CHAPTER 5

KEY ISSUES, SCENARIO AND SOCIO-ECONOMIC FRAMEWORKS

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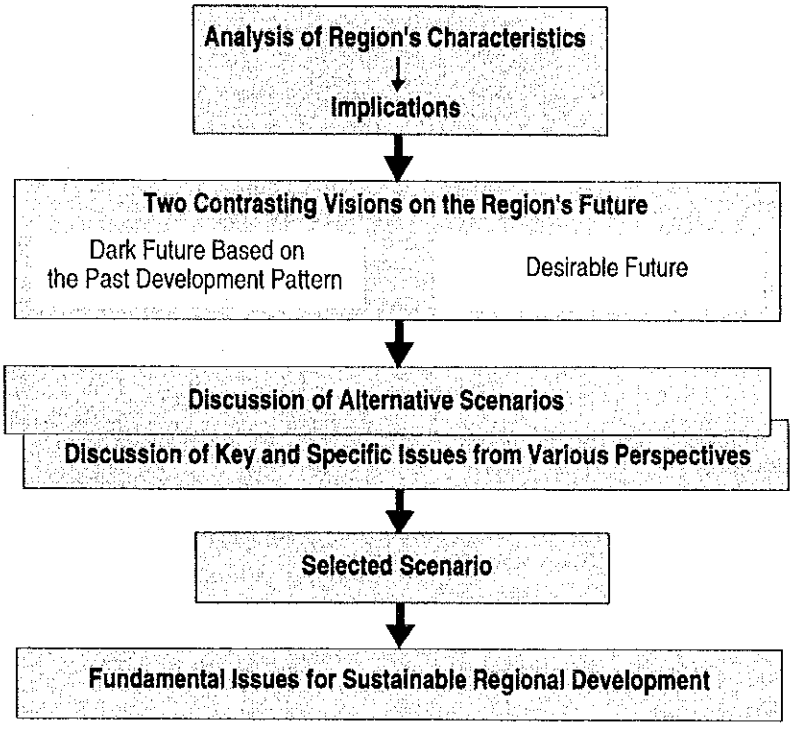
5.1 INTRODUCTION

In this chapter, issues will be extracted from the previous chapters' analyses and alternative scenarios with socio-economic frameworks will be discussed. First, two contrasting visions for the region are presented. One is based on the past development patters, and the other is a desirable future. The elaboration of the region's future from several perspectives will reveal regional development issues. The issues identified are how to avoid the undesirable situations based on the past development patterns and how to seek the desirable situations.

Second, the comparison of the two contrasting visions will lead to the formulation of alternative scenarios for regional development and the selection of a recommended scenario. Thirdly, major strategies to constitute the selected scenario are presented. Fourth, socio-economic frameworks (consisting of population and GRDP) for alternative scenarios will be discussed. Finally, fundamental issues cutting across or integrating the individual issues will be discussed.

Table 5.1.1 Identification of Issues and Alternative Scenarios



5.2 TWO CONTRASTING FUTURE VISIONS AND ISSUES OF THE REGION

5.2.1 Overview of Two Contrasting Visions of the Region's Future for Kalimantan and Key Issues

The past and present development patterns, which are elaborated in Chapter 3 and Appendix A, can be characterized as "massive and destructive forces at work against the Kalimantan System". If these trends are continued at the present pace, the dark future shown in the left column of Table 5.2.1 would be realized. By drawing contrasting visions to the dark future, a desirable region's future vision is identified as shown in the right column of Table 5.2.1.

Table 5.2.1 Region's Future Visions (Two Contrasting Visions)

	Dark Future of the Region based on the Past Development Patterns	Desired Future of the Region based on Sustainable Development Efforts
Regional Economy	The regional economy is dominated by resource-based economic activities, oriented to oil palm plantations, pulp-wood plantations and bauxite exploitation. As a result, the performance of the regional economy is subject to the fluctuation of international prices of those commodities. The excessive expansion of oil palm plantation, and pulp wood plantation development has reduced other development opportunities which rely on the same land resources.	The regional economy is more diversified and developed in a sustainable manner, based on the region's development potential (based on "the Kalimantan System"). As a result, the region is economically less dependent on the other regions in development funds and food, seeking more self-sustaining situations.
Landuse / Natural Resources	Natural resources, including land resources, are exhausted due to short term profit seeking and excessive development patterns.	The region's patterns of landuse and exploiting natural resources are based on the "nature's power" of the Kalimantan System.
Water Environment	The region's water environment system has been badly damaged due to the unlimited expansion of development.	The region's water environment system is maintained by avoiding excessive development in ecologically fragile areas.
Community	Equitable development has not been achieved and social differentiation becomes serious. Especially, inland farmers are marginalized in the course of excessive expansion of oil palm and pulp wood plantations. As a result, the risks of social instability in the region become large.	The local communities are empowered to secure sustainable livelihoods by adjusting to drastically changing regional economies. Such communities play key roles in regional development. There is also room for future generations to seek sustainable development.
Government	The central government can no longer afford to provide enough development funds and food supply to regions. Although the central government has urged each region to seek self-sustaining situations, it is faced with a serious impasse.	The local governments are able to fully manage their own affairs, based on a self-sustaining economy and society, while contributing economically and socially to sustainable national development. On the other hand, the local governments are more responsive to local people's needs. They play roles in facilitating development efforts of the communities and business sectors.

Key Issues

These contrasting visions for the region's future can be translated into the following key issues:

1) How to attain more diversified and sustainable regional economy based on the Kalimantan System,
2) How to sustain the nature's power of the Kalimantan System while accepting new types of development,
3) How to empower the local communities for securing their sustainable livelihoods, and
4) How to make the local government more responsive to the local people's needs.

