Chapter 3
DIDP Development
Objectives, Strategy and Scenario

3. DIDP Development Objectives, Strategy and Scenario

3.1. DIDP Development Objectives

3.1.1. Problem structure

The existing conditions of the DIDP Area are analyzed from various points of view as described in Chapter 2 to clarify characteristics of the Area. Through the analysis, some salient features and positive characteristics of the DIDP Area have been noted. Despite these, the DIDP Area faces a variety of problems, which combined would work as constraints to further development. Many of these problems are inter-related to cause various undesirable phenomena observed. A problem structure analysis is a method to clarify these inter-linkages in a macroscopic way. The analysis, usually used during the initial stage of the planning, would allow to maintain a broad perspective without getting into details to identify more important and essential factors and major problems to be alleviated through planned development efforts. The analysis is used here to define development objectives and strategy.

A problem structure analysis has been conducted for the DIDP Area. Results are illustrated in Figure 3.1 in the form of the "problem structure of the DIDP Area." In the figure, more important factors and phenomena are shown expressed in generic terms to imply many specific factors and phenomena. The figure also shows only main inter-relationships among them without referring to more specific relationships. From the figure, more fundamental factors and more important inter-relationships among various problems observed can be identified as follows.

(1) Fundamental factors

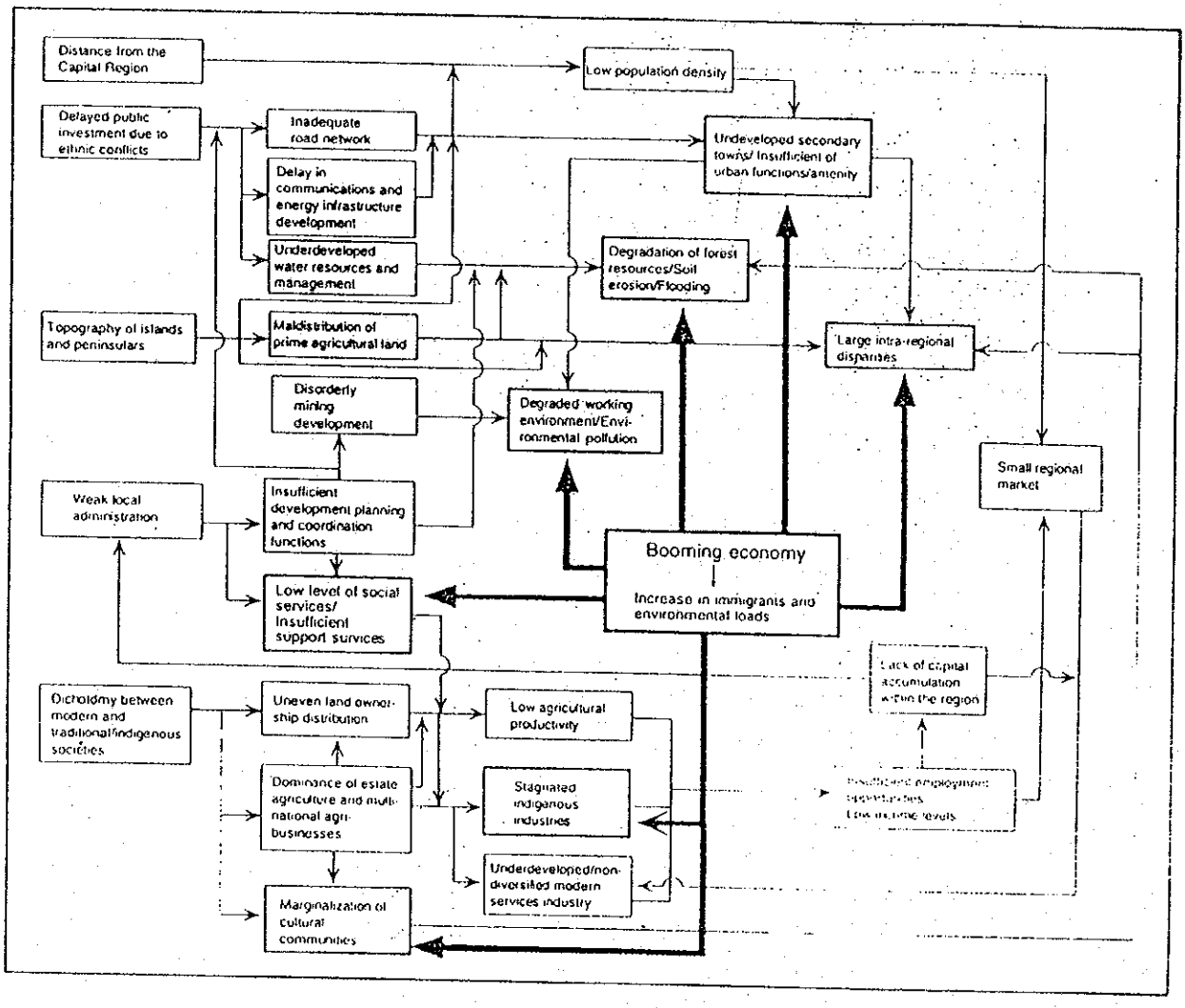
More fundamental factors have been noted, which are at the root of various problems facing the DIDP Area. They are aligned on the left side of the problem structure. Two factors are inevitable: distance from the Capital Region, and topography of rolling terrains, islands and peninsulas. The former would become less of a problem as the localization is effected and the BIMP-EAGA cooperation is substantiated. Others are institutional, if not political and socio-cultural factors having some historical bearings: delayed public investment due to ethnic conflicts, weak local administration, and dichotomy between traditional/indigenous and modern societies.

(2) Problem interactions

Effects of the delayed public investment due to ethnic conflicts appear in various aspects of infrastructure sector as shown: inadequate road network, delay in communications and energy infrastructure development, and under-developed water resources and management, among others. The dichotomy between traditional/indigenous and modern sectors takes the form of typical inter-related problems: uneven land ownership distribution, dominance of estate agriculture and multi-national agri-businesses, and marginalization of cultural communities. The inadequate road network represents another aspect of the dichotomy as many roads were developed earlier to serve plantations, while the marginalized people are often deprived of access roads (relationship not shown in the figure).

The weak local administration is a root cause for insufficient development planning and coordination functions, and in turn, generally low level of social services (health, skill development, housing etc.) and insufficient support services for economic activities (long-term credit, post-harvest facilities, R & D extension etc.). These factors combined as well as the biased ownership patterns due to the dichotomy are mainly responsible for inactive traditional/indigenous society: typically low agricultural productivity, stagnated indigenous industries, and under-developed/non-diversified services industry, causing insufficient employment opportunities and low income levels. All of these represent a set of economic problems.

Figure 3.1 Problem Structure of DIDP Area



The underdeveloped water resources and management, insufficient development planning and coordination functions and topography of islands and peninsulas as well as the marginalized people are among the factors causing inter-related environmental problems: degradation of forest resources, soil erosion and flooding. Another set of environmental problems are degraded working environment and

environmental pollution caused by disorderly mining development and rapid urbanization (water pollution, solid waste, drainage problems, soil erosion etc.).

Despite the rapid population growth in recent years, many parts of the DIDP Area are still characterized by low population density due largely to the topography of islands and peninsulas as well as the distance from the Capital Region. Combined with the inadequate road network, the Area is characterized also by undeveloped secondary towns and insufficient urban functions and amenity. These natural and urban characteristics as well as mal-distribution of prime agricultural land and the presence of the marginalized people are causing large intra-regional disparities in income levels, employment and other opportunities. This is the major social problem facing the DIDP Area.

(3) Problem structure of DIDP Area

As outlined above, 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 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. This indeed is the problem structure of the DIDP Area as illustrated in Figure 3.1.

3.1.2. Development objectives

During the first round of provincial/City workshops conducted in November 1997, existing conditions, prospects and constraints were discussed by sector. This led to the identification of development issues specific to each province/City that should be addressed in the DIDP Master Planning. These specific issues on micro aspects were examined in the light of macro perception of development conditions in the DIDP Area as a whole obtained through the problem structure analysis.

DIDP development objectives are defined based on development issues identified for the DIDP Area as a whole. The following three development objectives are defined, representing economic, environmental and social aspects.

(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 through:**

1) establishing alternative systems for production and marketing based on cooperatives or other local alliances and local initiative,

2) utilizing major agri-business and capture emerging opportunities offered by the BIMP-EAGA cooperation to establish viable economic activities linked to local economies, and

3) vitalizing the livelihood of indigenous cultural communities as well as other poor or socially deprived people;

(2) **To protect or even enhance the environmental quality in the face of rapidly increasing population and the presence of marginalized people through:**

1) effecting community-based resources and environmental management,

2) rationalizing the land use to enhance productivity and to protect the watershed, and

3) preventing/minimizing industrial pollution and soil degradation associated with resource-based industries and increased production of industrial crops; 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 through:**

1) ensuring improved access to basic health and education services as a prerequisite to vitalizing indigenous peoples and the socially deprived,

2) establishing such a social system that would be responsive to varying and changing demands, and

3) orienting human resources development to value systems of emerging societies to generate more risk-taking, venture-minded and entrepreneurial people.

Another objective is defined corresponding to additional development issues noted through the workshops related to various aspects of development administration. It is expressed as follows: to improve development administration through streamlining planning and coordinating functions for government agencies, strengthening LGUs and institutionalizing people's participation.

3.2. Alternative Strategies

3.2.1. Definition of alternative strategies

Effective development strategies may address to more fundamental factors at the root of various interacting problems. The problem structure analysis has identified as more 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-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, three alternative strategies may be conceived for the long-term development of the DIDP Area. They are defined as:

Strategy 1 : Internal integration,
Strategy 2 : Globalization drive, and
Strategy 3 : High tech – high services.

These are distinct alternatives conceptually, and it is possible to pursue development under any of these strategies in any region, subject to mobilization of various development resources. Selecting one for the DIDP Area, however, is not the idea here. These alternatives may have many common elements, and one alternative may fit better to some geographic areas while another to some other areas. Also they have different phasing implications. These alternative strategies are presented here to clarify a range of choices and to guide the formulation of the best alternative for the DIDP Area. Each strategy is described first.

(1) Internal integration strategy

This strategy pursues indigenous resources-based and domestic market-oriented development. The basic concept is to utilize indigenous resources by and for the benefit of local people, which brepresents an authentic approach to regional development.

A key for the DIDP Area to pursue this alternative is to localize value-added of various agro-industrial products, minimizing leakages to other regions. Instead of exporting fresh mangoes for processing in other regions and re-importing the products, for instance, this alternative would encourage local processing for increased value-added. Other examples include the manufacturing of sheet rubber instead of rubber semi-processing and refined coco-oil rather than raw brown oil.

This strategy naturally fits best to local conditions. It may ensure a sustainable growth, if the indigenous resources are properly managed. This alternative, however, will not always bring about a rapid growth of the economy due mainly to a limitation on availability/development of resources, typically land and water resources, and agricultural production based on them, and small domestic and local markets.

More dispersed population distribution would be realized under this strategy, as comparatively more employment opportunities may be created in rural areas and small towns by agro-processing industries and agriculture-related services as well as the primary production. Improved linkages between small towns and between rural

and urban areas would hold a key for expanding both resource base and markets to ensure viability of a wider range of economic activities.

This strategy may not be applied to the DIDP Area in its purest form. Davao City has been established as a main distribution/marketing and processing center in Mindanao. Raw materials for processing and various products for marketing already come from neighboring regions. Another notable deviation is a large coco-oil mill in Mati that procures its raw materials from as far as Luzon and produces for export to Europe. That is, some external resources-based, export market-oriented activities already exist in the DIDP Area.

(2) Globalization drive strategy

This strategy pursues external market-driven development. In its purest form, it may still be basically indigenous resources-based. Thus typical economic activities under this strategy are expansion of export crops, export drive for resource-based and labor-intensive industries, and some services such as trade, transport and communications, and private services that would grow rapidly.

This strategy may be supported also by the development of what may be called "logistics industry" with some distribution-processing centers to facilitate production and service linkages. Tourism may establish as an export winner under this alternative, including the "convention industry".

A key for the DIDP Area to pursue this strategy is to promote R & D for improvement of product quality and products development as well as to develop markets. The former may apply immediately to pottery and handicraft industries, and the latter to coco-oil and construction materials industries.

Selected secondary towns would be strengthened under this strategy as centers for resource-based and labor-intensive industries, distribution/marketing centers or tourism base. Expansion of export crops would also call for stronger and more efficient service centers to ensure proper procurement of agricultural input, provision of extension services, and marketing of products. In addition to major urban centers, this alternative would promote the development of secondary towns with specialized functions, respectively.

For both the export drive and the tourism and related services development, linkages with neighboring regions and countries would be improved in line with the globalizing economy in general and the BIMP-EAGA cooperation in particular. Economic growth under this strategy would be much higher than that under Strategy 1.

(3) High tech – high services strategy

This strategy pursues external resources/market-driven development. Industries to be introduced under this alternative would not be confined to resources-based and labor-intensive ones. More footloose type industries would be introduced, including various high tech industries.

