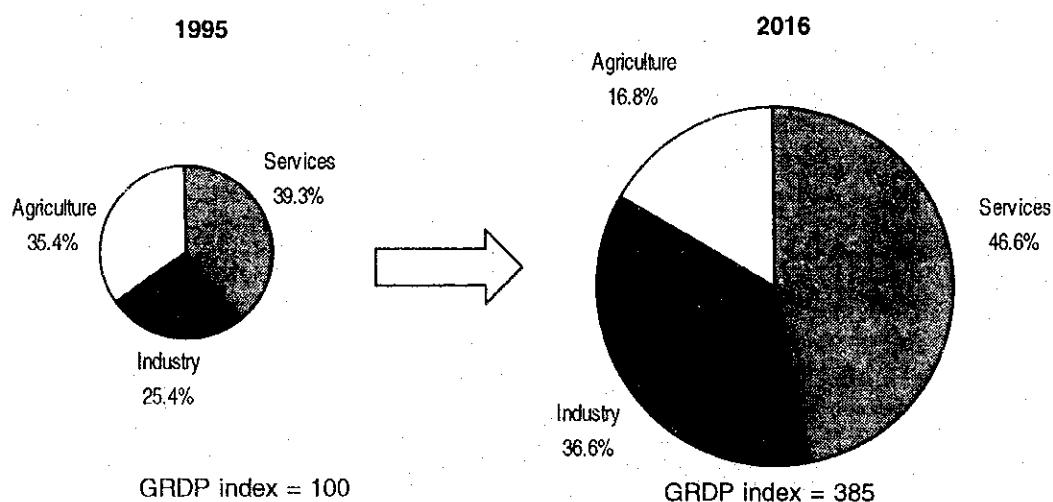
### 4.1. Socioeconomic Framework

Internal integration under Strategy 1 is an essential condition for the DIDP Area development to utilize indigenous resources effectively for the benefit of local people. Globalization drive under Strategy 2 should also be largely realized over the planning period, taking advantages of emerging opportunities for inter-regional and sub-regional cooperation and the strategic position of the DIDP Area. To generate additional employment opportunities and to realize a robust economic structure, limited elements of Strategy 3 (high tech – high services) may be introduced in the long term, probably those environmentally friendly and having favorable social effects.

The DIDP economy is projected to the year 2016 under these conditions. The gross regional domestic product (GRDP) of the DIDP Area is projected to increase by 3.85 times during 1995-2016, from ₱ 88.0 billion in 1995 (in 1995 constant prices ) to ₱ 338.3 billion in 2016, at the average annual rate of 6.6% as shown in Figure 2.

The population in the DIDP Area is projected to increase at 2.1% per annum to reach 5 million by the year 2016, and the urbanization ratio will increase from 42% in 1995 to 57% in 2016 as shown in Table 2.

**Figure 2 GRDP Projection for DIDP Area**



**Table 2 Projection of Urban and Rural Population**

	1995	2016	Growth (% p.a.) 1995-2016
Population (1000)	3,271.4	5,045.0	2.08
Urban population	1,361.5	2,883.0	3.64
Rural population	1,909.9	2,162.0	0.59
Urbanization ration (%)	41.6	57.1	

Source: JICA Study Team

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## 4.2. Spatial Framework

Future land use in the DIDP Area shall be guided by the land capability for agriculture and land suitability for urban/industrial use as well as by social and environmental considerations. Prime agricultural land in the lowland should be protected, land use in upland/hilly land rationalized, and forest preservation and conservation areas re-defined in line with ancestral domains claims. Proposed land use in the DIDP Area is indicated in Figure 3.

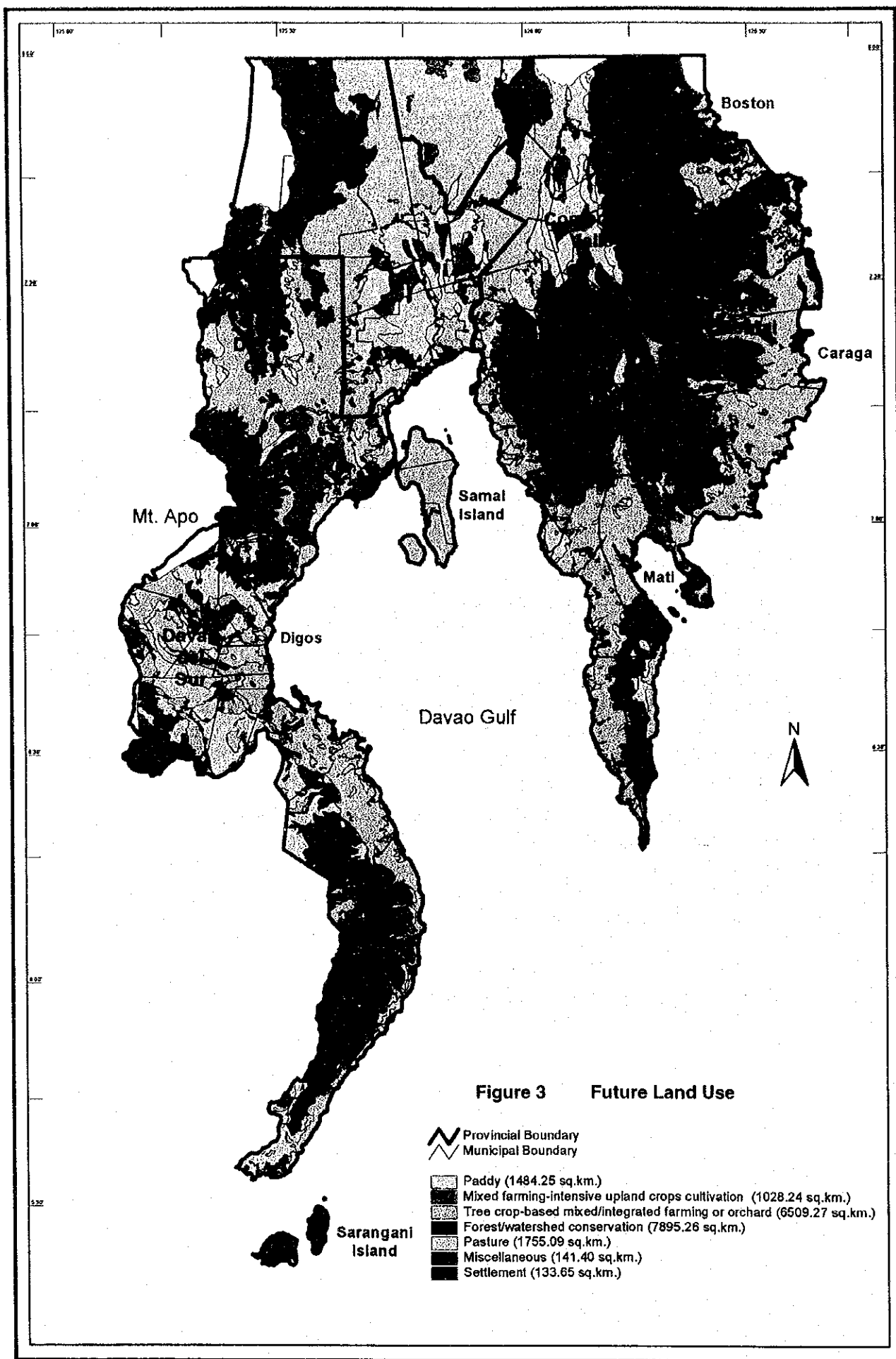
A hierarchical structure of urban centers in the DIDP Area should be established with five tiers: the regional center, provincial centers, major urban growth centers, service urban centers, and municipal capitals (Figure 4, Table 3). It should facilitate Davao City to function effectively as the trade capital of BIMP-EAGA, support PAIC initiatives, and ensure proper service delivery to remote rural areas.