5.2.2 Detailed Region's Future Visions and Specific Issues

The detailed visions of the region's future (both the future based on the past development patterns and the desirable future) are presented from four different perspectives in this section. How to avoid the future based on the past development patterns and how to seek the desirable one would be the issues of regional development for Kalimantan.

(1) Regional Economy

Future Based on the Past Development Patterns	Desirable Future Based on Sustainable Development Efforts
The excessive expansion of oil palm plantations has decreased development opportunities of the other sectors in the regional economy.	The concentration of oil palm plantations is at an adequate level. The economic development has been sought by keeping the oil palm plantations and pulp wood plantation at the scale possible to realize long-term sustainability and efficiency.
Resource-based industrial development has been promoted in a manner of rapid (short-term and mid-term) profit seeking.	Large-scale resource-based industrial development has been promoted on a scale possible to attain sustainable development in the long-term.
Timber production from natural forests has decreased rapidly.	Some parts of logged-over forests will be reserved for future logging operations by making special efforts.
The industries in the lower stream areas have not received so much support, and remained stagnant.	Small and medium-scale industries have developed gradually in the lower stream urban areas.
The role of smallholders has become much smaller than before.	The smallholders contribute more to the regional economy.
The food production (especially rice) of the region has decreased greatly.	The food production of smallholders has been maintained.
The natural reserves have degraded and lost important gene resources. As a result, the development potential based on such resources would be minimal.	Economic development has been sought on the basis of rich gene resources, which have been reserved in wide natural protection areas.

(2) Landuse and Natural Resources

Future Based on the Past Development Patterns	Desirable Future
The areas with good access to regional roads mostly have been developed for oil palm plantations. Oil palm plantation development has taken place even on unsuitable lands. As a result, the commercial benefits become lower and sustainability would worsen.	Oil palm plantation development has been promoted only on suitable lands. From the wide perspectives of agricultural production, forestry production, watershed protection and nature protection, a more desirable landuse system has been established.
Oil palm plantation development has taken place along the roads surrounding Sentarum Lake. It results in disastrous impacts on the water environment not only of the lake, but also of the Kapuas river as a whole.	Not only Sentarum Lake but also a wide area surrounding the lake will be protected from development activities for preservation of the environment of the Kapuas river basin and aquatic resources.
Logged-over forests have been subjected to a variety of exploitation after the first timber harvest. As a result, both the commercial values of timber and the natural values of forest ecosystems would be lost.	After the first timber harvest, some parts of the logged-over forests have been reserved for future local usage of timber, as well as for future regional demands for timber.
Many indigenous farmers have to give up their lands for oil palm plantations. Instead, they become smallholders of oil palm plantation. Otherwise, they would be marginalised to remote and worse soils.	Indigenous farmers are major actors in regional development. They have maintained their own territories and accepted new livelihood means, such as oil palms, pulp wood trees and clone rubber trees.
In areas in which food crop production was possible, large tree crop plantations have been developed.	A high priority has been given to food crop production, especially to upland extensive farming.

(3) Community

Future Based on the Past Development Patterns	Desirable Future
Most of the rural inland communities have been dis-empowered due to less-incoming information and knowledge on the rapidly changing economic and landuse systems.	With knowledge and information, the rural inland communities have been socially empowered to keep up with the rapid economic and landuse changes.
Many indigenous communities have lost their own territories. As a result, they become unable to attain sustainable livelihoods.	Based on different types of resources, each group of people could keep a sustainable livelihood.
Many indigenous farmers have become smallholders or laborers of oil palm plantations. There are no possibilities for many of their next generations to live on their own farm lands.	Indigenous communities have received oil palm plantations in wise ways which allow them to keep their traditional livelihood means, so that they can avoid unnecessary risks due to the unfamiliar oil palm plantation business.
Socio-economic differentiation becomes large enough, leading to social unrest.	Although the socio-economic differentiation exists, there are opportunities to participate in development available to most people and communities.

(4) Government

Future Based on the Past Development Patterns	Desirable Future
Although the systems of village government and self-help development efforts have been established, they have not facilitated development.	A better system of facilitating community-level self-help development efforts has been established, and the system has started to bring good results.
Although government projects have been distributed to rural areas, they are not suitable for the local conditions or needs. As a result, the government resources for such projects have been wasted.	Instead of using the methods and goals set by local government officials, communities are able to set their own goals and ways of development according to local conditions.
Local governments are not interested in local conditions and local needs. At the same time, they do not have the methods to satisfy such requests from the local people.	Local government officials have been trained more and have acquired experience to be responsive to local conditions and needs.

5.3 ALTERNATIVE SCENARIOS

The scenario for regional development is written as a story in which certain actors can plan certain roles at certain periods to seek the goals of regional development. The above discussion on two contrasting future visions of the region leads us to the identification of alternative scenarios. The identified alternative scenarios will be compared for examining their general features and for choosing one scenario for further elaboration. We have identified three alternative scenarios:

Alternative Scenarios

Scenario 1	Rapid and Excessive Exploitation and Development Scenario
Scenario 2 (Recommended)	Diversified Development Scenario by Sustaining the Kalimantan System
Scenario 3	Scenario with an Unfavorable Business Environment

The future vision based on the past patterns of rapid and massive extraction and development of natural and land resources corresponds to Scenario 1. The desirable future vision based on sustainable development efforts corresponds to Scenario 2. Scenario 3 is the development path in an unfavorable business environment to the region.