A key for the DIDP Area to pursue this strategy is to improve various infrastructure facilities in a few selected growth centers having superior development potentials. Population would naturally concentrate in these centers. This strategy thus may entail more serious social and environmental problems.

Some higher-order services may be established under this strategy to serve neighboring regions and countries as well as local people. They may include specialized education and health services, and other services in the context of the BIMP-EAGA cooperation. The latter may include those related to cruising tourism in the Celebes Sea, management of marine and fishery resources in the common exclusive economic zones (EEZs), R & D, and a testing laboratory for construction materials as well as financial services.

Under this strategy, linkages with neighboring regions and countries would be stronger and may extend beyond the BIMP-EAGA, and the economic growth higher than under Strategy 2. This strategy would call for a higher degree of development management, as more external resources would be introduced; otherwise it may result in environmental degradation and social disruption.

3.2.2. Comparison of alternative strategies

Economic activities to be promoted are different under the alternative strategies. Typical economic activities that may be promoted under each strategy is given in Table 3.1 to further clarify the nature of each alternative. Naturally, there are many other economic activities common to all the alternatives. Assuming the DIDP Area development is pursued under each strategy, some aspects of the development under the alternative strategies can be quantified on the basis of different economic activities to be promoted under these strategies as well as common activities. Also the DIDP Area development under the alternative strategies has different implications in spatial, social and environmental aspects. These aspects are compared (Table 3.2).

(1) Economy

In the economic structure, the share of agriculture is the largest under Strategy 1 (internal integration) and the smallest under Strategy 3 (high tech – high services). The opposite is the case for the shares of services sector. The economic structure under Strategy 1 is similar to the existing economic structure of the Philippines as a whole (Table 2.5). The shares of industry are similar under the three strategies, but in absolute terms, the size of industry under Strategy 3 is 50% larger that that under Strategy 2 (globalization drive) as indicated by the GRDP index. The GRDP growth is highest under Strategy 3 (8.0% per annum), followed by Strategy 2 (6.0% per annum), and lowest under Strategy 1 (4.0% per annum).

The economic growth by sector is interpreted into employment by sector by assuming variable increase in labor productivity under the alternative strategies. Results are summarized in Table 3.3. As seen from the table, the shares of agriculture in the total employment are still considerably high under any strategy. These shares, however, are smaller than the present share of agriculture in the Philippines, while the shares of services sector are larger under any strategy than the national share at present. The share of industry is the DIDP Area exceeds the national share at present only under Strategy 3.

Table 3.1 Typical Economic Activities under Alternative Strategies

	Strategy 1 Internal Integration	Strategy 2 Globalization Drive	Strategy 3 High tech - High services
Agriculture	• Increase in productivity of existing crops • Limited inter-cropping, crop conversion etc. • Better farming practices in upland/highland	• Expansion of areas under export crops • Higher productivity and improved quality of tree crops • Rapid growth of livestock sector	• Large overall production of high value crops • Establishment of highly intensive agricultural land use • Introduction of industrial agriculture
Forestry	• Improvement of watershed through agro-forestry, social forestry etc.	• Bamboo/rattan plantations	• Plantations of hard wood trees
Fishery	• Organized municipal fishery	• Expansion of more viable aquaculture	• Mari-culture
Mining	• Higher production of existing gold/copper mining through small miners organizing • Increased production of limestone, construction materials etc.	• Expansion of non-metalic mineral resources with export quality	• Extraction of limited rare minerals
Manufacturing	• Localization of value-added of existing agro-industrial products • PAIC development based mainly on agro-processing	• Port-oriented and energy-intensive industries • Export drive for resource-based and labor-intensive industries • PAIC/RAIC based industrial clustering with strategic industries	• High tech industries such as chemical, engineering and machinery industries • Airport-oriented industries
Services	• Agriculture/rural-based services • PAIC/RAIC related services	• Rapid growth of trade, transport/communication/ storage and private services • Logistic industry with distribution/processing centers • Tourism as export winner	• Higher-order services such as advanced research/ education, health services, international tourism related services • Rapid growth of financial services

Source: JICA Study Team

(2) Population

Population growth under the alternative strategies may not vary so widely. This is because the labor productivity is expected to increase at progressively higher rates under Strategy 2 and further under Strategy 3 as reflected in employment increases (Table 3.3). Higher levels of economic growth can be attained by comparatively smaller people under Strategy 2 and Strategy 3. Still the population growth under Strategy 3 would be substantially higher (2.4% per annum) than under Strategy 2 (2.1% per annum) and Strategy 1 (2.0% per annum).

Table 3.2 Comparison of Alternative Strategies for Long-term Regional Development of DIDP Area

	Strategy 1 Internal Integration	Strategy 2 Globalization Drive	Strategy 3 High tech - High services
1 Economy			
Economic Structure (%; 2016)			
Agriculture	23.7	18.8	13.4
Industry	33.9	36.7	38.2
Services	42.2	44.5	48.4
GRDP Index (100 in 1995)	227	335	494
Economic Growth (% p.a.; 1995-2016)	4.0	6.0	8.0
2 Population			
Total Population (1,000, 2016)	5,005	5,086	5,403
Population Growth (% p.a., 1995-2016)	2.04	2.12	2.42
3 Spatial Development	• More dispersed population distribution • Linkages between small towns and between rural and urban areas	• Stronger secondary urban centers with specialized functions • Linkages with neighboring regions and BIMP-EAGA	• Concentration in a few larger urban centers • Stronger linkages with BIMP-EAGA and beyond
4 Social Implications	• Revitalization of indigenous peoples and their integration into DIDP	• Human resources development with outward oriented value development	• Large employment opportunities in various services • Possible social problems due to population pressure and in-migrants
5 Environmental Implications	• Minimal or manageable effects on environment	• Possible soil degradation due to expansion of export crops • Possible pollution by resource-based industries	• Possible urban pollution due to population pressure • Rural environmental problems due to neglect

Source: JICA Study Team

Table 3.3 Employment under Alternative Strategies

	Employment (1,000 ; % in parentheses)						
		2016					
		Strategies					
	1995	1		2		3	
Agriculture	636.1	784	(41.8)	748	(37.4)	784	(33.6)
Industry	123.4	273	(14.6)	322	(16.1)	447	(19.2)
Services	456.8	817	(43.6)	932	(46.6)	1,103	(47.3)
Total	**1,216.2**	**1,874**	**(100)**	**2,002**	**(100)**	**2,334**	**(100)**

Source: Estimate (1995) and projections (2016) by JICA Study Team

Strategy 1 may support larger rural population as comparatively more employment opportunities will be generated in rural areas. Urbanization under Strategy 2 is supported by the growth of secondary urban centers developing respectively specialized functions. More rapid urbanization under Strategy 3 is due primarily to concentration of population in a few larger urban centers. These patterns of variable population growth under the alternative strategies are reflected in the projected urban and rural populations shown in Table 3.4.

Table 3.4 Urban and Rural Population under Alternative Strategies

		2016 Strategies		
	1995	1	2	3
Urban Population (1,000)	1,381	2,583	2,887	3,196
Rural Population (1,000)	1,908	2,422	2,199	2,210
Urbanization ratio (%)	42	52	57	59
Population growth (% p.a.) 1995-2016				
Urban	-	3.03	3.57	4.07
Rural	-	1.20	0.67	0.68

Source: NSO (1995), projections (2016) by JICA Study Team

(3) Spatial dimension

Under Strategy 1, rural communities are linked to small towns in respective vicinities for marketing/processing of their agro-products and provision of various services. Under Strategy 2, secondary urban centers will become comparatively more important with specialized functions respectively. These functions may include centers for resource-based and labor-intensive industries, distribution/ marketing and related service centers, or base for tourism with associated urban services. To support these functions, inter-regional linkages need to be strengthened. To expand resource bases and/or tourism markets, some linkages will be expanded to the BIMP-EAGA.

Strategy 3 will encourage the population concentration in Davao City and at most a few more large urban centers. From these centers, stronger linkages will be established with the BIMP-EAGA, which may go beyond these neighboring countries. Port and airport facilities need to be much upgraded as access points for such international linkages to support this strategy.

(4) Social aspects

A social implication of Strategy 1 may be the integration of indigenous cultural communities and other minorities into the DIDP socioeconomy. This should not be the assimilation of IPs nor disintegration of their cultures and communities. A prerequisite in pursuing this strategy, therefore, is the re-vitalization of livelihood of IPs and other minorities. For this, in turn, this strategy will provide for basic health and education services as well as access to market places.

Strategy 2 will call for more human resources development with outward-oriented value development, as it will be supported by more risk-taking, venture-minded and entrepreneurial people. Skills development and more demand-driven training system will support this strategy.

Under Strategy 3, large number of employment opportunities are expected to be generated in high tech industries and various services. Resultant high growth of population and its concentration in a few major urban centers may cause some social problems such as disintegration of traditional cultures and family value. Also some communicable and other new types of diseases may spread due to increasing in-migrants. Value development and advanced social services will be components of this strategy to deal with these potential social problems.

(5) Environmental aspects

Under Strategy 1, indigenous resources will be utilized by and for the benefit of local people and communities. If successfully operated, therefore, environmental effects of this strategy will be manageable, if not negligible. As a prerequisite, however, sustainable capacity of environment needs to be restored under this alternative through proper watershed management.

Expansion of export crops under Strategy 2 may involve some environmental problems such as soil degradation. Proper land use and management with land use rationalization and alternative farming technologies as well as proper use of fertilizer and agro-chemicals will constitute important components of this strategy. Development of some resource-based industries under this strategy may cause industrial pollution, which needs to be addressed as well.

The high population pressure under Strategy 3 may cause a range of environmental problems in urban areas such as water pollution, solid waste dumping and littering, noise and air pollution, and squattering. Solving these problems will require large development resources to be invested in larger urban areas, which may result in the neglect of rural environment.

3.3. DIDP Strategy

The three alternative strategies have been presented to clarify the range of choices and options for the DIDP Area development. One strategy may fit better to some areas, while another to some other areas. One strategy may be pursued more easily in the short to the medium terms, while another may not be applied fully during initial phases.

The DIDP strategy is to combine favorable elements of 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.

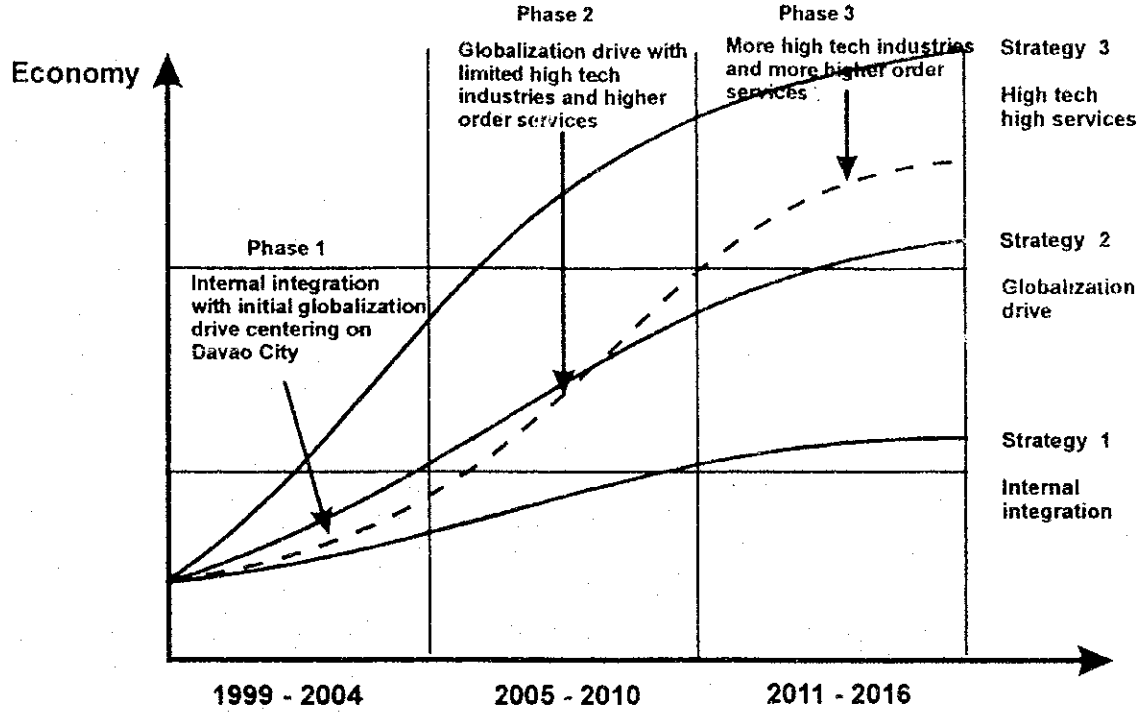
PAIC/RAIC development will become increasingly based on related industries and services rather than agro-processing. Related industries may include chemical industries based on coconut-derived oleo-chemicals and charcoal, and essential oils derived from castor beans, cashew and herbal plants, engineering, 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 3.2. The more specific scenario for this development is described in the next section.

Figure 3.2 Schematic Presentation of DIDP Area Development under Alternative Strategies



3.4. Development Scenario with Phasing

The DIDP strategy is to combine in time and space favorable elements of the three strategies: internal integration, globalization drive, and high tech – high services. This strategy will realize the DIDP Area development by shifting emphasis on different strategic elements along with step-wise expansion of resource capacities and institutional development.