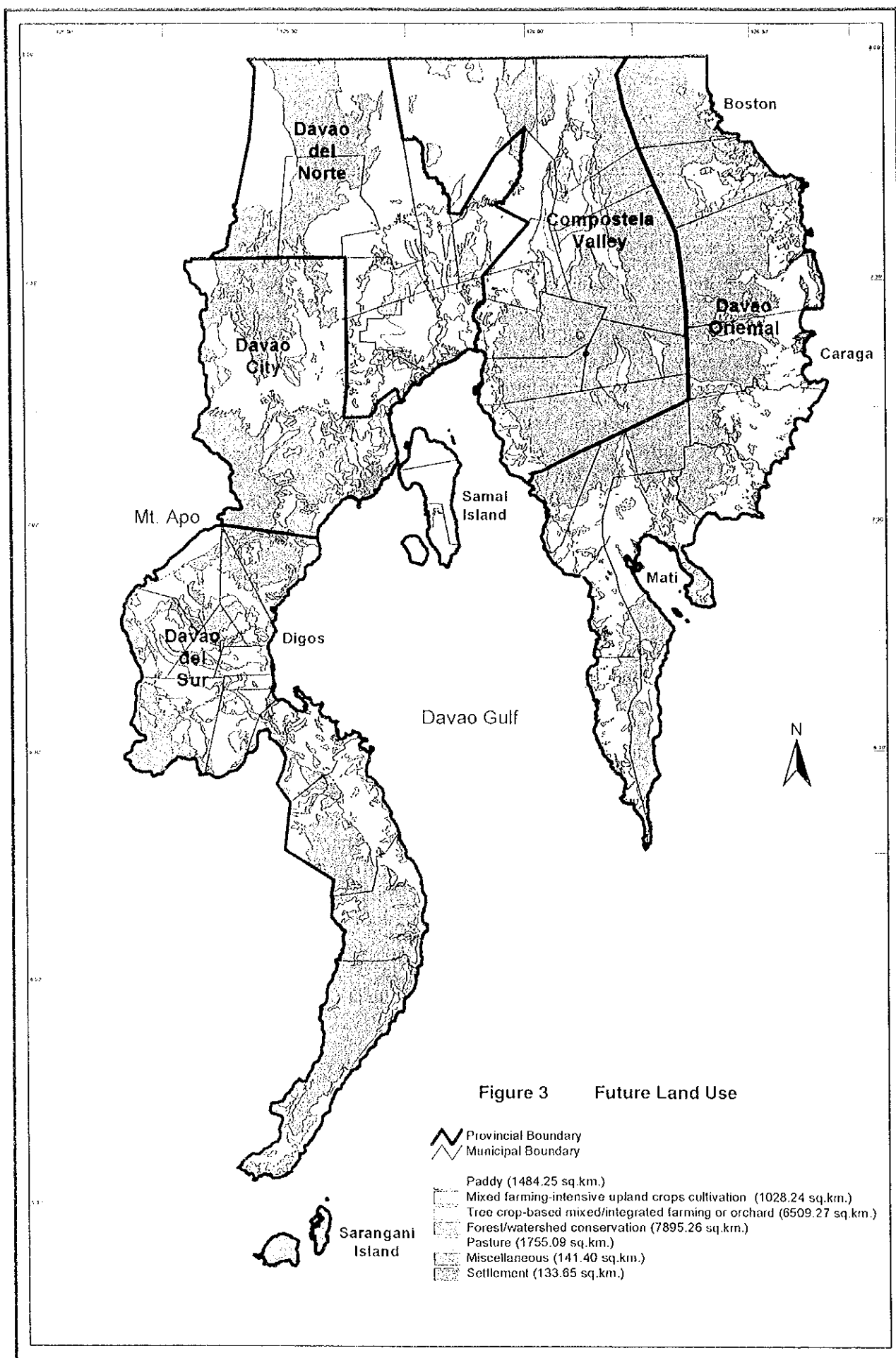
The DIDP transportation system should be strengthened in line with the DIDP strategy (Figure 5). A multi-modal transport system should be established centering around Davao City to strengthen links with neighboring regions and BIMP-EAGA, intra-provincial links strengthened to support urban cluster formation, and access to remote rural communities ensured.

## 4.3. Development Paradigm

The DIDP Area development pursues an original development paradigm by utilizing effectively unique characteristics and resources of the Area. The DIDP development paradigm is primarily to pursue agri-industrialization with diversification and outward orientation, to expand and diversify high-earning employment opportunities for the local people. The DIDP development paradigm is also to pursue amenity creation on a broad base to realize rich natural environment with high bio-diversity and mixed culture society as well as high grade urban amenities.

The DIDP development paradigm should build in good governance to be supported by the local initiative and enlarged people's participation. The DIDP development paradigm is supported by organizational unity from the top to the bottom and across all the segments of the society to allow effective cooperation between the efficient public sector and the dynamic private sector. For all of these, the DIDP development paradigm should be based on value development or human resources development oriented to value systems of the coming age and emerging societies. These concepts supporting the DIDP development paradigm are shown in Figure 6.

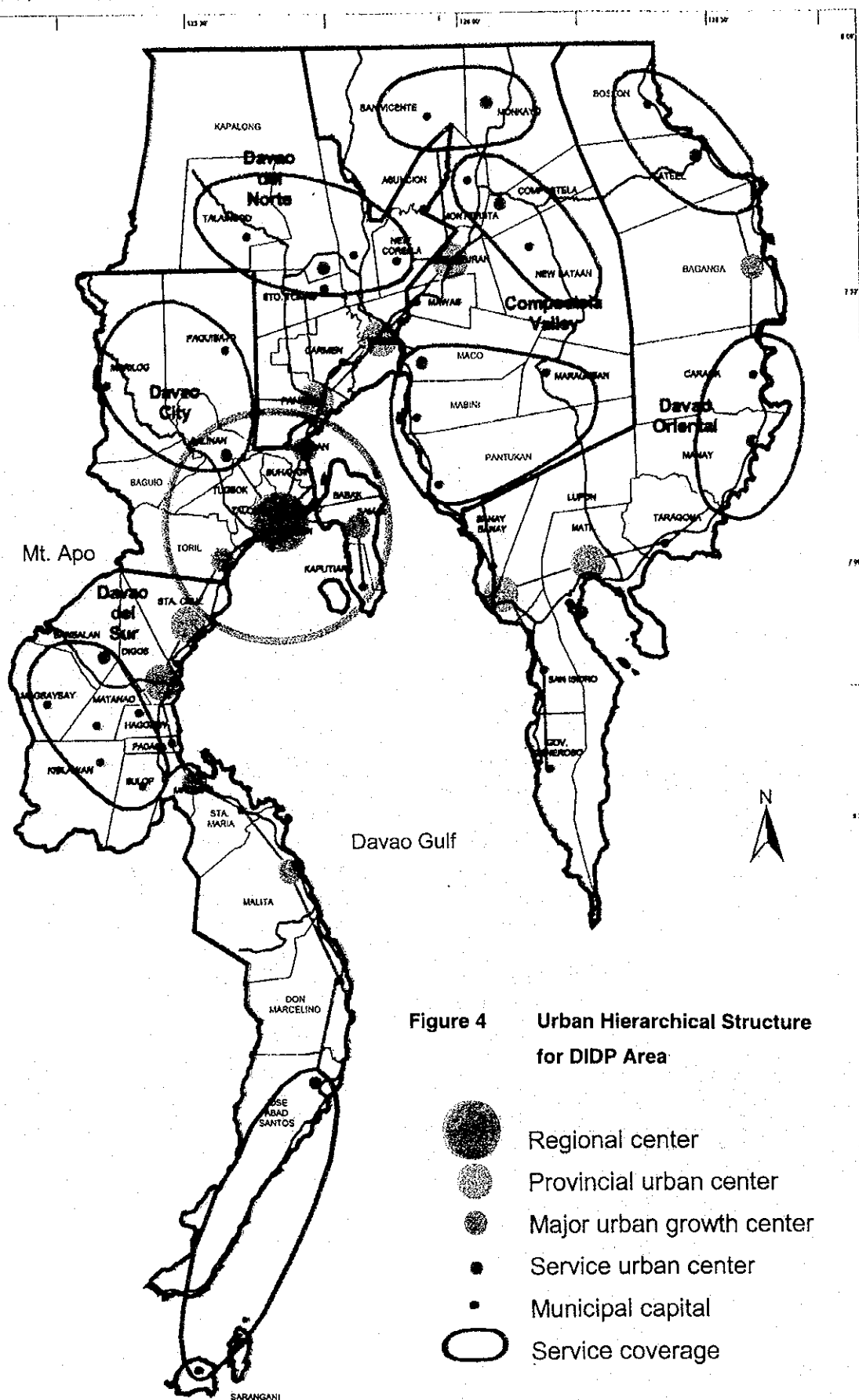




**Table 3 Hierarchical Structure of Urban Centers for DIDP Area Development**

Order Level	Name of Urban Center	Function
Regional Center	Davao City	Highly functional urban center to support regional socioeconomy, regional-agri-industrial center, international gateway of Region XI and BIMP-EAGA
Provincial Urban Center	Tagum	Administration, financial, trading, jewelry centers, Agri-industrial center, sub-regional center
	Nabunturan	New administration center, Food basket, mining center
	Digos	Administration, financial, trading, social center
	Mati	Administration, tourism, agri-industrial, trading center, educational center, mining and quarrying center
	Panabo	Agri-industrial, trading, sub-provincial center, commuters' town of Davao City
	Sta. Cruz	Agri-industrial center, commuters' town of Davao City, sub-provincial center, eco-cultural village
	Lupon	Gateway of the province, sub-provincial center
Major Urban Growth Center	Island Garden City of Samal	Tourism core, BIMP-EAGA development center
	Toril	Sub-CBD and commercial center, industrial center
	Bunawan	Agro-industrial center, trading center
	Malalag	Tourism sub-center, social development center
	Malita	Agro-industrial and trading center, social service center
	Baganga	Agri-industrial center, trading center, social center
Service Urban Center	Compostela	Agricultural center, trading sub-center, financial sub-center
	Monkayo	Agricultural sub-center
	Kapalong	Agricultural center, trading sub-center
	Maco	Trading center, commuters' town of Tagum
	Calinan	Agri-industrial center, social development center, education center
	Bansalan	Social development sub-center
	Jose Abad Santos	Social development sub-center
	Manay	Social development sub-center
	Cateel	Social development sub-center, trading sub-center
Municipal Capital	Other municipality capitals	Municipal administration center, trading and financial sub-centers