Scenario 1: Rapid and Excessive Exploitation and Development Scenario

After the recovery from the present economic recession, natural-resource exploitation and plantation development will come back quickly. The rapid and massive patterns of exploitation and development of natural resources (including land resources), which have been prevalent in the last three decades, will be continued or accelerated. Resource-based industrial development also will be fully realized. As a result, relatively high economic growth can be attained in the period of 20-30 years from 2003.

The ineficient operation of plywood factories will be sustained creating regional incomes as long as possible, keeping higher exploitation pressure on forests, as well as demanding timber from clear cut areas for plantation development. However, this type of wood processing industry would reduce the timber reserve for the future, and deteriorate the function of the region's watershed

The excessive expansion of oil palm plantations has continued, resulting in decrease the existing local livelihood means (rubber groves and paddy swiddens) and development opportunities of other sectors in the regional economy.

Moreover, these types of development tend to take out much of the economic values from the region, leaving not a large portion of them in the region. Therefore, such economic development can neither provide enough job opportunities to the increasing population nor diffuse economic opportunities to the business sector. As a result, economic and social differentiation among the society becomes extremely large.

The decades of such massive and excessive development patterns will deteriorate both the nature base and social base of the region. In the end, after 20-30 years after 2003, the whole economic, natural and social bases would start collapsing, and the relatively high economic growth would not be sustained any longer.

Scenario 2: Diversified Development Scenario by Sustaining the Kalimantan System (Recommended Scenario)

This is the recommended scenario. This scenario aims at sustainable development with a more diversified regional economy by adjusting the scale and concentration of natural resource exploitation and plantation development to local conditions.

The central strategy for this aim is to allow the local people to combine the new opportunities of oil palm plantations with their existing livelihood means at their places. By implementing this strategy at the macro and local levels, the scale and speed of oil palm plantations cannot be excessively large. This strategy allows the conservation of the existing livelihood means (rubber groves, rattan gardens and paddy fields) for diversifying regional economy and other secondary forests for future production of high value added products.

In this scenario, other types of non-resource-based industrial development will be also sought. This strategy might be able to diversify the regional economy and to lessen the utilization pressure on natural resources.

This scenario will not be able to produce relatively high economic growth in the period of 15 years from 2003, but it will attain moderately high economic growth, in the longer run, based on diversified economies including the oil palm industry (both plantations and downstream industries). Moreover, this scenario could allow more shares of development benefits to remain in the region than in the case of Scenario 1.

The diversification efforts of this scenario will conserve the region's logged-over and secondary forests and local knowledge for utilizing such resources for the production of higher value added products by utilizing conserved natural resources. These development efforts are expected to bear fruit in the distant future beyond 2018.

Scenario 3: Scenario with an Unfavorable Business Environment

This scenario will suffer from an unfavorable business environment for the oil palm industry, which has been unintendedly created. Therefore, even after the recovery from the present economic recession, there is not much investment in oil palm plantation nor in downstream industries.

As a result, on-going massive oil palm plantation development will be slowed down and resulting in the conservation of the natural and social power of the Kalimantan System. In the setting of this scenario, it is necessary to encourage the people to activate their traditional livelihood means. However, after the timber resources are exhausted in the near future, the regional economy will shrink into another recession.

The economic growth patterns of these three scenarios are schematically shown in Figure 5.3.1 and summarized in Table 5.3.1.

Figure 5.3.1 Ecomic Growth Patterns of Alternative Scenarios

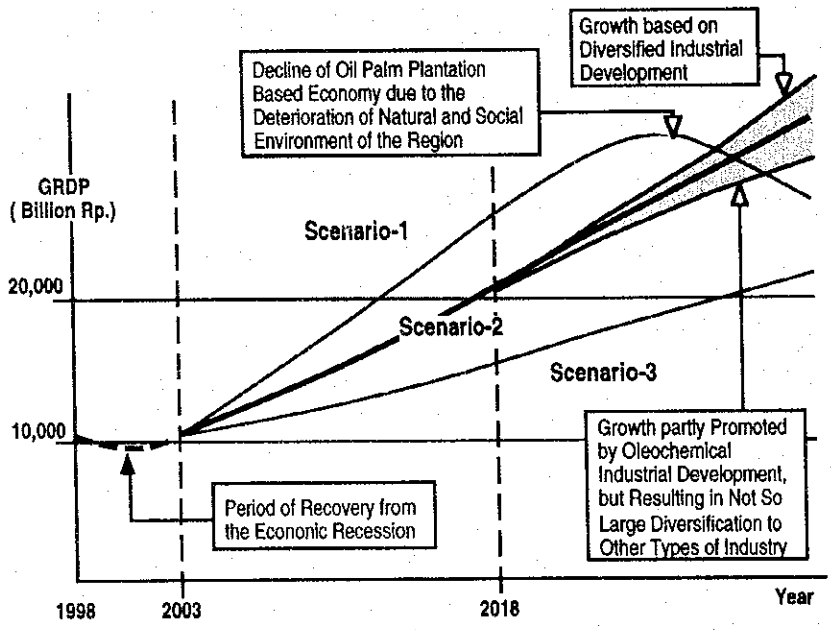


Table 5.3.1 Summary of Economic Growth Patterns of Alternative Scenarios

	GRDP(Billion Rupiah, at 1993 Constant Price)				Annual Growth Rate of GRDP (%)		
	1998	2003	2008	2018	1998-2003	2003-2008	2008-2018
Scenario 1	10,748	10,748	14,806	28,442	0%	6.6%	6.7%
Scenario 2	10,748	10,748	13,124	20,963	0%	4.1%	4.8%
Scenario 3	10,748	10,748	12,223	15,449	0%	2.6%	2.4%

Source: JICA-SCRDP Kaltengbar

5.4 FUNDAMENTAL ISSUES FOR SUSTAINABLE REGIONAL DEVELOPMENT

A desirable Scenario was selected to solve the key and individual issues. In this section, fundamental issues which integrate the key and individual in implementing the selected desirable scenario will be discussed.