Sequence of activities to develop and events to take place over the planning period are described here by phase as the development scenario for the DIDP Area. The planning period is divided into three phases of six years each: Phase 1 for 1999-2004, Phase 2 for 2005-2010, and Phase 3 for 2011-2016. Expected performance of the DIDP Area in each phase is described.

3.4.1. Phase 1: 1999-2004

(1) Overview

The DIDP Area development during this phase would be undertaken largely under Strategy 1: internal integration. More indigenous resources would be processed in the DIDP Area and various agro-industrial products and business interactions handled by local establishments to localize value-added. At the same time, selected elements of the other two strategies would be injected in some areas to generate additional employment opportunities, diversifying and adding depth to the DIDP economy.

Renewed efforts would be made to protect/enhance social value and environmental quality. A key for this is initiative by LGUs and local communities supported also

by the policy and commitment by the Government. Awarding of Certificates of Ancestral Domain Claim (CADC) should be accompanied with proper management of CADC areas to enhance the livelihood of indigenous cultural communities as a prerequisite to the restoration of their social values. Restoration of the degrading watershed calls for more comprehensive approach taking each river basin in its entirety from the upstream down to the coastal area.

Institutional development also characterizes the DIDP development during this phase. Of utmost importance is capacity building of LGUs for development planning and management to be supported by new institutional mechanism for people's participation. Existing incentive measures for the private sector would be consolidated and streamlined into a more competitive package of measures. New types of development management may be experimented for small designated areas with public-private partnership in the form of development corporation or the like.

(2) Socioeconomy

Agricultural productivity in existing farmland would be enhanced without expansion of farmland. This may take the form of limited conversion of existing cultivated area to high value crops such as vegetables and some pulses under inter-cropping/mixed farming and/or improved management of existing tree crops. In particular, coconut use would be expanded and abaca may start to be revitalized. Initial efforts would be made to expand cattle breeding and to strengthen dairy industry. Existing mariculture for seaweed will be improved for product quality.

People's organizing would be conducted extensively at various fronts. Farmers organizing as part of support to agrarian reform communities may represent an effort to establish alternative systems for production and marketing. Fisherfolks organizing would be a prerequisite to making municipal fisheries more viable. Indigenous peoples organizing should be emphasized as an essential condition for granting certificates of ancestral domain and land claims.

Some existing industries especially in Davao City will be modernized. Urban renewal with relocation of industries may offer opportunities for this, supported by incentive measures for relocation and modernization.

A few major processing industries may be additionally established based on indigenous resources such as coconut, bamboo/rattan, abaca and non-metallic minerals. Resource base would be selectively improved/expanded to ensure the viability of the new processing industries. More industries would produce for final products rather than semi-processing. Port-oriented and energy-intensive industries will establish in Davao City and a few other locations.

Most PAICs would establish some viable activities through concerted marketing and promotion such as ecotourism, handicraft, GTH and business services as well as agro-processing. A few of them may start to develop as new communities rather than just industrial areas.

Some service establishments may spin out of major agri-businesses such as transport, distribution and export services. Some more viable services would establish associated with the alternative farming and marketing systems, the new processing industries, and PAICs development. Improvement of marketing

facilities, telecommunications, roads and other infrastructure facilities will support the growth of these services.

New types of service activities may emerge to a limited extent. Initial efforts may be made to establish general trading houses possibly by private-public partnership. Financial services will expand steadily to cover long-term credits and equity finance, and credits for small holders will increase. Various forms of community-based health services will develop, and a few education/research institutes will upgrade their facilities and services to address needs in other regions as well. To enhance overall levels of higher education with limited resources, common facilities may be established at specialized institutes for use through a network by students of same fields in other institutes.

(3) Spatial development

Access to rural areas will be much improved during this phase. To realize this with limited resources, a new rural road improvement program may be launched by which self-help efforts by rural communities to improve rural roads would be supported by skills training and provision of simple equipment and tools.

Links between service urban centers and productive rural areas will be selectively strengthened during this phase as well as intra-regional artery roads.. This would ensure viability of a wider range of economic activities by expanding both resource base and markets. A few key inter-regional links with neighboring regions will also be improved. Links with the BIMP-EAGA will be initially on an ad hoc basis for specific activities, but institutionalized in steps.

Davao City's functions as a marketing/distribution and processing center will be strengthened with improved urban infrastructure and links with neighboring areas. The City will serve also as a tourism gateway. Efforts to improve urban amenities of the City will be initiated such as solid waste management, urban drainage and traffic management.

The Tagum-Panabo area will start to evolve into a development corridor. Rapid urbanization will take place also around Sta. Cruz. Alternative links between provinces and between Davao City and provinces will be established.

3.4.2. Phase 2: 2005-2010

(1) Overview

During this phase, the globalization drive would accelerate under Strategy 2, starting from Davao City, spreading to other secondary towns. Human resources development with value development would take place actively to introduce innovations in all the sectors. It would be supported mainly by the private sector. Active private investments would be directed also to some infrastructure facilities.

Livelihood of indigenous peoples would be revitalized, and some of them would establish as viable economic agents. Enhanced livelihood of indigenous cultural communities would expand opportunities to restore and preserve their cultures with their own initiative. The comprehensive river basin approach to watershed management, initiated during Phase 1, would involve all the communities in respective basins supported by concerned municipalities coordinating each other. A basin council may be established for the purpose with the participation of

indigenous cultural communities with claimed ancestral domains and NGOs supporting them as well.

Incentive measures would be further sharpened especially for export drive of resource-based and labor-intensive industries to establish export winners. Of those development corporations or the like established in Phase 1, the most successful may be fully privatized. At the same time, a genuine regional development authority may be established with local initiatives to have jurisdiction for the entire DIDP Area.

(2) Socioeconomy

A variety of industrial crops will be established/strengthened under mixed/multi-storey/integrated farming. Areas under export crops and other crops to be processed within the DIDP Area will expand significantly. The abaca industry will be fully revitalized, and the coconut industry diversified.

This phase may observe the boosting of the livestock sub-sector based on improved breed and feed base to be realized through Phase 1. Cattle breeding will become common, and the dairy industry will be fully established. More viable aquaculture will be established through experiments. Various forms of mariculture may also be experimented.

Alternative systems for production and marketing will expand along with farmers organizing into cooperatives. Alternative systems may establish even for processing of some agro-products. Export drives will take place for various resource-based and labor-intensive industries such as ceramics, handicraft, construction materials, coco-products and other PAIC/RAIC-derived manufactured goods. More footloose industries will establish in Davao City and a few other urban centers such as electronics, garments and other assembly type industries.

New strategic industries will establish based on indigenous resources such as jewelry industry, confectionery industry, abaca products and industrial oils. Some of these and other industries will form industrial clusters of related industries within PAICs/RAICs. One form of industrial clustering may be a set of inter-related industries to be established in steps to utilize by-products and to minimize wastes for a sort of complete cycle processing. Combined development between a major power plant and energy-intensive industries such as oil refinery and cement industry may also take place during this phase.

This phase will observe rapid growth of trade, transport/communications/storage, and private services sub-sectors. These service activities will support the establishment of new agro-processing, expansion of export and footloose industries, development of industrial clusters and other related businesses. A sort of logistics industry will develop with distribution-processing centers to meet emerging needs from the BIMP-EAGA cooperation and the globalizing economy.

Tourism will develop as an export winner, including the "convention industry". "Fly and cruise" tourism in the Celebes Sea may also establish during this phase.

(3) Spatial development

Links with neighboring regions will become much stronger during this phase. This means, on the one hand, more agro-industrial products produced in other regions

will find marketing outlets and more raw materials will be processed in the DIDP Area, and on the other, more products including consumer goods produced in the DIDP Area will be marketed in other regions. Air links and sea lanes will be established linking DIDP cities with selected locations of the BIMP-EAGA as well as other towns in Mindanao. A prerequisite is, of course, to improve port and airport facilities in the DIDP Area selectively.

Davao City may establish as the "trade capital" of the BIMP-EAGA, forerunning the more outward-oriented development expected under Strategy 3: high tech - high services. In addition, some secondary towns will be strengthened as centers for resource-based and labor-intensive industries, distribution/marketing centers, or tourism base. PAIC centers are reasonable candidates for such towns. With these urban centers at higher tiers, the urban hierarchy will be established with clear functional division.

Alternative intra-regional links will be strengthened combining roads and sea lanes with rapid passenger ferry services. The improved road links will be completed between Compostela Valley and Davao Oriental, and Compostela Valley and Davao del Norte. Improved connection between the mainland and the Samal Island will be studied in detail based on the development through this phase for possible implementation subsequently.

3.4.3. Phase 3: 2011-2016

(1) Overview

Some high tech industries will be introduced and some more higher-order services established in this phase under Strategy 3: high tech - high services. Some high quality amenity facilities will be provided in Davao City and a few other urban centers. By the end of this phase, the DIDP Area would be characterized among others by a mixed culture society (cultural amenities) and a well-preserved environment with bio-diversity (natural amenities).

The active private sector will be the prime engine of development in every field supported by LGUs. More areas will be under development management by the private sector coordinated by the DIDP Area development authority, which may take lead in the BIMP-EAGA cooperation as well.

(2) Socioeconomy

Overall production of high value crops will be much larger to meet demands due to higher income levels. Agro-products will diversify through continual product development, including processed dairy and meat products. The DIDP Area will be a center for abaca and coconut industries producing a wide range of final products, respectively.

Alternative systems for production, processing and marketing will be well established for various agro-products. More post-harvest facilities will be owned, managed and operated by organized farmers. These activities will extend further to self-financing for investments into land productivity enhancement as well as joint procurement of agricultural input.

Larger scale municipal fisheries will be fully established as sustainable and viable economic activities, which may expand into aqua-processing as well. Some

aquaculture and mariculture experimented during Phase 2 will become commercially successful.

Triad linkages for joint R & D will support the increasing number of high tech industries. Focus may be on biotechnology related to agri-industry and information technology including multi-media responding to globalizing information society.

More local industries will become viable economic entities with linkages established with the high tech and some footloose industries. Industrial clustering and complete cycle processing will further develop for other sub-sectors.

In addition to those services sub-sectors developed rapidly during Phase 2, the financial services sub-sector will grow fast, including offshore banking operations. More higher-order services will establish to provide services to the BIMP-EAGA and other regions as well as local people. They may include basic research in marine science and biotechnology, applied R & D to support high tech industrialization, advanced medical services, and information center for fashion, design and cultures. Also the DIDP Area will acquire high reputation as a center for international tourism linked with the BIMP-EAGA.

(3) Spatial development

Linkages with neighboring regions and countries will be further strengthened. The Davao alternate international airport will be upgraded into a full status international airport. To complement the port facilities at Sasa Wharf that will be continually upgraded, a new container port will establish in Panabo. At least one more airport and a few more ports would be upgraded to support the inter-regional air services network and sea lanes.

Davao City will become the full status capital of the BIMP-EAGA, linked by air services to major cities in the Asia-Pacific region. Secondary urban centers will complement Davao City with specialized functions, respectively. Service urban centers will be much strengthened to serve respective rural hinterland, including the remotest areas.

All the communities in the DIDP Area would be served by at least two different modes of transportation within the multi-modal transport system. Sea-lanes and emergency transport network with helicopters may constitute an important part of the system for remotest communities. The improved connection between the mainland and the Samal Island may be completed by the end of this phase.

Chapter 4
DIDP Development Frameworks

4. DIDP Development Frameworks

The DIDP strategy has been defined in Section 3.3 by combining favorable elements of the three alternative strategies in time and space, while shifting emphasis from the internal integration strategy in Phase 1, through the globalization drive strategy in Phase 2, and to the high-tech high services strategy in Phase 3. The DIDP Area development under such strategy has been spelled out in Section 3.4 as the development scenario, describing a sequence of activities to develop and events to take place through the three phases in different aspects including development administration, socioeconomy and spatial development.

Specific measures, i.e. development projects/programs and institutional measures, to realize the DIDP Area development are formulated to substantiate the DIDP development scenario. To guide the formulation of development projects/programs and institutional measures, development frameworks are defined in this chapter.

A socioeconomic framework is worked out to specify the expected level of the DIDP Area development in the target year of 2016 by a set of socioeconomic indices. A spatial framework is established to specify the expected physical structure of the DIDP Area development by distribution of settlements, transportation network, and land use.

The DIDP Area development paradigm is defined as a conceptual framework to guide the formulation of development projects/programs and institutional measures. The development paradigm characterizes the uniqueness of the DIDP Area development that will become more pronounced through the planned development. Also, the existing development administration in the Philippines and the DIDP Area is reviewed to set an institutional framework for the DIDP Area development..

4.1. Socioeconomic Framework

(1) DIDP economy in 2016

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, 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, probably those environmentally friendly and having favorable social effects. The DIDP economy is projected to the year 2016 under these conditions.