Source: JICA Study Team





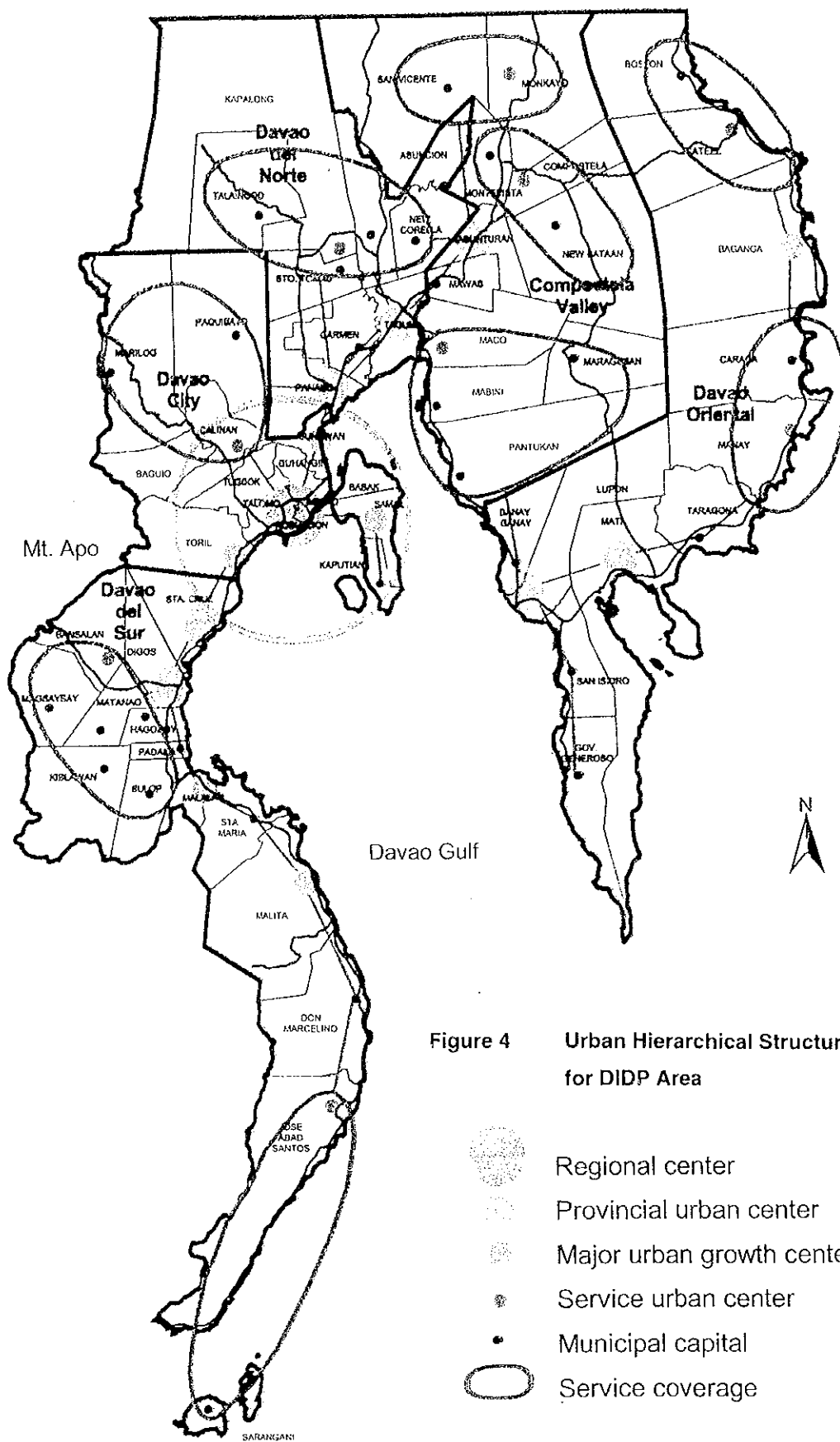
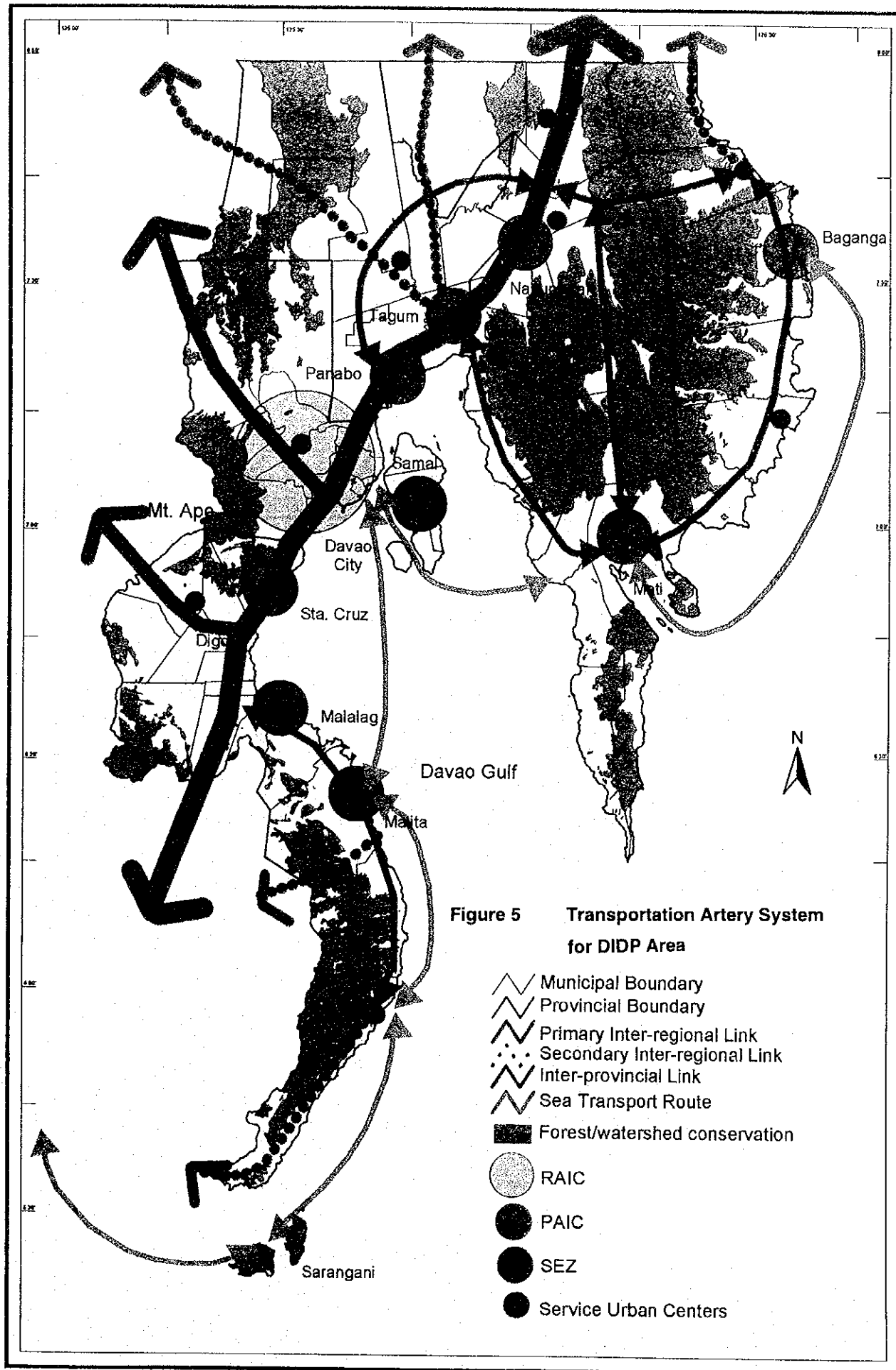
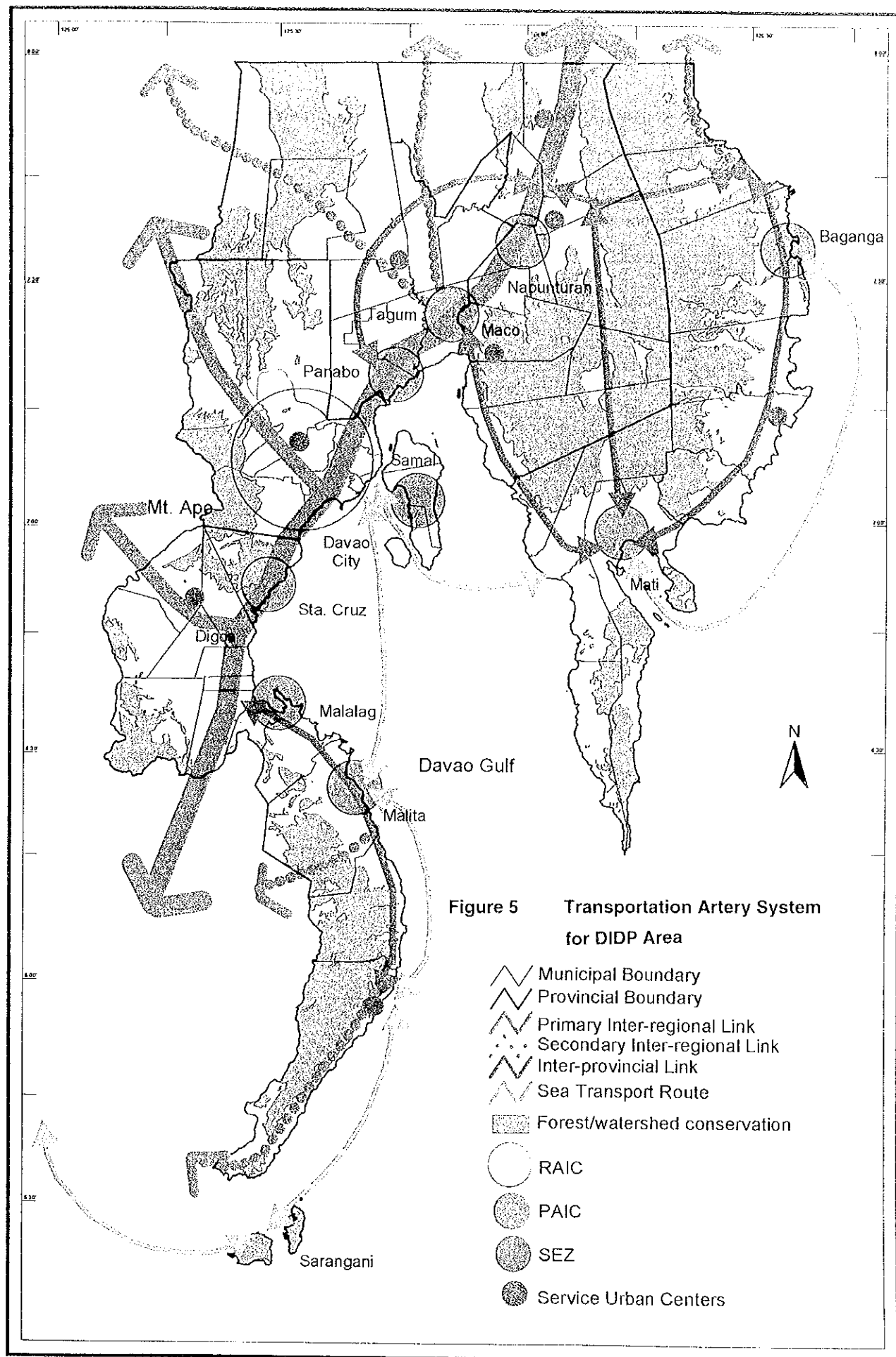
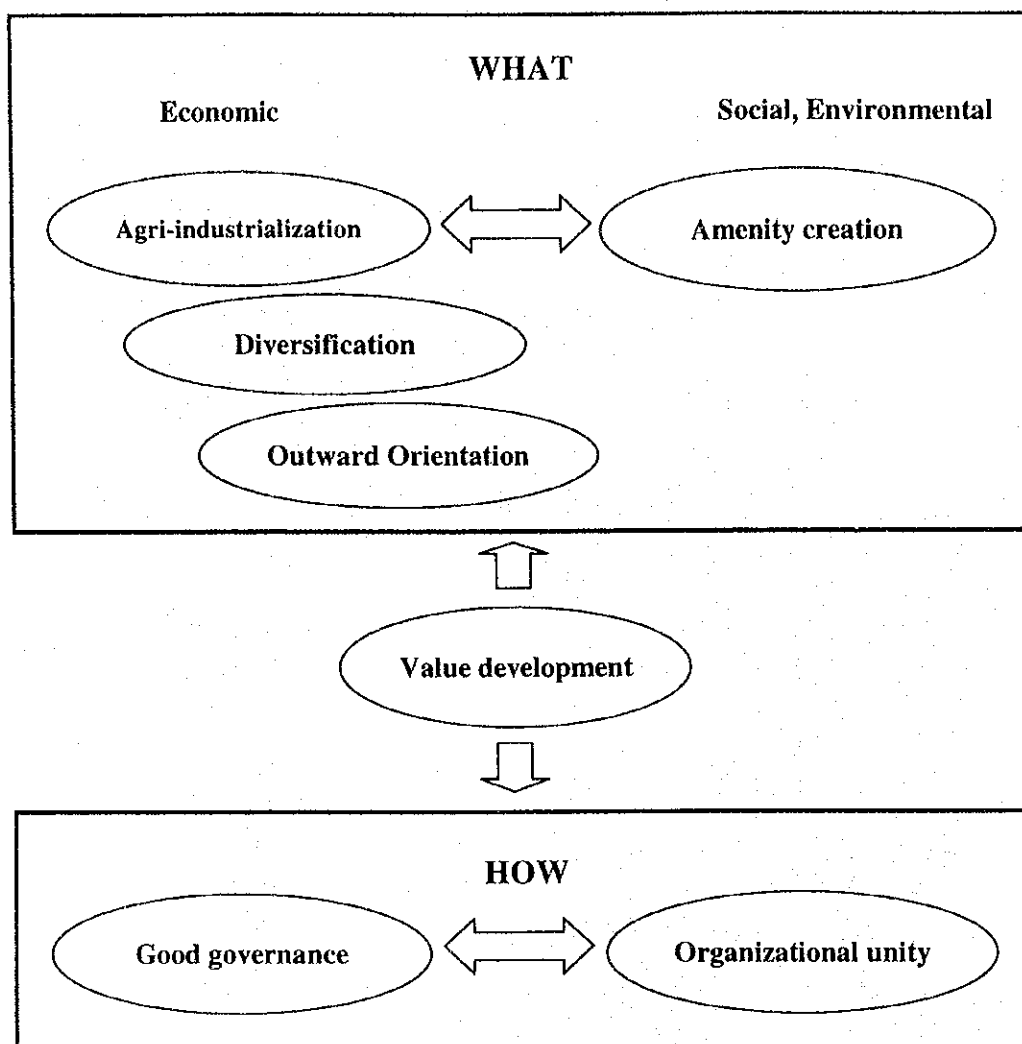