(1) Fundamental Issue No.1: How to change the present system of development dominated by the sectoral approach to the system more oriented to the regional approach

The most critical overall issue, which is related to all of the individual issues, is how to change both of the present systems (sectoral and regional approaches) of development, which tends to reflect certain sectoral interests rather than based on well-balanced regional interests. The past patterns of development were also skewed by the strong initiatives of the sectoral line agencies. The sectoral interests prefer more rapid high profit types of development, paying less attention to sustainability, as well as to how much the regional/local people and business get.

(2) Fundamental Issue No.2: How to strengthen the local government in regional development planning and implementation

Related to the above key issue, another key issue is the weakness of the regional or local entities in the planning and implementation of regional development. The local government is the only entity which can perceive the region as a total system for development, while the sectoral line government agencies cannot. The relationship among different sectors and the resource allocation should be a matter of the total system based on the regional approach, and should not be based on the sectoral approach. The weakness of the local government is derived from the impossibility to control the natural resources and tax revenues available to the region due to the present regulations. This reason is critical in two points. One is that the local government does not have enough funds for development based on regional initiatives. The other is that the local government cannot make effective decisions on resource utilization (including natural resources and other resources).

(3) Fundamental Issue No.3: How to make the spatial structure plan responsive to regional interests and effective in landuse regulation.

The problems expressed by the above two key issues cause the malfunctioning of the provincial spatial structure plan. The planning system has been established. In West and Central Kalimantan, the provincial spatial structure plans were made, but they are neither responsive to regional interests, nor effective in landuse regulation.

The landuse plan is an essential tool for the local government to consider the totality of the region, to express the utilization of the resources and space based on the regional approach, and

to guide the actual development activities. How to make the provincial spatial structure plan responsive to regional interests and effective in landuse regulation is one of the key issues.

5.5 MAJOR STRATEGIES FOR THE RECOMMENDED SCENARIO (SCENARIO 2)

In order to seek the regional development goals, identified previously, Scenario 2 "Diversified Development Scenario by Sustaining the Kalimantan System" is selected. In this and following sections, Scenario 2 will be elaborated . First of all, major strategies are identified which constitute the scenario of regional development. We propose the following eight major strategies which are elements of the scenario:

Eight Major Strategies for Scenario 2

A	Back to the basics: policy changes to attain the sustainability of the Kalimantan System
B	To restructure the existing spatial plans for the era of plantation development
C	To develop a basic and applied research institute for the Kalimantan System
D	To initiate new rural development schemes in the era of plantation development
E	To promote the development of primary urban centers and resource-based industries by providing infrastructure and environmental monitoring/management
F	To support the development efforts in promoting small and medium scale enterprises in the industry sector
G	To develop basic infrastructure to support medium-sized towns and urban-rural linkages in the middle stream areas
H	To promote human resources development for the Kalimantan System

(A) Back to the basics: policy changes to attain the sustainability of the Kalimantan System

In order to achieve the identified goals for Kalimantan's sustainable regional development, it is necessary to get back to the basics, "sustainability". The development sustainability needs to satisfy the following three kinds of sustainability:

- Economic or business feasibility,
- Livelihood sustainability, and
- Environmental sustainability.

Without balancing there three kinds of sustainability, it is difficult to sustain development in a region.

In this sense, the Kalimantan System's natural and social power needs to be utilized in a sustainable manner when the region accepts new economic development activities. Substantial efforts need to be made by changing the existing policies, which have not paid enough attention to the sustainability, to those that seek the natural and social sustainability of the Kalimantan

System while attaining business viability and sustainability. It is necessary to put the highest priority on the efforts to change the present trend of unlimited expansion of large-scale plantations. The first five years are required for shifting to the strategies for sustainable development based on the Kalimantan System.

(B) To restructure the existing spatial plans for the era of plantation development

Unlimited and excessive expansion of plantations is not an acceptable goal for regional development considering the natural and social conditions of the Kalimantan System. However, a certain amount of oil palm plantations do need to be developed on suitable lands for leading the development of the regional economy and for providing the rural population with a new means of livelihood. In this situation, the restructuring of the existing spatial framework is needed to consider the impacts on the regional economy, environment and society. In order to preserve the natural and social power of the Kalimantan System, it is necessary to restructure the existing spatial framework by the following measures:

1) to acknowledge the presence of extensive agroforestry-based livelihood activities, and to incorporate the space/place of extensive agroforestry into the regional spatial framework as significant spatial elements of the region,
2) to create new types of zones to reserve forest resources[1] and water resources, where local people are allowed to conduct low impact extensive agroforestry and extraction activities,
3) to increase the coverage of protected forests in the areas of podzolic/sandy soils and steep slopes, which are fragile and easily become useless once the natural system is destroyed,
4) to expand the areas for watershed protection, for example, the surrounding areas of the Sentarum lakes and the provincial border areas of steep slopes.

(C) To develop a basic and applied research institute for the Kalimantan System

The understanding of the characteristics of the Kalimantan System is essential to wisely and effectively guide the region's directions in development and conservation. The general understanding of the Kalimantan System helped us to formulate the frameworks and basic strategies for sustainable regional development. However, it is inevitable to continue the efforts at expanding and refining our knowledge on the Kalimantan System for the purpose of substantiating our development and conservation efforts.