Agricultural development in the DIDP Area should attain the performance level expected under Strategy 2, which in fact comprise all the activities expected under Strategy 1 as spelled out in section 2.2. In addition, production of high value crops and livestock products may be larger to meet larger demands due to higher income levels. Therefore, an intermediate growth rate of 2.9% per annum is assumed between the growth rates under Strategy 2 and Strategy 3.

Value-added in the mining and quarrying sub-sector in 2016 is the same under the three alternatives, which is assumed also for the DIDP alternative. Value added in the utilities and the construction sub-sectors are the same as the respective value added under Strategy 2. For the manufacturing sub-sector, only a portion of the

high tech industries expected to be introduced under Strategy 3 is assumed to be realized under the DIDP strategy. As a result, the industrial value added is expected to increase at 8.5% per annum, slightly higher than the rate under Strategy 2 but much lower that the rate under Strategy 3.

The services sector will grow also at a higher rate to serve the additional agricultural and industrial activities. More importantly, additional higher-order service activities will be established in line with Strategy 3. As a whole, the average annual growth of 7.5% is assumed for the services sector to the year 2016.

Accordingly, the DIDP economy is expected to grow as summarized in Table 4.1. The GRDP will increase from ₱87,967 million in 1995 (in 1995 constant prices) to ₱338,347 million in 2016 at 6.6% per annum.

Table 4.1 Projection of DIDP Economy, 1995-2016

	GRDP(₱ million)				GRDP growth (% p.a.)
	1995		2016		1995-2016
Agriculture	31,104	(35.4%)	56,694	(16.8%)	2.9
Industry	22,306	(25.4%)	123,849	(36.6%)	8.5
Mining & quarrying	1,390		2,586		3.0
Utilities	428		4,865		12.3
Construction	5,170		28,125		8.4
Manufacturing	15,318		88,183		8.7
Services	34,587	(39.3%)	157,804	(46.6%)	7.5
Total	**87,967**		**338,347**		**6.6**

Source: JICA Study Team

(2) DIDP employment and population in 2016

Labor productivity is expected to increase under the DIDP strategy to reach a level higher than that expected under Strategy 2 but lower than under Strategy 3. This is reflected also in population increase. Employment by sector and population in the DIDP Area in 2016 as projected are summarized in Table 4.2.

Employment by sector is converted to urban and rural population. Population will not be as concentrated in a few larger urban centers as is the case under Strategy 3 nor as dispersed as is the case under Strategy 1. Projected urban and rural population is shown in Table 4.3

Table 4.2 Projected Employment and Population in DIDP Area, 2016

	GRDP (₱ million)	GRDP/ employment (₱ thousand)	Employment (thousand)	Labor Force (thousand)	Population (thousand)
Agriculture	56,694	74	766	-	-
Industry	123,849	340	364	-	-
Services	157,804	170	928	-	-
Total	**338,347**	**-**	**2,058**	**2,144**	**5,045**

Source: JICA Study Team

Table 4.3 Projection of Urban and Rural Population, 1995-2016

			Growth rate (% p.a.)
	1995	2016	1995-2016
Population (1,000)	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 ratio (%)	41.6	57.1	-

Source: JICA Study Team

4.2. Spatial Framework

Spatial development of any region is affected by various factors such as resource endowments, existing infrastructure facilities, existing distribution of population and economic wealth, and other physical and socio-cultural factors as well as policy interventions. Three most dominant factors, that are more directly subject to planned development, are (1) distribution of settlements (points or nodes), (2) transportation network (lines or areas), and (3) land use and potential (area or planed). A spatial framework for the DIDP regional development is prescribed with respect to these factors.

4.2.1. DIDP strategy for spatial development

(1) Existing spatial structure of DIDP Area

Existing spatial structure of the DIDP Area is characterized by prominent features of land, transport system and settlement system as follows.

Land

1) Islands, peninsular and rolling topography as a factor for poor access to remote areas,
2) Undulating and mountainous terrains dominating with limited lowland of high agricultural productivity, and
3) Degrading upper watershed areas due to "kaingin" and other improper land use and management practices.

Transport system

1) Only one artery passing through the Area with limited access points from outside,
2) Inadequate road system with network deficiencies and poor surface conditions,
3) Poor rural access, and
4) Undeveloped sea lanes and air services.

Settlement system

1) Primacy of Davao City and lack of any other sizeable urban centers,
2) Enclave type traditional communities without integration into larger socioeconomies, and
3) Strengthening alliance of neighboring municipalities by the PAIC initiative.

(2) DIDP strategy

The DIDP strategy combines in time and space the three alternative strategies: internal integration, globalization drive, and high tech – high services. Given the indisputable primacy of Davao City, more specific strategies need to be taken under globalization drive and high tech – high services for improving the spatial structure of the DIDP Area to improve efficiency of economic interactions and services delivery as follows:

1) Strengthening of urban functions of Davao City within the context of complementary functional division between major urban centers in Mindanao; and

2) Establishment of a multi-modal transport system centering around Davao City in relation to the Mindanao artery network and the BIMP-EAGA transportation system, comprising the establishment of local air network, strengthening of sea lanes, and introduction of new modes of transport as well as further improvement of road network.

For more balanced spatial development of the DIDP Area, secondary towns should be strengthened under the globalization drive strategy, taking advantage of the PAIC initiative. A specific strategy is the following:

3) Development of secondary urban centers next to Davao City through clustering of smaller urban centers and access improvement with selective and mutually complementary strengthening of urban functions in different urban centers in line with the existing alliances for PAICs.

Isolated remote communities need to be integrated for marketing of agro-products and service delivery under the internal integration strategy. Specifically, the following is in order:

4) Creation of functionally specialized urban centers in remote areas based on specialty products, resources and socio-cultural inheritances, where basic urban services are concentrated to serve their respective hinterlands linked by telecommunications and power supply facilities as well as rural roads and/or sea lanes.

4.2.2. Land use framework

(1) Existing land use and capability

Existing land use

Existing land use in the DIDP Area is characterized by the following (Figure 4.1).

1) Large designated forest land covering 12,296 km^2 or 62.5% of the DIDP land area, but much smaller woodland area (5,012 km^2 or 25.5% in 1994), which has been decreasing rapidly,

2) Conversion of agricultural land for urban/industrial uses, on the one hand and increase in extensive upland farming area, on the other to maintain the total agricultural land at the similar level in recent years (6,762 km^2 in 1994),

3) Extensive grassland/shrubland (7,491 km^2 in 1994), increased by deforestation in recent years,

4) Low service coverage of irrigation at 39% in 1996 of potential irrigable area (1,033 km2),

5) Relatively small protected area (774 km^2 or 4%) that is partly encroached upon by upland communities,

6) Disorderly use of coastal areas due to squatters, segmented beach resort development, dumping of solid wastes, destruction of mangrove forests etc., and

7) Minimal urban area with built-up area constituting only 0.7% of the total DIDP land area.

Existing land use derived by a GIS through updating of the available map with satellite imageries of 1989 is shown in Figure 4.1.

Land capability

Land capability in the DIDP Area has the following features that are important in land use planning.

1) Limited prime agricultural land in the lowland,

2) Extensive upland area suited to various tree crops and other upland crops, and also irrigable area in the upland,

3) Highland areas suited to temperate vegetables production, and

4) Limited grazing land.

Conditions to determine land capability include erosion potential, flood susceptibility, land slide risks and geological conditions (e.g. active faults) as well as land morphology, elevation and soil conditions.

(2) Land use planning

Planning criteria

Criteria for land use planning for the DIDP Area include the following.

1) Existing protected area should be protected;

2) Preservation area and conservation area should be designated following the proposed environmental management zoning with clear definition of allowable land uses in respective areas in line also with ancestral domains claims;

3) Prime agricultural land in the lowland should be protected unless such land is subject to habitual floods that cannot be controlled in a cost-effective way;

4) Land use in upland/hillyland should be rationalized especially for agriculture with respect to the selection of crops and farming systems, including the extensive grassland/shrubland and over-used land; and

5) Urban and industrial land should be selected based on the criteria established.

Forest conservation and preservation

According to the proposed environmental management zoning, areas for forest conservation and forest preservation have been delineated by applying the following criteria:

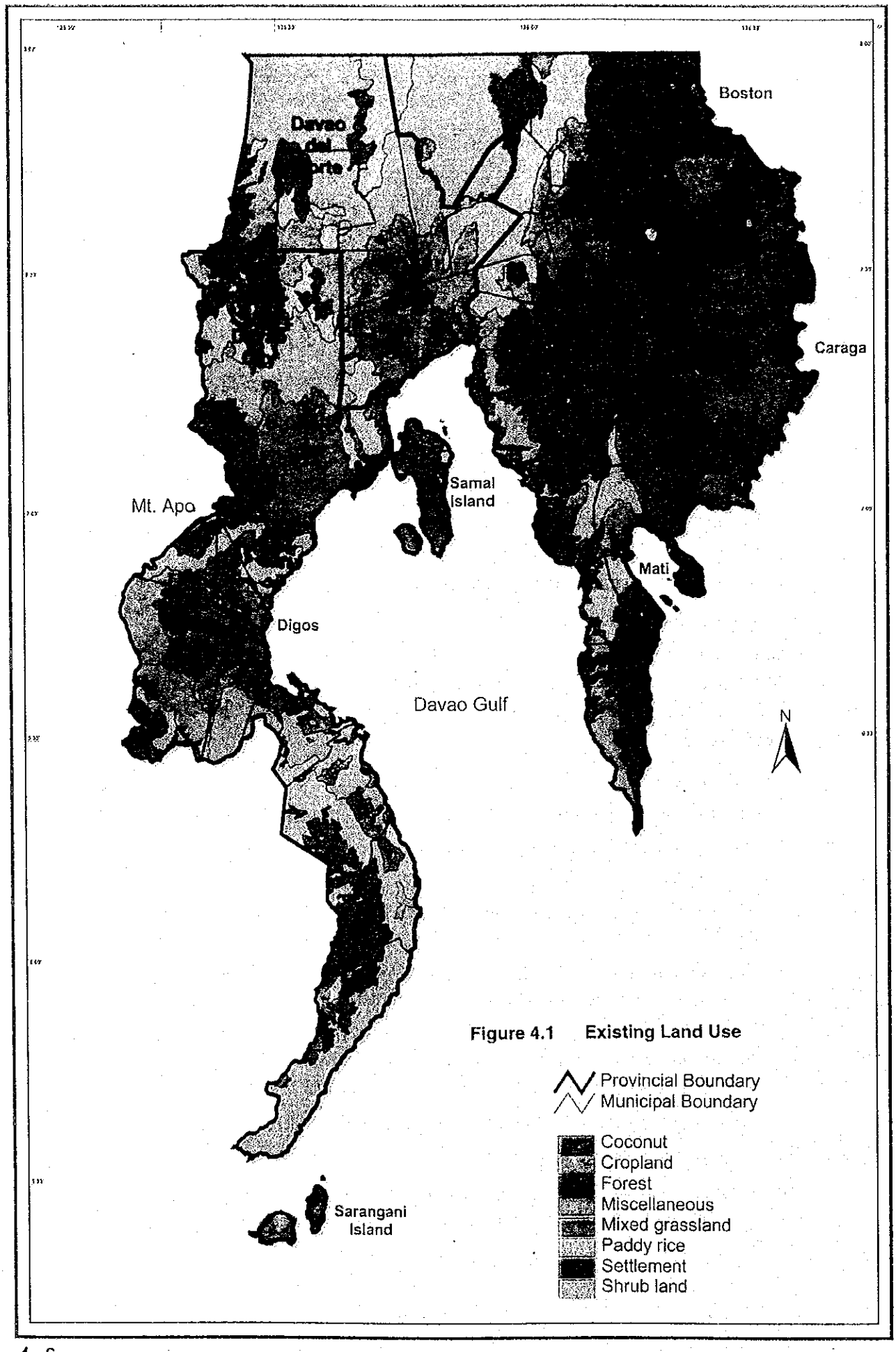


Figure 4.1 Existing Land Use

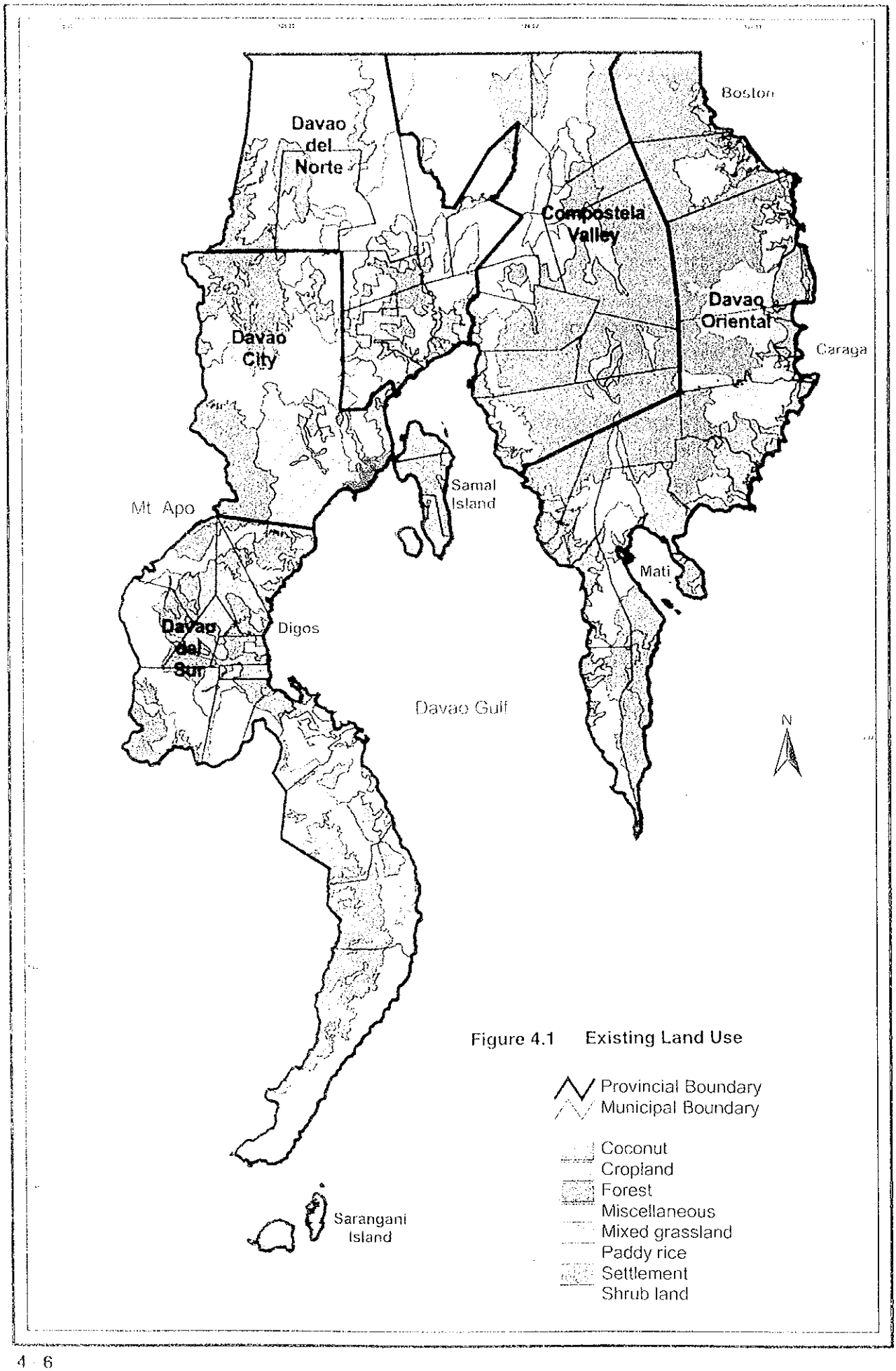


Figure 4.1 Existing Land Use

1) Areas above 500 m elevation covered by primary forest are classified as forest preservation areas; and

2) Areas below 500 m elevation covered by primary forest and areas above 500 m covered by secondary forest are classified as forest conservation areas.

Agricultural land

Four capability maps were prepared for lowland paddy, upland crops, orchard and pasture, respectively classifying the land into three suitability categories according to the criteria set by BSWM for each crop group: highly suitable (class 2), suitable (class 3) and unsuitable (class 4). A consolidated land capability map has been prepared by using a GIS, combining the four capability maps. Out of all the combined suitability classes, six broad classes are defined using the following criteria:

1) Areas where only one group has the highest suitability class among the four, are designated as suitable areas for that group;

2) Areas where more than one group has the same suitability class, priority is put on lowland paddy, followed by upland crops, orchard, and pasture for the designation of suitable groups; and

3) Areas where suitability is class 3 for all the four groups, are designated as suitable areas for both upland crops and orchard.

Results are shown in Figure 4.2. Areas for different categories are summarized below.

Suitability category		Area (km^2)
Suitable area:	Lowland paddy	2,149
	Upland crops	240
	Orchard	5,549
	Pasture	1,559
	Upland crops/pasture	3,359
Unsuitable area		6,092
Unclassified		723
Total		**19,671**

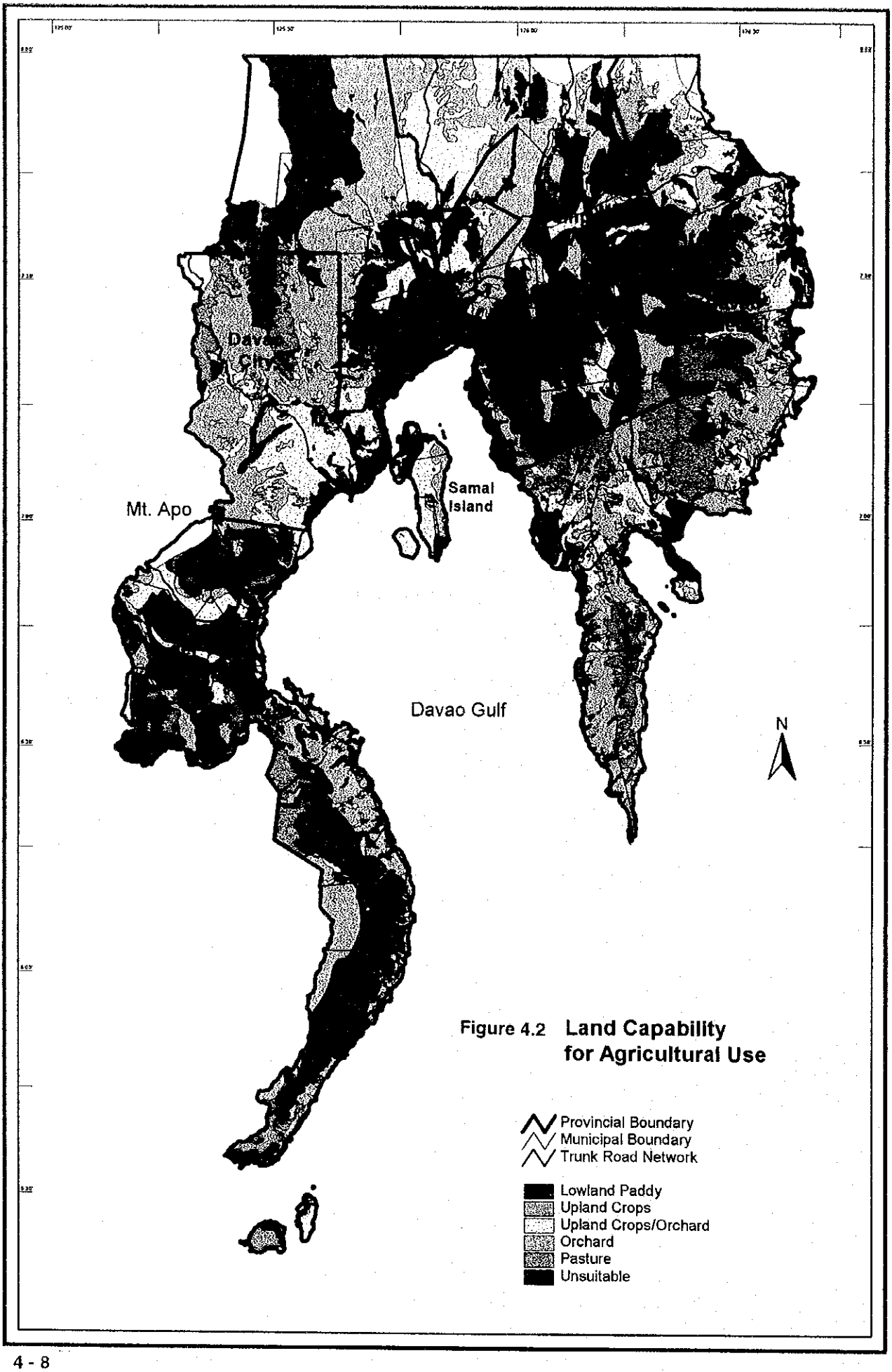


Figure 4.2 Land Capability for Agricultural Use

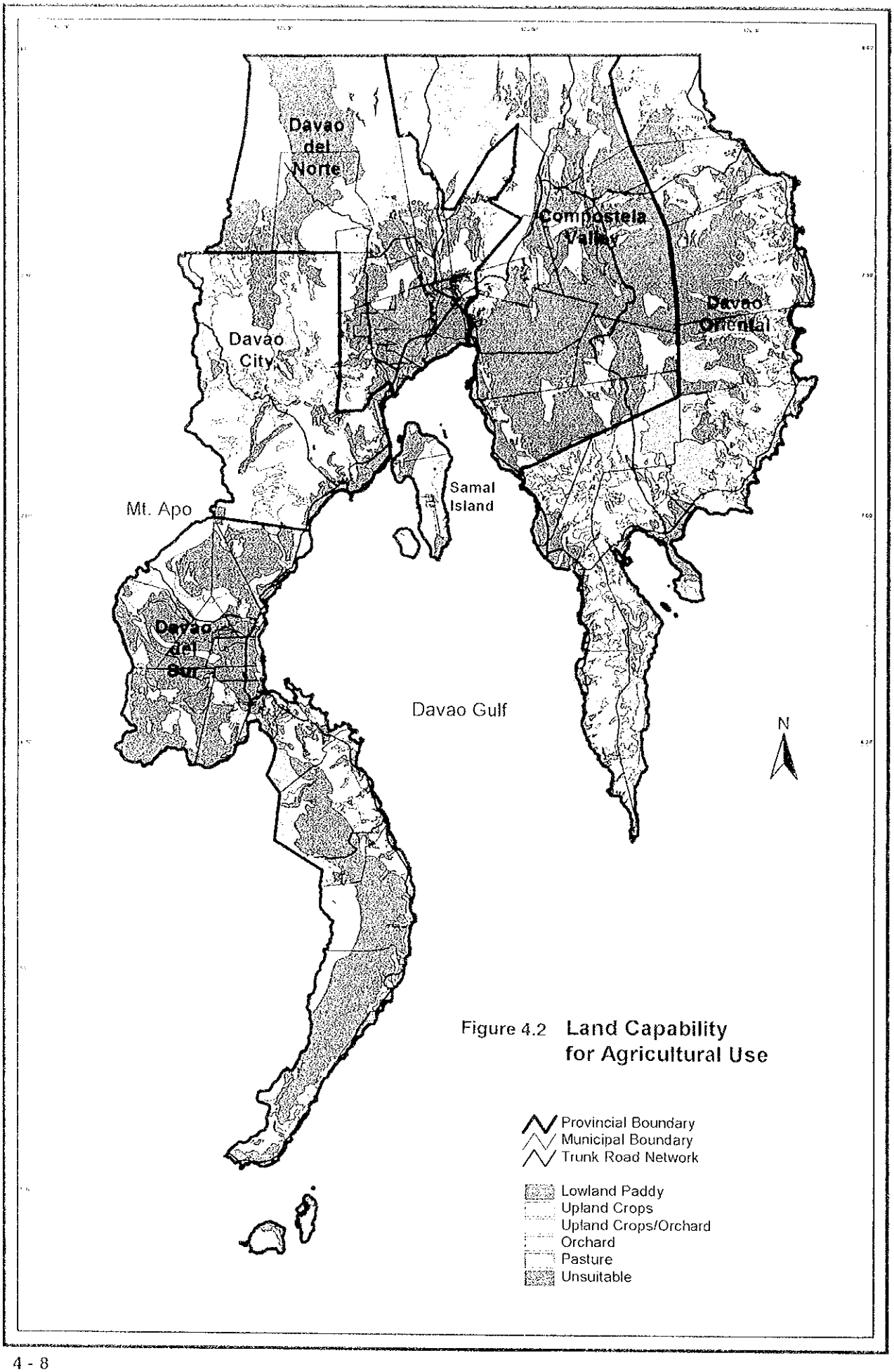


Figure 4.2 **Land Capability for Agricultural Use**

Urban/industrial land

Lands suitable for urban/industrial development are selected by the following procedure:

1) Exclude the land not suitable from physical points of view: slope over 18%, severe erodability, flood susceptibility, or existing land use being built-up, lowland paddy, forest, woodland or other special uses (e.g. water area, livestock, mining etc.);

2) Select the land, from the rest, physically suitable for urban use: slope 0-8%, no apparent or slight erodability, no flood susceptibility, and existing land use not being any of the above;

3) Classify most suitable land, out of the selected land, satisfying socio-economic criteria – distance from major urban centers and trunk roads, and moderately suitable land satisfying only one of the two criteria; and

4) Classify the rest of land not falling in either "not suitable" nor "physically suitable" as marginally suitable land.

These criteria and suitability classification are summarized in Table 4.4

Results are shown in Figure 4.3. Land suitable for urban use spreads along the Tagum-Panabo-Davao-Sta. Cruz-Digos corridor. Sizable lands marginally suitable for urban use are found also in mid-stream areas of the Tagum-Libuganon river and the Padada river.