Figure 4 Urban Hierarchical Structure for DIDP Area





**Figure 6 Schematic Presentation of DIDP Development Paradigm**



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## 5. Development Objectives and Strategy by Sector

Attainment of the DIDP development objectives established in Section 3 shall be supported by appropriate developmental activities in economic, social, environmental and spatial/infrastructure sectors. Objectives by sector and sub-sector are established generally representing the economic, social and environmental aspects of the DIDP Area development. The DIDP development objectives will be attained through pursue of sector/sub-sector objectives.

### 5.1. Economic Development

#### (1) Agriculture

##### Objectives

Objectives for agricultural development in the DIDP Area are set in line with the economic, environmental and social objectives of the DIDP Area development. They are:

- 1) to contribute to agri-industrialization through expanding the raw materials base for the industrial sector as well as meeting increasing local consumption demand, and broadening employment opportunities and increasing income levels of local people,
- 2) to promote rational and sustainable land use through appropriate agricultural land use practices and management, and
- 3) to contribute to the integration of indigenous cultural communities and other socially deprived into the DIDP socioeconomy through enhancing their livelihood with viable agro-related activities.

##### Basic strategy

The basic strategy for agricultural development in the DIDP Area is established with seven components. These are mutually supportive in attaining the objectives as described below in generic terms.

#### 1) Diversification

The diversification strategy pursues crop diversification, development of alternative farming systems, and market development. Crop diversification should be promoted on the basis of competitive advantages in terms of land suitability and marketing. Tree crops should be promoted more in the DIDP Area in view of its dominantly undulating/rolling terrains and favorable climatic conditions. Alternative farming systems would promote environmentally sound farming practices and contribute to localizing agricultural value-added. Market development should take advantage of emerging opportunities offered by inter-regional and sub-regional cooperation.

In pursuing the diversification strategy, R & D and extension supports need to be strengthened. Extension would ensure effective dissemination of technical know-how to framers, and R & D would support products development and diversification of their uses.

#### 2) Market-oriented production

Entrepreneurship should be promoted among producers to allow them to capture emerging marketing opportunities. Cooperative development and training on

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business and financial management should be encouraged. Agrarian reform beneficiaries should be organized and supported by credit, guarantees and insurance, and technical extension.

A telecommunication facility that extends to centers of production areas should be installed, in addition to the existing postal system in municipalities, for timely trading of agricultural goods. A network of roads that link production areas to markets should be improved to facilitate transport of inputs from outside and produce to markets, and to minimize transportation loss of harvests. This should be coupled with construction of trading places in strategic areas.

3) Linkages strengthening with other economic sectors

Linkages between diversified agro-products and their processing should be promoted by R & D efforts for products development and improvement of processing technology. Eco-tourism or agro-ecotourism should be promoted to attract tourists by establishing orchid gardens, tourism ranches with barbecue gardens, tourism orchards and other amenity facilities.

4) Environmentally sound production practices

The agricultural sector should play a leading role in realizing sustainable environmental development, and rehabilitating degraded land. Alternative farming systems should be developed especially for upland farmers, while reforestation with valuable trees should be encouraged on denuded forest areas. Alternative farming systems include multi-storey cropping, inter-cropping, SALT, agro-pastoral, silvi-pastoral and paddy-fish integration, and home gardening.

Use of chemical substances should be rationalized to minimize environmental load by introducing integrated pest management and promoting organic farming. Locally available resources should be used such as compost, animal manure, herbal plants, trichoderma and trichograma, which will also reduce production costs. Charcoal may be used as soil amendments especially in upland areas to improve physical and biological properties of soil.

5) Cooperative development

Cooperatives are self-help organizations, and may offer viable alternatives for maintaining economies of scale after agrarian reform has distributed land of commercial farms. However, the prevailing state of cooperatives may not lend commercial operation due to poor financing and management. Thus, existing cooperatives will have to be made viable through appropriate training and financial support. Business training courses including business planning and financial management should be offered to both leaders and members of cooperatives.

The cooperatives should also be monitored in order to evaluate the effectiveness of the programs and to determine a better strategy to improve their performance. Thus, it is important that Provincial Cooperatives Development Offices (PCDOs) have comprehensive databases on cooperatives operating in their respective provinces.

Cooperative development and training on business management should be pursued to help small farmers/producers acquire inexpensive inputs and better prices for their products. Agrarian reform communities (ARCs), organizing

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agrarian reform beneficiaries (ARBs), should likewise progress into cooperatives. ARCs should be supported with appropriate credit programs since the ARBs are new entrepreneurs whose only capital is a piece of land. After the implementation of the agrarian reform in commercial farms, training cooperatives in business management would play a key role in maintaining economic scale of production.

#### 6) Strengthening of R & D and extension linkages

Agricultural R & D should be conducted by strengthening the triad linkages among universities/colleges, public research institutions and private research organizations. The R & D should focus on the following:

- processing of fruits (canned, dried, jams, juice, puree, etc.),
- processing of fiber crops (fiber treatment and products development),
- coconut product processing (coir, charcoal, oleo-chemicals, etc.),
- bio-technology for developing new orchid hybrids,
- bamboo processing (for plywood and charcoal),
- marine resources-based industries,
- market identification for fruit products,
- development of low cost feeds and feed supplements for poultry and livestock to reduce dependency on imported feeds, and
- upgrading the native variety chicken, particularly to shorten the raising period

#### 7) Strengthening of support services

**Irrigation:** Smaller irrigation schemes should, in principle, be promoted, for their viability, quick yielding, smaller initial investment cost, relatively easy operation, easier maintenance, relatively easy cost recovery, etc. Shallow tube wells (STWs) should be more developed where ample groundwater resources are found, based on a groundwater potential survey.