The natural resources and ecosystems of the Kalimantan System have not yet been sufficiently studied. Applied researches have not been sufficiently conducted for developing knowledge

[1] Although logging operations are done in a 35-year cycle, what kinds of forest management are to be done after the first timber harvest has not yet been clearly decided by the Ministry of Forestry. The transferring of ex-HPH areas to PT Inhutani have been done; however, the second-round timber harvesting is not among the existing issues.

and skills to utilize the resources for economic development. Forest resources in primary and secondary forests, and aquatic resources in rivers, lakes and swamp areas are particularly important for applied research. Not only biological resources, such as gene resources, but also human resources of local knowledge should be included in applied research. This strategy is closely related to the proposed restructuring of the spatial framework.

(D) To initiate new rural development schemes in the era of plantation development

In order to encourage the rural people to participate in regional development and to avoid the marginalization of the rural people in the face of oil palm and pulp wood plantation development, it is necessary to initiate new types of rural development schemes, especially in the areas subject to oil palm plantation development. The initiatives of community-based landuse planning for oil palm plantation development could help to reserve the existing rubber groves and other agroforests for future development, as well as for immediate income earnings.

In the areas where no plantation development is planned, it is necessary to promote an in-situ development of livelihood means by paying serious attention to indigenous people's upland farming. Their upland farming system is called shifting cultivation, swidden agriculture, agroforestry or extensive agriculture. In the effort at rural development, their livelihood system based on nature's power of forest lands should not regarded as obstacles to development. But it should be regarded as "resources of development". It is a highly developed production system based on locally accumulated knowledge on the ecology of soils, forest vegetation, wild animals, climate, and forest-based agriculture in their environment.

(E) To promote the development of primary urban centers and industries by providing infrastructure and environmental monitoring/management

In order to diversify the regional economy largely based on the use of high-volume natural resources and large-area land resources towards the regional economy less dependent on such large-scale resource use and producing high-value goods, services and information, it is important to direct the diversifying efforts at the urban sector and industrial sector.

First of all, it is essential to improve the functions of the region's primary urban centers so that they can provide a variety of business services to their hinterland areas. Because of the geographical size of the region (West and Central Kalimantan), at least three of such urban centers are required for covering the whole region based on the road network.

At the same time, it is necessary to seek industrial development. Among the promising are natural-resource-based industries, such as crude palm oil processing, bauxite exploitation and

refining and pulp production. This is in the direction of development which the Sanggau priority integrated development zone (the Sanggau KAPET) is examining. Besides the Sanggau KAPET, Pangkalanbun-Kumai urban centers with a huge hinterland of prospective oil palm plantations could provide a high development potential for oil palm downstream industries, including the oleochemical industry. Pangkalanbun-Kumai and its hinterland upland areas could be developed in an integrated manner (the Kapet style). For its successful development, infrastructure provision is required. In the present recession period, it is strategically important to review and modify infrastructure development plans for the purpose of preparing for the recovery and development stages, and for the purpose of attracting investments to the region.

However, the operation of such natural-resource-based industries is directly linked to the exploitation and supply of natural resources in the region. The operation of such industries should be kept within the renewable capacity of the natural resources, in order to sustain the nature's and social power of the Kalimantan System.

In addition, since the prospective natural resource-based industries are polluting industries, such as crude palm oil processing, bauxite exploitation and refining and pulp production, the efforts at careful planning for industrial location and environmental monitoring/management are essential.

(F) To support the development efforts in promoting small and medium enterprises in the industry sector

Since the large-scale resource-based industrial development cannot generate enough value added and employment, the promotion of small and medium scale industrial development is inevitable. There is some development potential with existing infrastructure in coastal towns, such as the coastal belt between Pontianak and Pemangkat in West Kalimantan, and Sampit and Pangkalanbun and Kualakapuas in Central Kalimantan. However, it is necessary for the government to continue upgrading economic infrastructure in these areas, as well as institutional supports. At the same time, it is also necessary to pay attention to the agriculture sector which provides raw materials to such small and medium-scale industries.

(G) To develop basic infrastructure to support medium-sized towns and urban-rural linkages in the middle and upper stream areas

In the age of road development and plantation development into the interior of Kalimantan, the roles of urban centers would change substantially. As soon as the road connection to the downstream areas is completed, some urban centers at strategic locations would grow more rapidly than others in the functions of commerce, transport nodes and service centers to rural areas. The characteristics of demand from rural hinterlands to urban centers would also change.

It is important to restructure the existing plan on urban system for adjusting it to the road-based regional spatial structure.

(H) To promote human resources development for Kalimantan

Human resources development is one of the main focuses of Indonesia's present development policy. Indonesia has embarked on the improvement of the quality of education by introducing a compulsory nine-year universal education program, while emphasizing the technology education at the vocational and higher education levels. However, in the inland of Kalimantan, primary school education still has problems and basic improvement is needed. At the same time, vocational training requires different emphases to respond to Kalimantan's specific development problems.

Although Indonesia's health policy is well oriented in preventive health services, it still has great difficulties in reaching many remote areas of inland Kalimantan due to institutional obstacles. More decentralized approaches are needed to improve these situations.

5.6 TIME FRAMEWORK OF THE RECOMMENDED SCENARIO

The target year for our planning study is 2018. We set the development efforts according to the scenario into the time framework consisting of three phases[2].

(1) Phase 1: The first five years from 1999

This 5-year period (1999-2003) should have been used for making a transition from the past trends to the new strategies. However, severyly hit by the economic recession, the region needs priority actions for rescue and recovery of the economy and livelihoods for the first 5 years until 2003.

To make a smooth start at the stablization and development stages in the period of the second five years, it is necessary to do serious efforts at making effective policy changes and attitude changes. For that purpose, a variety of efforts are to be made in the eight directions described above.