Table 4.4 Urban Development Suitability Criteria

Criteria	Most suitable	Moderately Suitable	Not suitable	Marginally Suitable
Characteristics	Suitable both from Physical and socio-economical points	Physically suitable	Physically not suitable	The rest of the area
Slope	0-8%		18%	0
Erosion	No apparent, or Slight		Severe	
Flood	Non		Flood prone	
Distance from urban centers	- Davao City (30km) - Tagum (10 km) - Digos (10 km) - Mati (10 km) - Nabunturan (7.5 km) - Panabo (10 km) - Sto. Tomas (7.5 km) - Sta. Cruz (7.5 km) - Lupon (7.5 km)	- either the distance from the urban centers or trunk road is met, but not both.	-	-
Distance from trunk road	0 – 10 km			
Present land use	Not - built-up area - lowland paddy field - forest - wetland - other miscellaneous (water surface, livestock, mine)		- built-up area - lowland paddy field - forest - wetland - other miscellaneous (water surface, livestock mine)	

Source: JICA Study Team

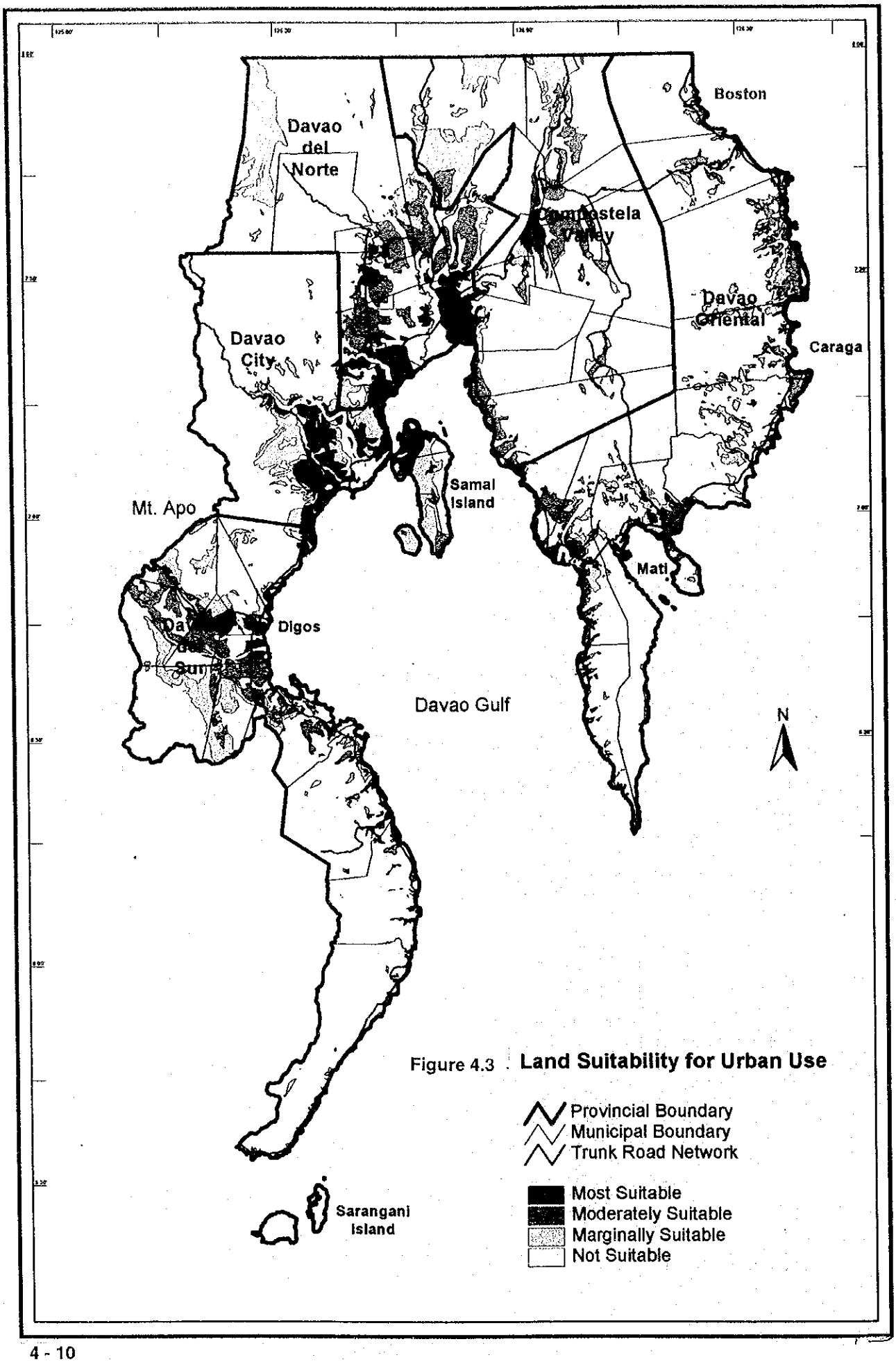


Figure 4.3 . **Land Suitability for Urban Use**

(3) Future land use

Land use conversion matrix

Directions of changes in land use to the year 2016 are indicated by the future land use in Figure 4.4 derived by a GIS. The land use conversion matrix in Table 4.5 is used to define future land use based on the existing land use and land capability for agriculture.

The following land use classes are defined for the future land use in Table 4.5.

① Paddy
② Mixed farming or intensive upland crops cultivation
③ Tree crop-based mixed/integrated farming or orchard
④ Forest/watershed conservation
⑤ Pasture
⑥ Miscellaneous

The area for settlements is defined out of the "Miscellaneous" land class by overlaying the land most or moderately suitable for urban use derived above.

Table 4.5 Land Use Conversion Matrix for DIDP Area Development

	Land Capability					
Existing Land Use	Lowland paddy	Upland crops	Upland crops/ orchard	Orchard	Pasture	Unsuitable
1. Paddy rice	①	②	②	③	⑤	⑤
2. Crop land	①	②	②	③	⑤	⑤
3. Coconut	③	②	③	③	⑤	⑥
4. Mixed grassland	①	②	③	③	⑤	④,⑤*
5. Shrubland	①	②	③	③	⑤	④,⑤*
6. Forest	④	④	④	④	④	④
7. Settlements	⑥	⑥	⑥	⑥	⑥	⑥
8. Miscellaneous	⑥	⑥	⑥	⑥	⑥	⑥

*** ④ if the slope is over 18%; ⑤ otherwise**
Source: JICA Study Team

Future land use

As shown in Figure 4.4, the area for forest/watershed conservation should cover 7,895 km^2 or 40% of the total DIDP land area, increased significantly from 25-30% forest coverage at present. The area for settlements may increase by some 85 km^2. As compared with the expected increase in urban population of 1.52 million by the year 2016, this area may not be sufficient as the additional land requirement may be 100 km^2 base on an average population density of 15 per ha. Some area designated for other uses may be used partially for settlements. The paddy area (1,484 km^2) exceeds the potential irrigable area (1,033 km^2), indicating some area may be used for other crops possibly under supplemental irrigation.

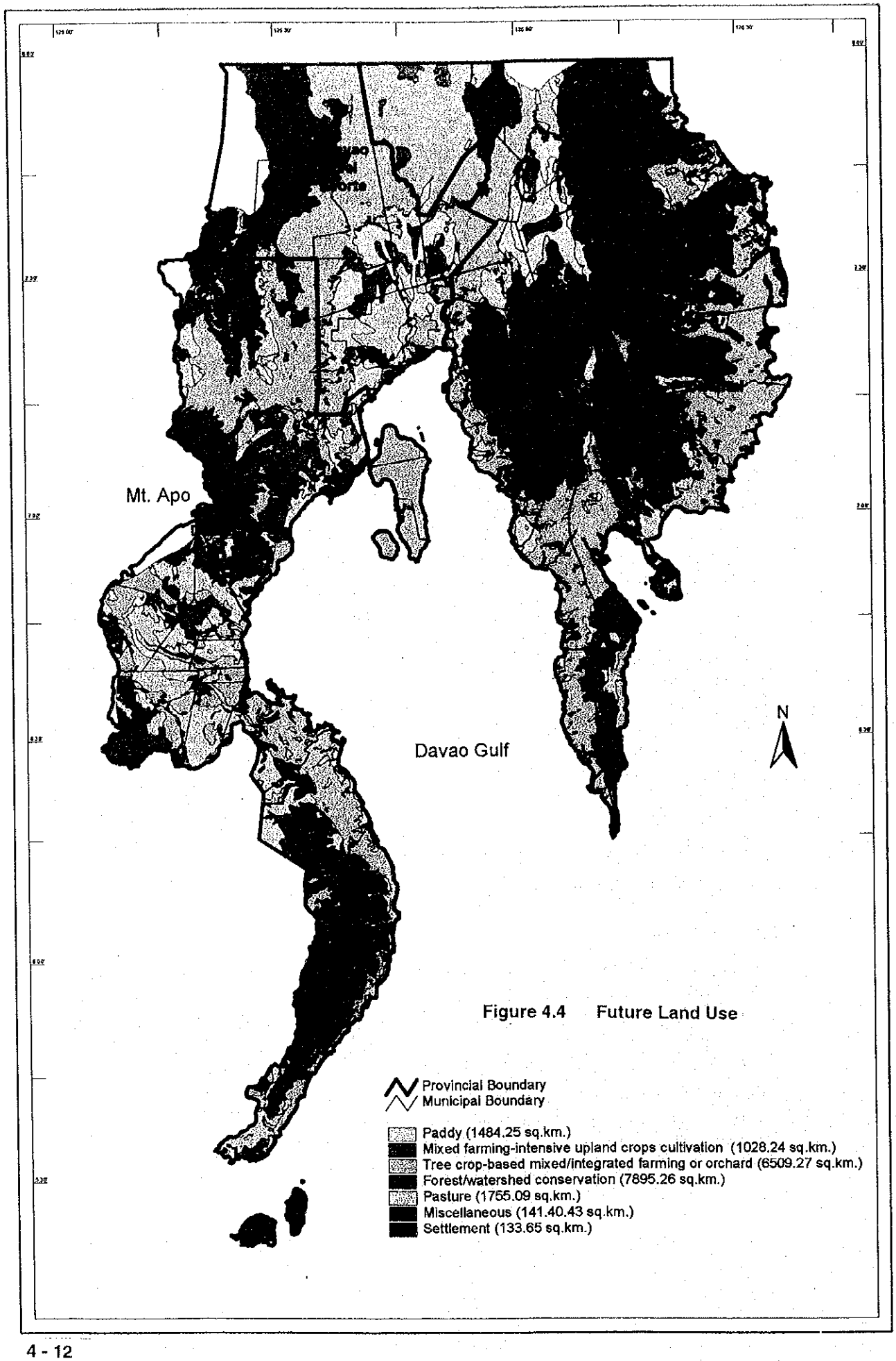


Figure 4.4 Future Land Use

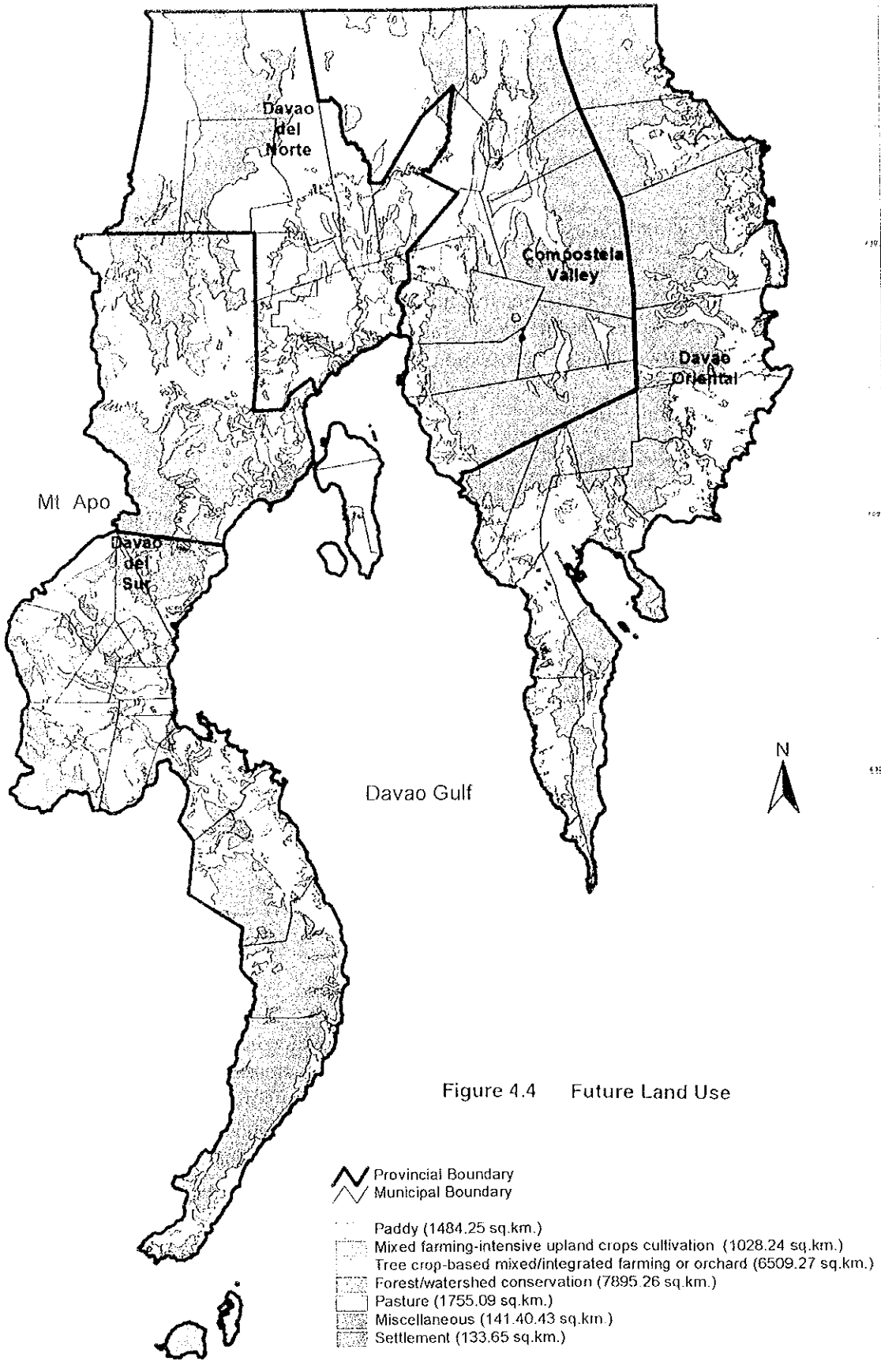


Figure 4.4 Future Land Use

4.2.3. Settlement system

(1) Conditions for improving settlement system

Given the characteristics of existing settlement system listed above, and in line with the DIDP strategy, three conditions need to be satisfied to improve the settlement system in the DIDP Area. First, more orderly urbanization of Davao City should be pursued so that the City will serve as the "trade capital" of the BIMP-EAGA and a gateway for international tourism. Second, to avoid excessive concentration of urban and industrial activities in Davao City, other secondary urban centers need to be strengthened in line with the PAIC initiative. Third, lower tier urban centers should serve effectively to integrate rural communities in their respective hinterlands by providing essential services.