Irrigation for non-rice crops should be developed. Aside from gravity irrigation systems, introduction of pressurized irrigation systems, including overhead sprinkler irrigation, micro sprinkler irrigation and drip irrigation, should be adopted selectively, especially for high value crops in upland areas. For the purpose of increasing the efficiency of irrigation service, R&D for irrigation should be established, to pursue a continuing search for appropriate irrigation schemes with low cost, high water delivery efficiency and better water management.

**Rational credit program:** Vigorous growth of the countryside shall be promoted by improving access to credit by small farmers. Credit for agriculture will no longer be subsidized by the Government. Hence, efforts shall be directed towards enhancing credit-worthiness in the farming business to bring in more players from the banking sector, private and public financing institutions. Cooperatives shall be the major conduits of government lending programs for

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specific purposes. In the DIDP Area, credit programs should be formulated for the following:

- i) Acquisition and installation of STW pumps for individual farmers,
- ii) Establishment of post-harvest facilities for various crops by cooperatives that would like to engage in post-harvest processing,
- iii) Capital for tree crops planting for either individuals, cooperatives or enterprises, and
- iv) Credit line system of production credit for temporary crops (rice, corn, vegetables, etc.) to cover various input such as seed, fertilizer and pesticides.

#### DIDP strategy in agriculture

In Phase 1, renewed initiatives are taken in several fields for the Internal Integration as described:

- 1) Establishment of community-based alternative systems for production and marketing to localize value-added such as cooperative marketing of rice and copra;
- 2) Provision of integrated support services to ARCs including market information, extension, farm-to-market roads, post-harvest facilities and credit through organizing ARB's;
- 3) Environmentally sound farming systems in the upland/hillyland such as proper use of fertilizer and agro-chemicals, SALT, inter-cropping with tree crops etc.;
- 4) Improved watershed management with community participation encompassing sustainable use of forest resources, expanded application of SWIM, SRIP and other viable schemes; and
- 5) Establishment of viable technologies for simple processing of agro-products through R & D – extension linkages to encourage production of, and diversify marketing outlets for various commercial crops.

These strategies will help to improve the resource base for agri-industrialization through crop diversification, market and products development, and enhancement of land productivity. Depending on the degree of success as well as existing resources base in different areas, another set of strategies are taken for the Globalization Drive, which will be pursued at full steam during Phase 2. These strategies are:

- 1) Crop diversification in favor of export crops and other industrial crops that can be processed within the DIDP Area;
- 2) Cooperative development and training on financial and business management to strengthen the alternative marketing systems through entrepreneurship development;
- 3) Provision of market information for emerging marketing opportunities and the viable technologies for production and processing through extension;
- 4) Promotion of agro-ecotourism for international tourists; and
- 5) R & D for alternative production and processing technologies to develop high value agro-products.



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Further agricultural development under these strategies will create both specialty products that may symbolize the DIDP Area, and larger and varied demands due to high income levels. Such development may be further pursued through Phase 3 under the High Tech - High Services strategy with the following specific components:

- 1) Products development to meet new demands due to changes in dietary habits such as processed dairy and meat products, and also due to increased environmental concerns and varied social values;
- 2) Specialty/quality products to cater for demands of international tourists and high income people such as organic farming products and herbal plants;
- 3) Industrial agriculture for quality vegetables, some fruits, mushrooms and cutflowers; and
- 4) Advanced R & D to produce new agro-products such as new brand orchid.

## **(2) Fishery**

### Objectives

Objectives for DIDP fishery development are to support the economic, social and environmental objectives of the DIDP Area development as follows:

- 1) to develop further, commercial fishery, capitalizing on pelagic fish resource potentials especially in the southern offshore of Davao del Sur and Davao Oriental, and effectively utilizing the Davao Fish Port Complex (DFPC) for marketing,
- 2) to develop municipal fishery into viable economic activities through organizing small fisheries and providing support services to cooperatives, and
- 3) to strengthen aquaculture selectively based on the establishment of economic and financial viability for various schemes as well as environmental soundness to diversity income opportunities for coastal people.

### Strategy

Specific strategies for DIDP fisheries development are introduced to attain the DIDP fishery development objectives. Phase 1 for the International Integration pays particular attention to making small fisherfolks more viable and strengthening community-based management of fisheries and coastal resources. The following strategies are taken:

- 1) Organizing small fisherfolks into cooperatives and allowing them to enter into larger scale operation within expanded municipal waters,
- 2) Using newly established or revitalized fisheries cooperatives as recipients of technical extension and viable economic entities for marketing and processing,
- 3) Improving existing fisheries infrastructure selectively to support the municipal fishery,
- 4) Strengthening the DGMB for fisheries and coastal resources management with the support of LGUs, local communities and NGOs/POs, and
- 5) R & D for improving traditional fishing gears and methods and various aquaculture practices.

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Once the municipal fisheries are revitalized, they may be commercialized; some of them may produce for export under the Globalization Drive in Phase 2. More viable aquaculture practices to be established through Phase 1 may also produce for export as well as mariculture of seaweed. Prerequisites for all these activities are the establishment of resources base especially of Davao Gulf and the provision of infrastructure and R & D supports.

Therefore, the following strategies are introduced for the Globalization Drive in Phase 2:

- 1) Inter-linking the improved fisheries infrastructure with the DFPC to promote commercialization of municipal fishery,
- 2) Conducting a Davao Gulf fishery resources inventory, taking at least a few years to determine specific conditions with respect to distribution of fish species, coral reefs, seagrasses, and seabed conditions,
- 3) Upgrading existing mariculture of seaweed for quality control, products development and market diversification,
- 4) Establishing support centers for more viable aquaculture practices with fry production and distribution, extension and applied research, and
- 5) Strengthening the State College for Science and Technology for applied research as well as for training and education in the fields of marine biology, marine and coastal environmental management, fish preservation and processing, and aquaculture and mariculture technologies.

Through these fisheries practices, a solid base will be developed for some innovative/advanced practices in Phase 3 to contribute to the High Tech – High Services development under the following:

- 1) Establishing innovative mariculture practices through experimenting in the Davao Gulf areas close to the open sea, and
- 2) Upgrading the State College for Science and Technology for advanced research on marine and coastal ecosystems strengthening links with other related institutes in the DIDP Area, Mindanao and the BIMP-EAGA.

### **(3) Mining**

#### **Objectives**

The mining and quarrying in the DIDP Area should support the economic, social and environmental objectives of the DIDP Area development as follows:

- 1) to contribute to generation of employment and income opportunities for mineral developers and processors as well as mine workers,
- 2) to create lively rural socioeconomics supportive of local communities, and
- 3) to protect natural environment.

#### **Strategy**

Development strategy for the mining and quarrying in the DIDP Area is established to attain the subsector objectives spelled out above in line with the DIDP strategy composed of Internal Integration, Globalization Drive, and High Tech- High Services. In Phase 1 for the Internal Integration, the mining development in the

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DIDP Area may be pursued along two lines: (1) organizational/institutional development, and (2) inter-industry linkages development. These are pursued under the following strategies.

1) Organizational/institutional development

To make the DIDP mining and quarrying more environment-friendly and socially acceptable, as well as economically viable, management of mineral development needs to be improved. This is pursued through open information system, community involvement, and strict enforcement of relevant laws and regulations against illegal activities and mining-related pollution.

2) Inter-industry linkages development

This strategy is to promote local processing of minerals including gold, silver, marble and limestone, and also to develop forward linkages with jewelry making and trading to increase and localize value-added.

As mining activities in the DIDP Area are streamlined through the Internal Integration in Phase 1, more successful mineral developers and processors are expected to develop in two ways. First, they should develop into export business. Second, they should develop as socially more responsible entities by bearing more responsibilities for social effects of their activities. These developments should be supported in Phase 2 for the Globalization Drive as follows.

1) Establishment of export channels

Some merchandizing/marketing functions should be developed to make the mining and quarrying sector a leading sector in the BIMP-EAGA cooperation. This strategy should focus particularly on construction materials and gold/silver.

2) Responsibility enhancement of mineral developers

The Globalization Drive necessitates the application of global standards in all aspects of mineral development. Mineral developers should take responsibilities for their effects on natural environment and local communities.

Once these conditions are satisfied, the mining and quarrying in the DIDP Area will be qualified to contribute to the High Tech – High Services development in Phase 3. It is to be supported by the following strategies.

1) R & D supports

To date, there is no substantial public supports for R & D on gold processing available in the DIDP Area. To attain higher competitiveness, R & D at universities and research institutes in the DIDP Area should be geared to mineral processing technologies.

2) Integration with tourism

Mining development in the DIDP Area should contribute also to preserving and enhancing rural amenities through mining community development and landscaping in and around mining sites. Integration with tourism is a proven strategy elsewhere such as Aspen in USA and Ashio in Japan.

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#### **(4) Manufacturing**

##### Objectives

The manufacturing subsector is expected to serve as a main driving force for the DIDP Area development with the following objectives:

- 1) to offer major marketing outlets for a variety of agri-products for processing;
- 2) to generate a wide range of service activities; and
- 3) to contribute directly and indirectly to high economic growth and generation of a large number of employment opportunities.

##### Basic strategy

To attain these objectives effectively, the manufacturing subsector itself would have to be strengthened and diversified to realize robust structure of the DIDP economy. The basic strategy for the DIDP manufacturing encompasses the following elements.