(2) Phase 2: The second five years from 2004

In the second five years (2004-2008), the regional economy starts to grow again. The results from the new initiatives, made in the previous phase, need extensive assessment for the improvement of the programs and projects. Based on the changed policies, the new initiatives are to be implemented as full-scale programs and projects.

(3) Phase 3: The last ten years up to 2018

This is the period of substantiating the development efforts which were initiated in the first and second phases. These efforts also help the region in preparation for the next phase beyond 2018.

(4) Phase 4: The years after 2018

Based on the reserved natural resources and trained human resources of the Kalimantan System until 2018, more high value-added economic activities could be generated in rural and urban areas of inland Kalimantan.

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[2] However, since a large part of the regional development efforts and people's livelihood systems in Kalimantan are based on the nature's power of the forests and lands, the period of twenty years is not long enough to be a unit of timber for development. The period of one hundred years is an appropriate time span for forest-based development, so that efforts starting now would bear fruit in one hundred years.

5.7 SOCIO-ECONOMIC FRAMEWORK

5.7.1 Population Framework

The future population framework is set, using various data and information available, and based on the analyses of development potential in social and economic aspects. The spatial and environmental characteristics are also reflected to set the population framework. The work flowchart to set the population framework is shown in Figure 5.7.1.

(1) Population Growth Rates

As indicated in the flowchart, the population estimation was based on the growth rates of both urban and rural population. Basic assumptions are taken from various plans available at related agencies in Indonesia. The population growth rates used for setting the population framework are shown in Table 5.7.1. Both the urban and rural population growth rates are higher in Central Kalimantan than West Kalimantan because Central Kalimantan's capacity for further land development is greater than West Kalimantan's. Development of tertiary urban centers and industrialization of existing urban centers are accelerated in line with the urban development in the upland areas and transportation network improvement .

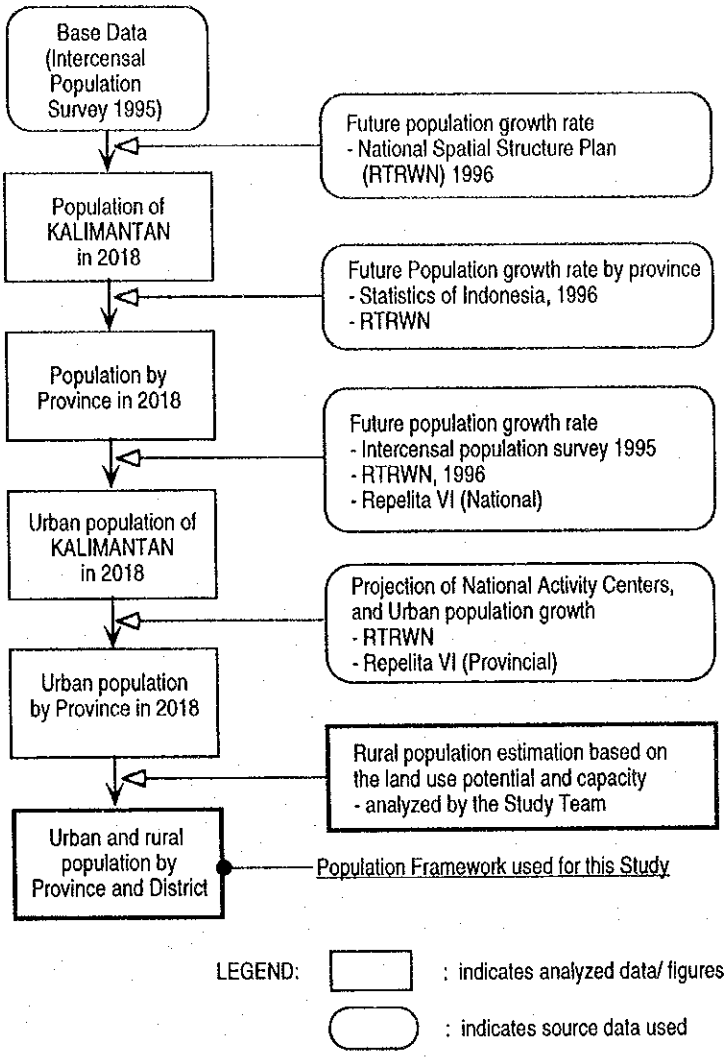
Table 5.7.1 Population Growth Rates of the Population Framework

Unit: as indicated

Name of Province	1995 - 1998	1998 - 2003	2003 - 2008	2008 - 2018
West Kalimantan	2.27%	2.16%	2.14%	2.07%
Urban	2.41%	3.59%	3.38%	3.02%
Rural	2.23%	1.72%	1.72%	1.72%
Central Kalimantan	3.06%	2.98%	2.87%	2.74%
Urban	4.35%	3.27%	3.32%	3.38%
Rural	2.68%	2.89%	2.73%	2.52%
The Study Area	2.51%	2.42%	2.38%	2.30%
Urban	3.01%	3.49%	3.36%	3.13%
Rural	2.37%	2.09%	2.05%	2.00%

Source: (1) JICA-SCRDP Kaltengbar's estimation
(2) National and provincial statistics, Repelita VI and spatial development plan

Figure 5.7.1 Work Flow of Setting the Population Framework



(2) Population Framework

The estimated future populations of West and Central Kalimantan are shown in Table 5.7.2. As mentioned previously, the estimation was carried out both by population growth rate analyses based on the past record and future plans, and the rural population absorption capacity analysis based on the land potential and development plans. The population growth rates by province were set in accordance with various development plans and official projections. Based on the analysis of rural population absorption capacity at the district level, the calculation of rural population was done by district. The district populations in accordance with the population framework are shown in Table 5.7.4.