More specifically, in addition to Davao City and its immediate vicinities, two more broad areas are defined for accelerated urbanization. Hierarchical structure of urban centers is conceived with Davao City as the regional center, provincial urban centers, major urban growth centers, service urban centers, and other municipal centers. These are described below.

(2) Accelerated urbanization areas

1) Davao metropolitan area

Urban population in Davao City would reach one million before 2005 from 771,844 in 1995. Therefore Davao City will be classified into a primary metropolitan center based on the criteria of indicative hierarchy of urban centers in the Philippines. The influence sphere of Davao City for daily activities has more or less 25 km radius extending to Panabo in Davao del Norte and northern half of Kaputian in the Samal Island and Sta. Cruz in Davao del Sur. The area includes one RAIC of Davao City itself, two PAICs (Panabo and Sta. Cruz) and one ecotourism zone of Island Garden City of Samal with the combined population of 1.18 million or 36% of the total population in the DIDP Area and the urban population of 850,000 or 63% of the total DIDP urban population in 1995.

As land availability for urban and industrial development approaches saturation point in any metropolitan area, urbanization tends to spill over to the vicinities. In the vicinities of Davao City, some residential and industrial estate development is proceeding in Panabo and Sta. Cruz.

In the long-term future, the Samal Island may be connected to Davao City by a bridge. The Samal Island, due to its proximity to Davao City and well preserved environment, has high potentials for high-grade residential development, environment friendly industrial estates, and cultural and financial centers under the BIMP-EAGA scheme as well as further resort development. Such developments, however, should be subject to strict enforcement of the zoning ordinances for conservation of environment, the vital condition for the developments.

2) Panabo-Tagum conurbation area

This area extends along the Pan-Pacific Highway and could be the most accelerated urbanization area following Davao City, because of the proximity to Davao City and large flat plains. The area covers two PAICs, two municipalities of Panabo and Carmen, and Tagum City. The combined population was 340,684 in 1995 of which 135,809 or 36% was urban.

3) Sta. Cruz-Digos urban corridor

This area including two municipalities of Sta. Cruz and Digos had combined total and urban population of 165,704 and 74,928 respectively or 45% urbanization ratio in 1995. Sta. Cruz, situated at a center point between Davao City and Digos, is designated as a PAIC. The Sta. Cruz PAIC will be developed comprising industrial, residential and tourism developments with more than 2,000 ha of the land area. The northern part closer to Davao City would be developed in the early stage. The area as a whole will become an accelerated urbanization corridor in the medium to long term.

(3) Hierarchical structure of urban centers

Urban centers are classified with respect to delivery capacity and effectiveness of various urban services. Determining factors include: 1) existing and expected urban population, 2) accumulated various economic and social activities like number of establishments, infrastructure, education and health facilities, 3) existing and expected administrative functions and specific functions like PAIC, 4) resources and constraints, and 5) location in relation to artery, other major urban centers and air and sea transport facilities. Five tiers of urban centers are defined.

1) Regional center

Davao City is a regional center for Region XI. It has shares of 31% of total population and 57% of urban population in the DIDP Area as of 1995. The City has the dominant number of commercial and industrial establishments, a regional hospital and other large private hospitals, and 36 universities and colleges.

The City may be designated as the regional center of the DIDP Area and a regional agri-industrial trade center in Mindanao. It may be characterized toward 2016 as follows:

- the second largest, pivotal urban economic center in the Philippines, serving the southern part of the Country;
- a predominant destination of foreign direct investments due to the proximity to other EAGA countries and East Asia;
- an area of most advanced and diversified economic structure with export industries, trade and other supporting urban services;
- an international gateway serving as the regional hub in air and sea transport networks; and
- an outstanding international tourist destination in the Southern Philippines.

2) Provincial urban centers

Tagum

Tagum, the second largest urban center in the DIDP Area, is the capital and component city of the new province of Davao del Norte after administration reorganization in the middle of 1998. Tagum City is located at a strategic point, 56 km northeast of Davao City and at the junction to Davao Oriental and Agusan del Sur. Shares of the total population (155,343) and urban population (84,163) were 13% and 26% respectively of the total of former Davao Province in 1995. It occupies only 2% of the land of former Davao Province. While agriculture remains main economic activities, processing of gold, copper and chromite are accelerating.

Tagum City is designated as a PAIC with 745 ha of the development area including 300 ha for ecotourism development. Tagum has functions of administration, financial, trading, mineral processing and education centers in the province. Tagum could absorb some extent of urban and industrial functions away from Davao City, and will have a function of sub-regional center covering Davao Oriental and the new province of Compostela Valley.

Nabunturan

Nabunturan is the capital of the new province of Compostela Valley. The population was 54,437 in 1995 of which 13,994 or 26% was urban. The municipality is a food basket for the north-eastern part of former Davao Province and is designated as a PAIC for agro-processing and mineral processing industries. Nabunturan would have functions of a mining center and a tourism gateway for the Mainit Hot Springs National Park as well as administration and social services functions.

Digos

Digos, the provincial capital of Davao del Sur, is strategically located 56 km southwest of Davao City and 81 km north of General Santos along the foothills of Mt. Apo and at the junction to North Cotabato. Digos is the fourth largest urban center in the DIDP Area, having 106,565 population or 16% of the province's total and 40,460 urban population or 26% of the total in the province in 1995.

The municipality is largely agriculture-based especially for coconut, while production of staple crops remains minimal, resulting in heavy dependence on the neighboring towns for its food supply. Digos has a 45% share for the number of industrial and commercial establishments in the province especially in services sector represented by administration, education and health, as well as a trading center for the province.

Mati

Mati is the provincial capital of Davao Oriental, the fifth largest town in the DIDP Area with 93,801 population in 1995. It is located 165 km from Davao City in the southern part of the province. The main economic activities are cultivation of mango, citrus and coconut. The Pujada bay has rich tourism development potentials.

Presently, Mati functions as a provincial trading center for export commodities notably copra, corn and wood products. In the medium to long terms, with the PAIC development, infrastructure development of roads, port and airport, and tourism development, it could become a trade center for the DIDP Area and the Mindanao Pacific-rim region and a tourism center for the DIDP Area linked with BIMP-EAGA countries.

Panabo

Panabo with 129,826 population is the third largest town in the DIDP Area, of which 43,504 or 33.5% was urban in 1995. The municipality along the borders with Davao City is most affected by spill-over with residential and industrial developments proceeding from the City. Banana is the major product presently exported to Japan, Korea, Europe etc. through two private ports.

Panabo would be a commuters' town for Davao City and an engine for agri-industrialization in the DIDP Area together with Tagum. The Panabo PAIC is expected to accommodate a widest variety of industries in its designated industrial area along the coast.

Sta. Cruz

Sta. Cruz had 59,139 population in 1995, of which 34,468 or 58% was urban. The municipality is located near the southern border of Davao City and the foothill of Mt. Apo. Sta. Cruz will play an important role for industrialization along the coastal area and the Pan-Pacific Highway and also as a commuters' town for Davao City.

Lupon

Lupon had 50,668 population in 1995, and is one of most urbanized municipalities in Davao Oriental with the urbanization ratio exceeding 50%. The municipality is situated at a strategic point between Mati and Tagum. Lupon had the second largest number of establishments in the province following Mati. With the introduction of fast sea craft's operation linking Sta. Ana Wharf to Lupon by one hour, accessibility to Mati from Davao City would be drastically improved through Lupon. Lupon will be a new gateway of Davao Oriental and a sub-provincial center of the southern part of the province.

3) Major urban growth centers

These centers are Island Garden City of Samal in Davao del Norte, Malalag and Malita in Davao del Sur, and Baganga in Davao Oriental as well as Toril of Davao City.

Island Garden City of Samal established combining three municipalities on Samal Island has a new capital located in the former Samal municipality. These municipalities had 76,998 population in 1995, of which 15,707 or 20% was urban. Kaputian is presently designated as an eco-tourism zone.

The Malalag Bay area is designated as a PAIC covering municipalities of Hagonoy, Malalag, Santa Maria, Sulop, Kiblawan and Padada. These areas had 157,379 population with 24,987 urban population in 1995. Kiblawan has one tertiary school and a district hospital, and Malalag has a port in the harbour of the

Malalag bay. Malalag, having 30,733 population in 1995 of which 4,455 or 14.5% was urban, is considered as a trade center.

Malita has the largest population of 83,457 in 1995 in the southern part of Davao del Sur. It has a Special Economic Zone, which has been embodied in a law. Tourism oriented development is considered with 2,000 ha land including a marina, theme park, accommodation facilities etc. Even from a medium-term viewpoint, scaling down of the plan seems to be required because of the poor accessibility and difficulty in land acquisition.

The coastal areas from Malita to Jose Abad Santos extending to the Sarangani municipality have rich tourism resources. The Tourism Development Master Plan for Southern Mindanao by DOT Region XI designates these areas as one of tourism destination clusters together with the Eden-Bayabas, the Davao City-Samal Island, Kapatagan and other clusters.

Baganga with 39,750 population in 1995 is the largest town in the northern part of Davao Oriental, and one of PAICs covering the other four municipalities of Boston, Cateel, Caraga and Manay. One private port, abandoned by a timber concessionaire, will be utilized to support the PAIC scheme.

4) Service urban centers

Nine service urban centers may be designated: Kapalong in Davao del Norte, Compostela, Monkayo and Maco in Compostela Valley, Calinan in Davao City, Bansalan and Jose Abad Santos in Davao del Sur, and Cateel and Manay in Davao Oriental. These centers have functions of supporting socioeconomic activities and community development in the respective hinterland areas.

The urban hierarchy system in the DIDP Area is summarized in Table 4.6 and illustrated in Figure 4.5.

4.2.4 Transport system

(1) Conditions for improving transport system

Given the characteristics of the existing transport system, and in line with the DIDP strategy, three conditions need to be satisfied to improve the transport system for the DIDP Area. First, a multi-modal transport system should be established in steps centering around Davao City to strengthen links with neighboring regions and the BIMP-EAGA as well as inter-provincial links. For this, the road network needs to be improved as the prime mode of transportation, alternative modes of transport introduced/strengthened, and terminal facilities upgraded.

Second, intra-provincial links should be strengthened to support the formation of urban clusters. In addition to road improvement, sea lanes may be established in some areas. Third, access to remote rural communities should be ensured, including island municipalities.

(2) Artery development

The multi-modal transport system centering around Davao City and the inter-provincial links constitute the artery network for the DIDP Area. Elements of the artery network are described by mode (Figure 4.6).