- 1) Generation of new export industries or export winners not only in the local resource-based sub-sectors, but also in non resource-based sub-sectors such as footloose industries with high growth potentials, taking into account the DIDP Area's resource availability and capitalizing on emerging opportunities under the BIMP-EAGA cooperation;
- 2) Development of knowledge industries and hi-tech industries, mobilizing the DIDP Area's potential of well educated manpower;
- 3) Generation of an integrated resource recycling industry, addressing the problems of industrial wastes and localizing "would be" value-added;
- 4) Diversification by industrial clustering in specific sub-sectors like GTH or craft villages, and by introducing flagship enterprises to induce agglomeration of satellite industries;
- 5) Promotion of cooperatives toward industrial clustering;
- 6) Fostering of the first generation of industrialists with a strong entrepreneurship capable of leading other enterprises into manufacturing business;
- 7) Restructuring of the existing manufacturing sub-sector in response to the globalizing economy;
- 8) Institutionalizing more competitive investment incentives to attract foreign investors, especially into RAICs and PAICs;
- 9) Extension of a strategic marketing through the segmentation of specific markets in the Asian-Pacific region including the BIMP-EAGA sub-region, while mobilizing Inter Net; and
- 10) Strengthening and prioritizing manpower development, and public R&D supports for specific targeted growth sub-sectors.

##### DIDP strategy in manufacturing

Specific strategies for the DIDP manufacturing development are established by combining, in time and in space, the Internal Integration, the Globalization Drive, and the High Tech – High Services strategies in line with the DIDP strategy. The Internal Integration applies throughout the DIDP Area in Phase 1, as it is a sort of

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survival strategy for the DIDP economy within the globalizing free trade regime represented by the AFTA/WTO agreements. This is to be pursued along two lines: (1) productivity enhancement and market development, and (2) formation of industrial complex. Important components of these strategies are described.

1) Productivity enhancement and market development

- Enhancement of the total quality management (TQM) to meet the global standards, especially for exporting agri-processing products; to this end, an inspection system and products development are expected to be institutionalized in public R&D institutes, and manpower training should be strengthened.
- Strengthening of market information system through further database development at the computerized Regional Trade Information Service Center of DTI XI in Davao City, initiation of "By Davao and Buy Davao" movement by involving mass markets such as supermarkets, schools, firms and government offices, and creation of "regional trading corporation" as a match maker.

2) Formation of industrial complex

- Development of agri-industrial villages including cultural villages of indigenous peoples linking with tourism development, if viable; some of these projects may be a component of PAICs development; prospective products are abaca processing, integrated coconut processing, furniture, GTH including crafts, and jewelry processing, of which production could be efficient through the division of labor among enterprises.
- Development of various types of industrial estates including a resource-recycling estate (RRE) and a new industrial town; RRE aims to integrate industries that utilize wastes and by-products of other industries for complete cycle processing.

All the PAICs and other IEs should establish viable sets of industries through the Internal Integration in the form of industrial cluster or complex. Some of them are expected to pursue outward-oriented development, which will become common in Phase 2 for the Globalization Drive. The following strategies will support them.

1) Development of consolidated export base

- Establishment of a Construction Materials Merchandising Center as already proposed in the mining and quarrying sector.
- Development of additional EPZ/SEZs in Davao del Sur and Panabo in line with the PAIC initiative.
- Development of products with Davao specialty to exploit new export markets, capitalizing on local resources including mixed culture.

2) Expansion of BIMP-EAGA linkages

- Creation of a BIMP-EAGA free trade zone with the following components:
  - Institutionalization of duty-free trade of all goods,
  - Market place/merchandising center to wholesale the BIMP-EAGA local made products,

- Logistics center with processing function,
- Convention/exposition center,
- Shopping arcade and entertainment facilities,
- Hotels and guest houses, and
- Management body of FTZ.

Since the manufacturing sector is expected to lead the high growth of the DIDP economy, further steps should be taken through Phase 3 for the High Tech – High Services development. The following strategies are set for this.

#### 1) Strengthening of triad linkages for joint R & D

The strategy aims at integrating activities such as basic research, applied research, product development including prototype fabrication, production technology development, design development toward commercial production through organizing universities, public R & D institutes, and enterprises.

To this end, the government sector is expected to coordinate such linkages, and R & D functions of the partners in the DIDP Area should be strategically strengthened. In this respect, the DIDP universities are expected to put more emphasis on R & D activities. Some R & D pilot projects would be implemented by the triad linkages centering on biotechnology closely related to agri-industry, and information technology (IT) including multi-media in response to rapid informatization within the globalizing economy and the BIMP-EAGA cooperation.

#### 2) Development of high tech frontier zone

This is a combined development to spatially integrate R&D related functions along with high tech industrial location at a compound area so as to maximize efficiency of high tech development. Some universities are expected to be the core for relevant agglomeration, and high tech industries would be located by foreign investors, which could be instrumental for high tech transfer. Also, a sub-regional joint R & D center, e.g. “Tropical Biotechnology Center,” “BIMP-EAGA Informatics (IT) Center” or “BIMP-EAGA Life Science Center” is conceived along with the progress of the BIMP-EAGA cooperation. The triad linkages for high tech development would be institutionalized including an incubation system.

### (5) Tourism

#### Objectives

Tourism development in the DIDP Area should contribute to the attainment of the economic, social and environmental objectives for the DIDP Area development as follows:

- 1) to generate high-earning employment opportunities serving international tourists directly or indirectly, capitalizing on rich and diverse resources;
- 2) to serve as an integrating factor of indigenous cultures and socioeconomies into the mainstream of the DIDP Area development; and
- 3) to provide economic incentives for the protection and enhancement of natural

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environment.

#### Basic strategy

To attain these objectives effectively, the basic strategy for the DIDP tourism development is established with the following elements:

- 1) Diversification of tourism products and establishment of tourism circuits,
- 2) Local participation in tourism,
- 3) Preservation of indigenous cultures and their integration into tourism,
- 4) Development of Davao City as a major tourism gateway,
- 5) Creation of man-made attractions based on local resources and cultures,
- 6) Development and maintenance of access to nature areas,
- 7) Socio-cultural education, and
- 8) "Coopetition" (cooperation & competition) within the BIMP-EAGA.

#### DIDP strategy in tourism

Specific strategies for DIDP tourism development are derived from the basic strategy described above to support the overall DIDP strategy, which combines, in time and space, the Internal Integration, the Globalization Drive and the High Tech – High Services strategies. Phase 1 for the Internal Integration focuses mainly on establishing/improving more promising tourism resources by using domestic tourism as a main vehicle and encouraging people's participation. The following are more specific strategies for the internal integration:

- 1) Establishing domestic tourism circuits combining a few comparatively more promising tourism objects in the DIDP Area,
- 2) Encouraging local people's participation in tourism through training and IEC,
- 3) Promoting tourist attractions based on local industries and agriculture,
- 4) Preserving indigenous cultures as a means to establish identity for the DIDP tourism,
- 5) Creating man-made tourist attractions based on local resources and cultures, and
- 6) Developing and maintaining access to nature areas.

Along with the domestic tourism development in Phase 1, international tourist arrivals will increase steadily. Phase 2 for the Globalization Drive is to meet particularly increasing and varying demands of international tourism through developing/providing more varied and high grade tourism products. The following are more specific strategies for the Globalization Drive:

- 1) Establishing international tourism circuits inter-linking DIDP tourism areas with others in neighboring regions and countries,
- 2) Establishing man-made tourist attractions of international class/quality,
- 3) Integrating indigenous cultures into international tourism through craft tour, immersion/communication tour etc.,

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- 4) Improving urban amenity of Davao City catering for demands of international tourists, and
  - 5) Promoting “coopetition” with the BIMP-EAGA.

As the international tourism develops in the DIDP Area, two considerations will become increasingly more important. One is to see DIDP tourism as an integral part of BIMP-EAGA tourism marketing to the rest of the world. The other is, within this context, to maintain the identity and high image of the DIDP Area as the gateway and the center. The following strategies are valid for DIDP tourism development through Phase 3 for the High Tech – High Services development:

- 1) Strengthening marketing to sell DIDP or BIMP-EAGA brands for world-class tourist attractions based on local resources and cultures (e.g. “fly and cruise Celebes”, ethnic gourmet tour), and
- 2) Registering the Mt. Apo National Park with its sacred areas for indigenous cultures and habitat of Philippine eagles as a World Heritage.

## **5.2. Social Development**

### **(1) Social welfare**

#### Objectives

Objectives for the DIDP social welfare development are defined to support the DIDP Area development objectives. In view of the constraints identified, specific objectives are expressed as follows:

- 1) to enable the marginalized people to capture livelihood opportunities,
- 2) to provide basic socioeconomic infrastructure supports to all communities, and
- 3) to ensure basic social welfare services as part of minimum basic needs.

#### Strategy

All the constraints identified may be categorized into four classes: (1) basic infrastructure such as water, energy, roads/bridges, and resettlement/shelter, (2) social services encompassing early childhood development, disaster preparedness, IEC, institution/capability building for the disadvantaged and those in difficult situations, (3) livelihood involving women, out-of-school youth and elderly, and (4) environmental management to safeguard remaining forest cover, enhance watershed and improve waste management. Social welfare services in Phase 1 shall address to these aspects to provide a social safety net for the socially deprived under the Internal Integration strategy as a sort of survival strategy.

The DIDP strategy shall go beyond such a survival strategy. Through improved social welfare services in Phase 1, an increasing number of the socially deprived will establish their livelihood supported by improved provision of basic infrastructure, better delivery of social services, and community-based resources management. This will expand both the resource base and viable economic agents for the Globalization Drive in Phase 2. The social welfare strategy in this phase should also aim at realizing lively rural socioeconomies which represent rural amenities together with cultural diversity and rich natural environment.