Table 5.7.2 Population Framework

Unit: 1,000 persons

Name of Province	District Area (sq.km)	1995	1998	2003	2008	2018
West Kalimantan	146,807	3,636	3,889	4,327	4,810	5,906
Urban		826	887	1,058	1,249	1,681
Rural		2,810	3,002	3,270	3,561	4,224
Central Kalimantan	153,564	1,627	1,781	2,062	2,376	3,112
Urban		366	416	488	575	801
Rural		1,261	1,365	1,574	1,801	2,311
The Study Area	300,371	5,263	5,669	6,390	7,186	9,018
Urban		1,191	1,302	1,546	1,824	2,483
Rural		4,071	4,367	4,844	5,362	6,535

Source: (1) JICA-SCRDP Kaltengbar's estimation
(2) National and provincial statistics, Repelita VI and spatial development plan

(3) Urbanization

Table 5.7.3 shows the urban population ratios of the two provinces in the designated planning years. Urbanization is an unavoidable trend not only in the study area but also throughout the whole nation. However, the urbanization ratios in the study area are not so high as Western Indonesia because the economic base of the study area is considered to remain resource-based.

Agriculture and agroindustries are the main economic activities during the planning period. Further industrialization and urbanization can be realized if environmentally and socially sound development is achieved, and if more favorable regional and interntional business climates are realized in the future. Slightly less than 30 percent of the total population will be urban in the study area.

Table 5.7.3 Urban Population Ratios of the Population Framework

Unit: as indicated

Name of Province	1995	1998	2003	2008	2018
West Kalimantan	22.7%	22.8%	24.4%	26.0%	28.5%
Central Kalimantan	22.5%	23.3%	23.7%	24.2%	25.8%
The Study Area	22.6%	23.0%	24.2%	25.4%	27.5%

Source: (1) JICA-SCRDP Kaltengbar's estimation
(2) National and provincial statistics, Repelita VI and spatial development plan

Table 5.7.4 District Populations of the Population Framework

West Kalimantan						Unit: '000 persons
Name of District (Kabupaten)	Area of District (sq.km)	1995	1998	2003	2008	2018
Sambas	12,296	844	865	925	1,002	1,185
Urban		132	142	170	205	257
Rural		712	724	755	798	928
Pontianak	18,171	869	934	1,045	1,171	1,423
Urban		155	167	203	248	318
Rural		714	767	842	923	1,105
Sanggau	18,302	487	500	532	572	710
Urban		30	35	46	59	113
Rural		457	465	486	513	597
Ketapang	32,279	365	445	536	624	774
Urban		26	28	33	38	47
Rural		339	417	503	586	728
Sintang	29,842	447	458	488	529	635
Urban		23	26	35	47	68
Rural		423	432	453	482	567
Kapuas Hulu	35,809	176	210	245	276	320
Urban		11	12	14	17	21
Rural		165	198	231	259	299
Kotamadya Pontianak	108	448	478	557	636	858
Urban		448	478	557	636	858
Rural		0	0	0	0	0
Provincial Total	146,807	3,636	3,889	4,327	4,810	5,906
Urban		826	887	1,058	1,249	1,681
Rural		2,810	3,002	3,270	3,561	4,224
Central Kalimantan						Unit: '000 persons
Kotawaringin Barat	21,000	210	240	296	362	531
Urban		61	71	85	102	147
Rural		149	169	211	260	383
Kotawaringin Timur	50,700	448	493	575	665	870
Urban		85	96	110	128	172
Rural		363	397	465	538	699
Kapuas	34,800	500	533	594	657	780
Urban		30	34	39	45	60
Rural		470	499	555	612	720
Barito Selatan	12,664	164	187	231	282	413
Urban		27	31	37	43	60
Rural		137	156	194	239	353
Barito Utara	32,000	156	161	170	178	195
Urban		28	32	38	45	64
Rural		129	129	132	133	132
Palangkaraya	2,400	147	167	197	232	323
Urban		133	152	180	213	300
Rural		14	15	17	19	23
Provincial Total	153,564	1,627	1,781	2,062	2,376	3,112
Urban		366	416	488	575	801
Rural		1,261	1,365	1,574	1,801	2,311

Source: (1) JICA SCRDP-Kaltengbar's estimation
(2) National and provinsial statistics, Repelita VI and spatial development plan

5.7.2 Economic Framework

The economic framework presented here is that of Scenario-2 (sustainable and the most preferable case). The most probable growth path will be somewhere between the crisis case (Scenario-3) and the sustainable case (Scenario-2). However, the socio-economic framework shown here presents the best case scenario if all factors work to achieve sustainable development in the future. For the discussion of the crisis case (Scenario-3), see the discussion paper in Technical Report (2) of this study.

(1) Economic Growth

It is considered that the growth rates of GRDP will be considerably less than the target figures estimated in Repelita VI and PJP II. The first five years of the planning period (1999-2003) would be a preparatory stage for the next development stages.

Another reason is connected to the current economic crisis, which started in July, 1997. Due to the seriousness and complexity of this economic crisis, it is very difficult to predict the growth in even the near future. According to Bappenas, it is projected that it would take another five years to recover the previous levels of economic activities. Therefore, we presume the real growth rate between 1998 and 2003 will be 0 %. In addition, we use the 1996 GRDP figures as the 1998 starting value of the planning period.

The GRDP of each province is divided into three sectors: 1) the primary with agriculture, forestry, fishery and mining sub-sectors, 2) the secondary with manufacturing industry, utilities and construction, and 3) the tertiary with trade, transport and other services.