Table 4.6 Urban Centers for the DIDP Area

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
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	Agro-industrial and trading center, social service center
	Malita	Tourism sub-center, social development center
	Baganga	Agri-industrial center, trading center, social center
	Lupon	Gateway of the province, sub-provincial 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 developmetn 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

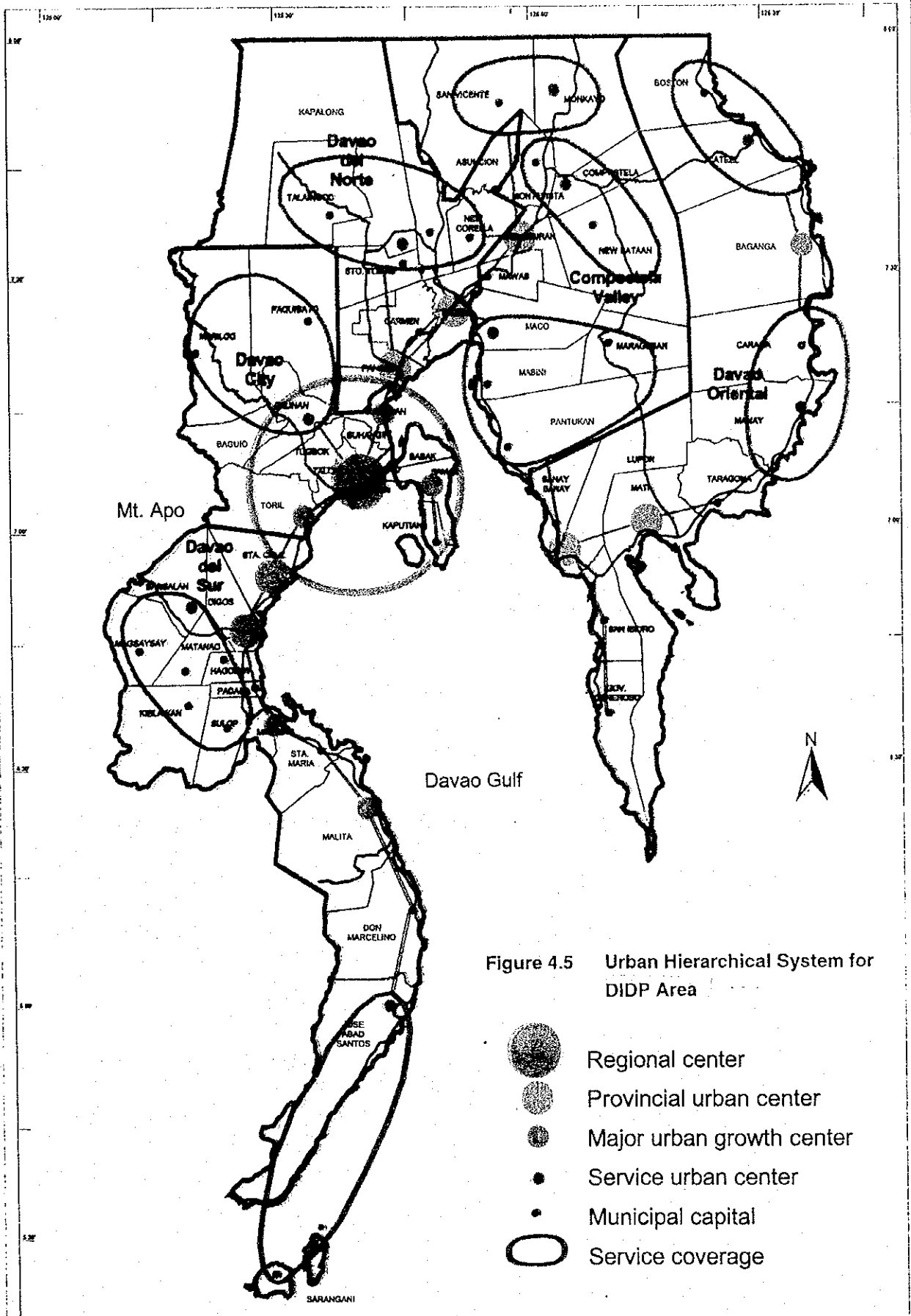


Figure 4.5 Urban Hierarchical System for DIDP Area

- Regional center
- Provincial urban center
- Major urban growth center
- Service urban center
- Municipal capital
- Service coverage

Land transport

Land transport by roads continues to be the prime mode of transportation in the DIDP Area for both passengers and cargoes.

1) Primary inter-regional links

The Agusan-Davao-General Santos corridor on the Pan-Philippine Highway shall be strengthened as a backbone axis for various socioeconomic activities in the DIDP Area connecting with other major growth centers such as General Santos, Butuan and Surigao. The improvement of the Panabo-Davao City section with lane expansion and a new road will support the corridor development as well. The Davao-Cotabato between Digos and Cotabato City and the Davao-Bukidnon inter-regional arteries shall be improved to strengthen the economic linkages with other regions.

2) Inter-provincial links

The Compostela-Cateel and the Nabunturan-Maragusan-Mati roads could contribute to vitalization of local economies through improvement of accessibility to depressed areas in the northern part of Davao Oriental and establishment of alternative routes to/from Mati. The former will provide an alternative access to the Baganga area from Davao City in addition to the access through Mati, and may also promote complementary development of two PAICs of Baganga and Nabunturan. The latter would vitalize agricultural and tourism potentials in the Maragusan area and reduce the travel time between Compostela Valley and Davao Oriental. An alternative link between Compostela Valley and Davao del Norte may be established from Montevista through Sto. Tomas to Panabo.

3) Intra-provincial links

The coastal roads in Davao Oriental and Davao del Sur should be improved. The Mati-Baganga and the Sulop-Jose Abad Santos sections in particular need immediate attention. The Tagum-Asuncion-Kapalong-Santo Tomas-Panabo corridor shall be formulated as a collector road to support agri-industrial activities and social services delivery. The Panacan-Toril circumferential road shall be strengthened to sustain efficient traffic movement and to formulate orderly urban development in Davao City.

4) Secondary inter-regional links

Secondary inter-regional links will develop subsequently from the artery network. They include Baganga-Surigao del Sur, Tagum-Asuncion-Agusan del Sur, Sto. Tomas-Bukidnon, Malita-General Santos, and Jose Abad Santos-General Santos along the coast.

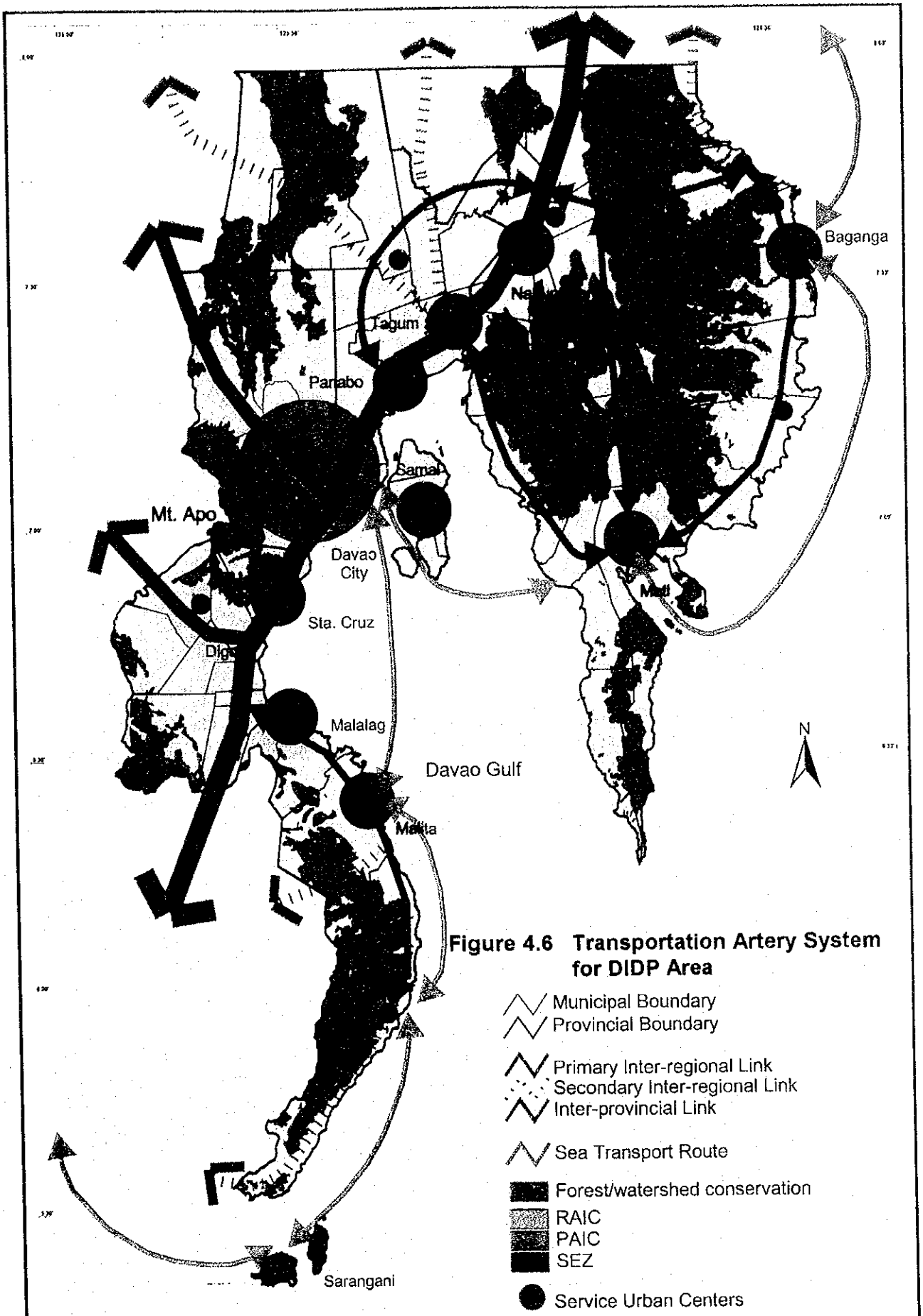


Figure 4.6 Transportation Artery System for DIDP Area

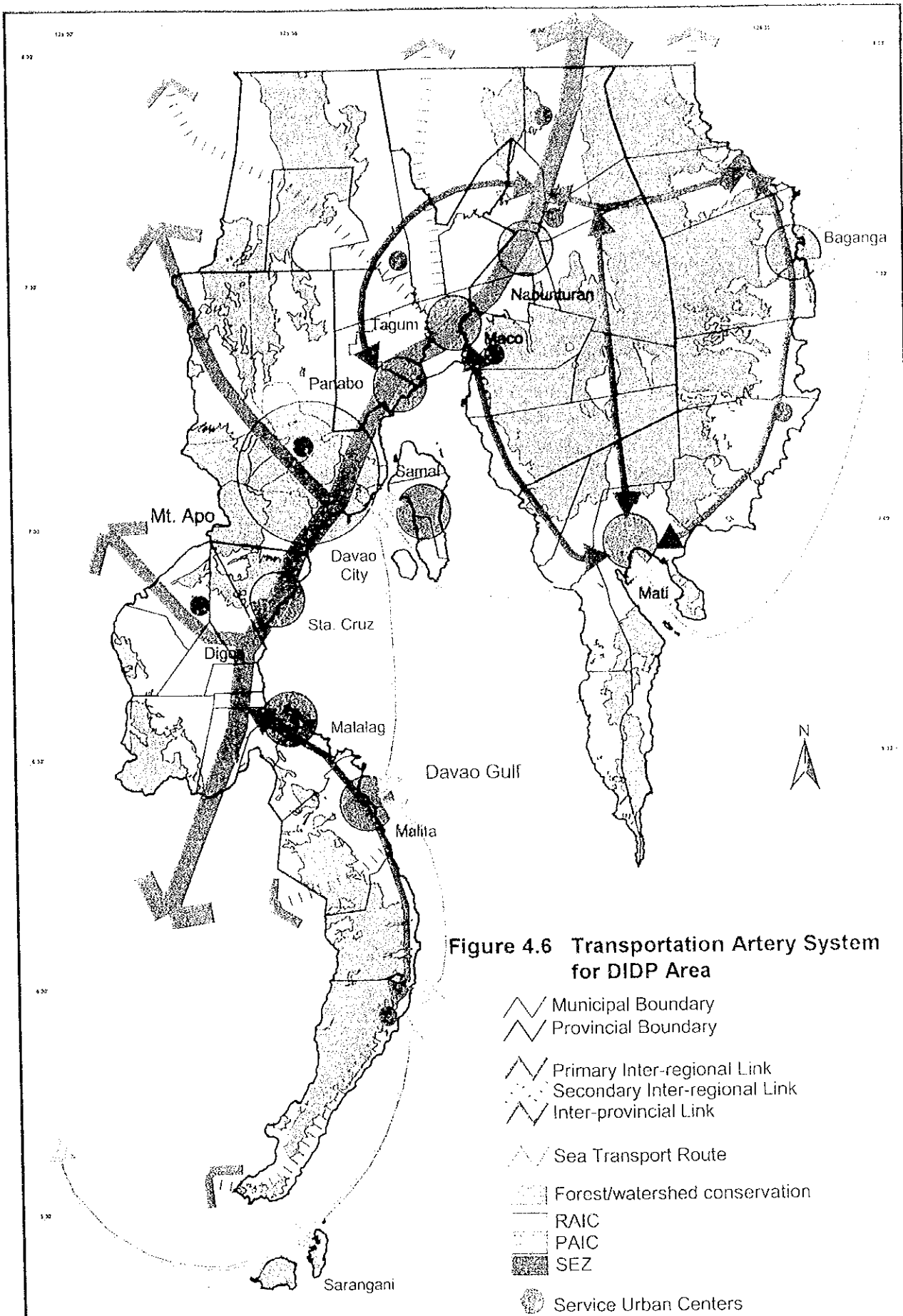


Figure 4.6 Transportation Artery System for DIDP Area