To contribute to the High Tech – High Services development in Phase 3, social welfare services should take more proactive rather than reactive strategy. Instead of



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re-establishing the livelihood of those once socially deprived, the strategy aims at self-reliant human development oriented to emerging opportunities in the changing society. Early childhood development would be an important component of the strategy.

## **(2) Education**

### **Objectives**

The ultimate goal of education in any region is to produce empowered and dynamic people who would respond to changing needs for the development of the region. The DIDP Area will pursue outward-oriented development with various socioeconomic activities, capturing diverse opportunities of emerging societies.

The DIDP Area development, therefore, should be supported increasingly by more risk-taking, venture-minded and entrepreneurial people to meet challenges of fast changing societies. As a prerequisite, however, access to education at all the different levels should be improved throughout the DIDP Area so that everyone can respond to new socioeconomic opportunities in his/her own way.

Objectives for DIDP education may be expressed as follows:

- 1) to improve access to quality education at all the levels,
- 2) to generate increasingly more risk-taking, venture-minded and enterprevential people to respond to changing needs and diversifying opportunities, and
- 3) to provide advanced education and research and contribute to generation of new ideas and value.

### **Strategy**

Strategies for basic, higher and non-formal education are established to support the DIDP strategy that will shift emphasis from the Internal Integration, through the Globalization Drive to the High Tech – High Services. Basic education and literacy constitute an important part of the minimum basic needs. The imbalance in availability of basic education in urban and rural areas needs to be rectified, education performance and quality improved, and the illiteracy reduced under the Internal Integration in Phase 1. Also bias toward degrees and certificates rather than practical skills and knowledge should be rectified gradually during Phase 1 through all the levels of education.

Higher education is expected to generate a cadre of professionals with skills and technologies to meet changing and diversifying demands of the industrial sector in line with the Globalization Drive in Phase 2. Given the limited financial resources and the existence of several respectable institutions, networking among HEIs would be a viable strategy. This can be initiated early in line with the Internal Integration, but will become fully operational in Phase 2. Common research facilities may be established respectively at relevant institutions for use by students in the same fields of different colleges.

Some HEIs with common research facilities will be further upgraded to become advanced research institutes to serve other regions and BIMP-EAGA in Phase 3 for the High Tech – High Services development. Early childhood or pre-school education should be emphasized for human resources development oriented to value systems of the new age the emerging societies through Phase 3.

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### **(3) Technical and vocational education and training (TVET)**

#### Objectives

The policy framework within which TESDA operates as the lead agency of the Government in formulating and continuing technical education and skills development plans and programs are sound, relevant, doable and sustainable. The DIDP TVET will be conducted within this setting. The objective of the DIDP TVET is:

- to fast track the DIDP Area development in order to capture the internal and global markets as envisioned.

#### Strategy

To attain objective effectively, the DIDP strategy in TVET should follow the phasing of the DIDP Area development. In Phase 1 for the Internal Integration, the TVET system in the DIDP Area will have to refocus on the agriculture and fishery sectors with the view to upgrading traditional skills in order to adapt to diversifying needs (e.g. new crops/varieties, alternative farming systems, and various practices of aquaculture). Also, it will have to be made accessible to disadvantaged groups, including OSYs, women, elderly and other socially deprived.

In Phase 2 for the Globalization Drive, as the DIDP socioeconomy is exposed to expanding markets and facing diversifying opportunities, the TVET system will have to respond to changing needs of industries and emerging structure and market incentives. For this, TESDA will have to operate efficiently, internally and externally, and clients need to be duly consulted.

The High Tech – High Services strategy in Phase 3 may introduce a wide range of high earning employment opportunities associated largely with increasing foreign investments. To capture such opportunities, the TVET system will have to be oriented increasingly to high quality skills training through exchange of information world-wide and a training system open to the rest of the world.

### **(4) Health**

#### Objectives

Adequate health services constitute an important part of the minimum basic needs, and as such a necessary condition for the DIDP Area development. Health development in the DIDP Area should contribute more positively to realizing a self-reliant society consisting of healthy people interacting one another in various fields. Further, the DIDP Area should establish its fame as a center for advanced medical services. Thus, objectives of the DIDP health sector are:

- 1) to improve access to health services for all as part of the minimum basic needs,
- 2) to contribute to changing people's perception and attitude for a more self-reliant society with healthy people, and
- 3) to provide advanced medical services for a high image of the DIDP Area.

#### Strategy

The DIDP health objectives may be attained more effectively by introducing strategic elements in steps in line with the DIDP strategy. The improvement in health services in Phase 1 for the Internal Integration should address to the problems

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noted above, including the high poverty incidences, imbalance in health service provision between urban and rural areas, insufficient Main Rural Health Centers, and progressively inadequate health equipment and instruments at lower tiers in the DIDP Area. In particular, provision of health services should be improved for indigenous peoples, remote communities and deprived peoples to vitalize their livelihood and help to integrate them into the DIDP socioeconomy.

As the health services delivery is improved, people's perception and attitude toward health are expected to change. In fact, the improved health services will have to be supported increasingly by dedicated LGUs, community initiatives and self-reliant people. Health development in Phase 2 for the Globalization Drive should contribute to a dynamic and self-reliant society consisting of healthy people as a basis for active human interactions with in-migrants and visitors from other regions and countries. The number of visitors to the DIDP Area will increase as tourism establishes as an export winner under the Globalization Drive strategy. These may result in certain types of communicable diseases to increase and undesirable social habits to spread. The health sector strategy needs also to address to these problems.

Advanced medical services may be provided as existing facilities are upgraded and health personnel trained through early development. Advanced medical researches may also be established in the DIDP Area. These functions may cater to the needs not only of the DIDP Area with higher income levels but also of other regions in Mindanao or even the BIMP-EAGA countries in line with the High Tech – High Services in Phase 3. Also, use of herbal medicines and traditional medical care, if streamlined, may appeal increasingly to international visitors.

### **5.3. Environmental Development**

#### **(1) Environmental management**

##### Objectives

More specific objectives for DIDP environmental management are defined to address to the existing environmental problems identified that may become critical as the DIDP Area develops without proper management interventions. They cover the management of watershed and critical areas and resources, control of pollution and environmental health hazards, and environmental management administration as follows.

- 1) To improve the management of watershed areas that have been degrading due to fast depletion of forest resources, encroachment into protected areas by upland communities, improper land use and management especially in upland/ hillyland, and inappropriate mining activities, resulting in more serious soil erosion and land slides, more frequent and significant flooding, and larger amount of sediment yields.
- 2) To protect and improve coastal and marine resources that have been degraded due to increased sediments from upper watersheds, pollution by wastewater discharges and solid waste dumping, illegal fishing activities, and squatters.
- 3) To prevent urban pollution in larger urban centers in the face of population pressure and rapid urbanization, including solid waste dumping and littering, traffic congestion and noise pollution, air pollution, poor drainage and degrading quality of surface water and groundwater.

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- 4) To reduce the risk of environmental health hazards, represented by mercury/cyanide poisoning of mining communities and their neighbors, and chemical spraying at banana plantations.
  - 5) To increase the resources to be allocated to, and enhance the capacity for, environmental management, through human resources development, promotion of environmental awareness, increased participation of local communities, and establishment of environmental database.

### Strategy

To attain the objectives for DIDP environmental management effectively, various strategic measures should be taken in line with the DIDP strategy, which combines, in time and space, the Internal Integration, the Globalization Drive, and the High Tech – High Services strategies. Phase 1 for the Internal Integration should address to the improvement of watershed management and the protection of coastal and marine resources, which would restore the healthy resources base for sustainable development. Other components of the strategy are promotion of environmental awareness and increased participation of local communities in environmental management.

In Phase 2 for the Globalization Drive, the issue of soil erosion and degradation needs to be addressed particularly related to expansion of area under export and other industrial crops. The strategy will have to address also the issue of environmental health hazards and pollution associated with resource-based industries.

Urban pollution is an increasingly important issue to be addressed under both the Globalization Drive and the High Tech – High Services strategy. As socioeconomic activities diversify, environmental staff will need to be trained in a wider range of fields. Exchange of environmental information will become increasingly more important and far reaching as the DIDP Area development is pursued under the High Tech – High Services strategy through Phase 3. A regional or sub-regional center may be established in the DIDP Area for an international environmental databanking and network.

## **(2) Land management**

### Objectives

Land development in the DIDP Area is constrained physically by the large portion of land having large slopes, the dominance of highland/hillyland areas, and large extent of land susceptible to erosion. Some lands are already over-used by human activities. Water and land regimes are particularly interacting in the DIDP Area through human interventions as exemplified by flooding and salt water intrusion. Land use conflicts are acute between agricultural and urban/industrial uses in rapidly urbanizing areas, and also between forest protection and livelihood of upland communities. Ancestral domain claims add another dimension to the land development and management in the DIDP Area.

More important land-related issues for the overall DIDP development are identified as (1) rationalization of land use, (2) integrated land and water resources management, (3) land tenure improvement, and (4) enforcement of land-related laws and regulations. Objectives for DIDP land management are defined to support

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the economic, social and environmental objectives of the DIDP Area development. They are expressed as follows:

- 1) To preserve and enhance land productivity for land-based economic activities;
- 2) To improve land tenure of small farmers and upland communities as a prerequisite to enhancing their social conditions; and
- 3) To protect and improve natural environment through land and water resources management.

#### Strategy

The objectives for DIDP land management are pursued effectively by adopting specific strategies in steps in line with the DIDP strategy. In Phase 1 for the Internal Integration, the restoration of sustainable production capacity of land shall be undertaken. This involves more rational use of overused lands through improved land management and enforcement of land-related laws and regulations. Another component of the strategy is to improve land tenure through establishing ancestral domain claims and completing the CARP implementation.

Vitalization of livelihood of indigenous cultural communities and support to ARC's will expand and diversify the resource base, which will be an essential condition for pursuing the Globalization Drive in Phase 2. Increasingly important in this phase is resolution of land use conflicts between agricultural and urban/industrial uses through proper land use planning. High value land development will become increasingly important in Phase 3 for the High Tech – High Services development. In particular, high-grade urban land use should be realized for various services and amenity facilities through urban land use planning.

### **5.4. Spatial/Infrastructure Development**

#### **(1) Transportation**

##### Objectives

The transport system in the DIDP Area constitutes an essential part of the island-wide transportation of Mindanao linked also with the national transport system, as the Area, centering on Davao City, has been established as a trade and distribution center in the Southern Philippines. Objectives of the transportation development in the DIDP Area, therefore, are;

- 1) to establish an *Integrated Multi-Modal Transport Network* consisting of road, water and air transports linking with other regions of Mindanao and the Philippines;
- 2) to develop different modes of transport in an integrated manner to allow smooth and cost-effective transfer of people and goods; and
- 3) to integrate three levels of transportation system: international and inter-regional transportation, intra-regional transportation and, urban and rural transportation including farm-to-market roads. These three levels of transportation system should be closely linked through functional terminal facilities such as airports, seaports and bus terminals.

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### Strategy

To establish the integrated multi-modal transport network in steps under the DIDP strategy, the following need to be undertaken. The initial emphasis should be placed on linking different parts of the DIDP Area by road and shipping services in line with the Internal Integration, while selected inter-regional road sections may also be improved during Phase 1. The following constitute the Internal Integration strategy:

- to strengthen intra-regional road system,
- to improve rural access and farm-to-market roads,
- to improve urban traffic management especially for Davao City and other larger urban centers,
- to establish coastal shipping routes selectively, and
- to provide regular shipping services to remote islands.

Improved links between different parts of the DIDP Area will expand both the market and the resource base for various agro-products. To further expand the market and the resource base, inter-regional links should be strengthened with improved road system and terminal facilities. Increasing agro-products shall be exported in Phase 2 under the Globalization Drive. To increase marketing and processing capacities, urban transport system should also be strengthened. The improved road system and terminal facilities would also contribute to domestic and international tourism. Thus, the following constitute the Globalization Drive strategy:

- to strengthen inter-regional road system,
- to improve feeder ports and airport facilities, and expand shipping and air transport services,
- to strengthen urban transport system for Davao City and other larger urban centers, and
- to upgrade transport infrastructure serving international tourist attractions.

Further socioeconomic development under the High Tech – High Services strategy will increase the flow of peoples and commodities, necessitating not only the capacity expansion of transport infrastructure but also service upgrading for business travelers, international tourists and high value commodities. The following High Tech – High Services strategy may be introduced earlier for Metropolitan Davao or otherwise during Phase 3:

- to establish alternative inter-regional highways,
- to extend shipping and air transport network to neighboring countries,
- to upgrade international/inter-regional access points such as DIA and Davao Port,
- to introduce an urban rail transit system serving more advanced coastal areas, and
- to connect Samal Island with the mainland.

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## (2) Energy

### Objectives

Energy development in the DIDP Area should support the DIDP Area development in economic, social and environmental aspects. Accordingly, objectives for DIDP energy development are defined as follows:

- 1) to meet the growing demand for power to support high economic growth and rapid industrialization,
- 2) to improve living conditions in rural areas and vitalize rural socioeconomies through electrification, and
- 3) to contribute to protection of natural environment through electrification and use of new/renewable sources of energy.

### Strategy

Rural electrification constitutes important part of the Internal Integration strategy, and two pronged approach may be initiated in Phase 1. This combines the extension of transmission lines and exploration of renewable energy resources. Mobilization of LGUs alliances and NGOs in energy development is pursued and IEC should be conducted.

Renewable energy, especially solar has been proved to be financially viable in remote hilly villages. A credit program should be formulated based on the cooperative model where villages could jointly guarantee a loan for purchase of solar and other equipment. Successful investors should be allowed to sell to the grid at a price that would warrant some profits. The Government should provide guidelines for the wheeling and banking of electricity from renewable sources.

Reliable and ample power supply is an essential condition for accelerated industrialization in Phase 2 for the Globalization Drive. The private sector should be encouraged to invest in both power transmission and distribution, and power development. Incentives such as tax holidays and accelerated depreciation should be provided for the construction of transmission lines to encourage RECs or the private sector to expand or enter into the operation. The private sector should be brought in to build, operate and own a length of distribution lines to a community and allowed to charge a transmission fee through its network. Encouragement of use of energy saving device, energy efficient buildings and lighting materials, modification of motors etc. may facilitate local manufacturing of energy efficient products, contributing to the Globalization.

As a major power plant is established within the DIDP Area, an energy-industry complex may be formed with energy intensive industries. Urbanization should be guided to create critical mass of power demand to encourage the private sector in power development and supply.

Exploration of new energy sources may stimulate the High Tech – High Services development through Phase 3, including geothermal, tidal wave, OTEC, hydropower and wind energy. These renewable energy resources will become increasingly more important to achieve the full electrification by the year 2018 as envisioned by NEA.

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### (3) Water resources

#### Objectives

Proper water resources development and management constitute an essential condition for the DIDP Area development due to its topography, soil conditions and water endowment characteristics. Covering economic, social and environmental aspects, objectives for this sector may be established as follows:

- 1) to expand and stabilize water supply for rapidly increasing urban population,
- 2) to improve rural water supply and sanitation as important part of minimum basic needs, and
- 3) to optimize the use of water and related land resources as a basis for sustainable socioeconomic activities.

#### Strategy

The Internal Integration strategy calls for maximum and sustainable use of indigenous resources, for which the restoration/enhancement of watershed is a prerequisite. Given the degrading conditions of the watershed, various measures need to be combined by the integrated river basin approach to improve the upper watershed, reduce soil erosion and sedimentation, control floods, and enhance use of water resources for various purposes.

Multi-purpose dams on major rivers, if carefully located and sized, would contribute to all of these, by storing flood water for use during lean seasons and providing opportunities to improve the upper watershed. Community-based participatory approach should be initiated in Phase 1 to plan for multi-purpose dams. The approach is to ensure social and environmental concerns are reflected in the planning and the local communities are motivated to take charge of watershed improvement and effective use of water resources.

Assurance of access to potable water and sanitary toilets constitutes important part of the minimum basic needs, which is a priority in Phase 1 under the Internal Integration strategy. Given the mountainous and penninsular topography dominant in the DIDP Area and many small river basins, small water impoundments present viable options for water supply and other purposes in many rural areas.

Much increased and reliable water sources will support the expansion of water supply for larger urban centers that are expected to develop rapidly in Phase 2 under the Globalization Drive strategy. Improved urban drainage as well as flood control would also support the Globalization Drive. Another important aspect under the strategy is water pollution control. Increased water supply implies increased wastewater discharges. Treatment of domestic sewage and industrial wastewater will become increasingly an important part of the Globalization Drive strategy. As more surface water is utilized by multi-purpose dams, the groundwater regime may be improved in both quality and quantity. To avoid unexpected contamination of groundwater, however, systematic monitoring will be conducted on the quality of groundwater as well as surface water as part of the Globalization Drive.

Water demand in a few large urban centers may grow high enough by Phase 3 and further increase under the High Tech – High Services strategy. This may justify more recycling particularly of industrial water in the face of escalating water costs.



Some higher-order services may be quite demanding in terms not much of quantity but of quality and reliability of water to be supplied. Some innovative schemes may be introduced to suppress the overall demand for quality water such as use of treated sewage for irrigating greenery and flushing of toilets in coastal resorts and communities using seawater.

Sewerage systems should be improved in steps under the Globalization Drive and the High Tech-High Services strategy. Initial priorities will be given to larger urban centers and international tourism areas. Some of them will be upgraded later to accommodate the recycling of treated sewage as mentioned, while sewerage systems are expanded to other urban centers and resorts.

#### **(4) Urban and spatial system**

##### Objectives

Urban and spatial development in the DIDP Area should aim at spatially more balanced distribution of population, while effectively utilizing the primacy of Davao City within a broader context of island wide development of Mindanao and the BIMP-EAGA. Accordingly, objectives for urban and spatial development in the DIDP Area are defined as follows:

- 1) to promote more orderly urban development patterns of Davao City to make it function as a de facto capital of the BIMP-EAGA,
- 2) to decongest Davao City through strengthening and clustering secondary urban centers using the PAIC initiative,
- 3) to promote rational land use for higher productivity in rural areas and intensive land use in urban areas, and
- 4) to pursue complementary development of urban centers for cost effective delivery of social services to the entire populace.

##### Strategy

Phase 1 for the Internal Integration places emphasis on improving links between different parts of the DIDP Area. For this, farm-to-market roads should be improved and/or alternative transport means established, and small towns should be equipped with basic facilities for marketing of agro-products and simple agro-processing as well as basic social services.

As the links between different parts of the DIDP Area are improved, the resource base will expand to support processing and marketing activities in some secondary urban centers such as core urban centers of PAICs. In Phase 2 for the Globalization Drive, these urban centers will be inter-linked, and linkages with neighboring regions and BIMP-EAGA strengthened. Such inter-regional and international linkages should inevitably center on Davao City, but other secondary urban centers should be connected to the network.

In Phase 3, population and economic activities will further concentrate in Davao City and a few larger urban centers in its influence area, while all the settlements are integrated by the multi-modal transport network serving even the remotest communities. Various urban infrastructure needs to be much improved in this area to support the High Tech – High Services development, and international linkages