The agricultural sector, which is dominant in both provinces, will play an important role in a sustainable manner, although the forestry subsector, especially the logging industry, will decrease its contribution to regional economies. Taking these into account, the annual growth rates of agriculture are calculated based on the growth rates of the rural population and the improved productivity in the future.

The secondary and tertiary sectors are expected to grow rather moderately compared with the existing plan of Repelita VI. In the manufacturing sector, a substantial decline in the wood processing industry, plywood, may occur because of the shortage of raw material supply in the future. The growth rates of urban population are taken into account in the calculation of the growth rates of the secondary and tertiary sectors.

Table 5.7.5 shows GRDP by sector over the planning period.

Table 5.7.5 GRDP by Sector

Unit: billion Rp.

	1998	2003	2008	2018
West Kalimantan:				
Primary	1,647	1,647	1,977	3,135
Secondary	1,804	1,804	2,234	3,647
Tertiary	3,261	3,261	4,039	6,592
sub-total	6,712	6,712	8,250	13,374
Central Kalimantan:				
Primary	1,617	1,617	1,879	2,651
Secondary	730	730	904	1,490
Tertiary	1,689	1,689	2,091	3,448
sub-total	4,036	4,036	4,874	7,589
Total of the Study Area:				
Total GRDP	10,748	10,748	13,124	20,963

Source: JICA-SCRDP Kaltengbar

The average growth rate over the planning period in West Kalimantan would be 3.5% per annum, while that in Central Kalimantan would be 3.2%.

(2) Structural Change

The average growth rate over the planning period in West Kalimantan would be 3.5% per annum, while the sectorwise growth rates are 3.3% for the primary sector, and 3.6% for the secondary and tertiary sectors. In Central Kalimantan, the overall growth rate would be 3.2%, while that of the primary sector is 2.5%, and the secondary and tertiary sectors with 3.6%.

The projected percentage share of the GRDP of West and Central Kalimantan are given in Table 5.7.6.

Table 5.7.6 GRDP Share by Sector

Unit: as shown in the table

	1998	2003	2008	2018
West Kalimantan:				
Primary	24.5%	24.5%	24.0%	23.4%
Secondary	26.9%	26.9%	27.1%	27.3%
Tertiary	48.6%	48.6%	49.0%	49.3%
(total)	100.0%	100.0%	100.0%	100.0%
Central Kalimantan:				
Primary	40.1%	40.1%	38.6%	34.9%
Secondary	18.1%	18.1%	18.5%	19.6%
Tertiary	41.9%	41.9%	42.9%	45.4%
(total)	100.0%	100.0%	100.0%	100.0%

Source: JICA-SCRDP Kaltengbar

The share of the primary sector in West Kalimantan, the major part of which is of agriculture, will gradually decline from 24.5% in 1998 to 23.4% in the final year of the planning period, 2018, but still maintain a substantial portion of the regional economy. The secondary sector, on the other hand, would increase its share in GRDP at a slower pace, and reach 27.3% in 2018. The same would be expected in the tertiary sector with 0.7 point increase of the share in the final year.

In Central Kalimantan, the importance of the primary sector would decline in the long run although the forestry subsector might be replaced by other types of the economic activities in the primary sector. The secondary sector, especially the manufacturing industry, would sitll not be able to contribute enough to the GRDP with a 1.5% increase. Instead, the tertiary sector would be expected to absorb the declined portion of the agriculture sector.

(3) Per Capita Income

The per capita income of West Kalimantan at the 1993 constant price is expected to decline more than 10% over the first planning period (1998-2003), from Rp. 1,726,000 in 1998 to Rp. 1,551,000 in 2003, due to the zero growth assumption during the period. Then, from the second planning period, it would start to increase to Rp. 2,264,000 in 2018 with an improvement of 46% compared to that in 2003.

The per capita income of Central Kalimantan would decrease more than that of West Kalimantan over the first planning period, from Rp. 2,266,000 in 1998 to Rp. 1,957,000 in 2003 with a 14% decrease, due to the higher growth rate of population of the province. The increase would start from the second planning period, however, its improvement would be rather moderate with a 24.6% increase compared to that in 2003.

Comparing these two per capita incomes in the final year (2018) of the planning period, the difference between the two would be smaller. The starting level of West Kalimantan would have been three fourths of that of its neighbor in 1998, while in the final year of the planning period, it would achieve 93% of the latter.

CHAPTER 6

FRAMEWORKS AND BASIC STRATEGIES OF THE MASTERPLAN FOR SUSTAINABLE REGIONAL DEVELOPMENT

CHAPTER 6 FRAMEWORKS AND BASIC STRATEGIES OF THE MASTERPLAN FOR SUSTAINABLE REGIONAL DEVELOPMENT

6.1 INTRODUCTION

The scenario and the major strategies, which are discussed and selected in Chapter 6, are the principles which guide the formulation of the masterplan for regional development.

The masterplan is constituted of six sets of frameworks and basic strategies, covering 1) spatial development, 2) economic development, 3) social development, 4) infrastructure development, 5) environmental and resource management, and 6) institutional management.

Each set of framework with its basic strategies is constructed to show a whole regional picture of each aspect. They are constructed to frame a variety of elements (for example, economic sectors and subsectors for the framework of economic development) by showing some emphases on certain elements or by showing relations of two elements.

Different frameworks adopt different styles for presentation because each aspect reflects different perspectives and has a unique set of elements and actors.

6.2 FRAMEWORK AND BASIC STRATEGIES FOR SPATIAL DEVELOPMENT

6.2.1 Objectives of Spatial Development

- To establish a more economically, environmentally and socially sustainable spatial structure based on the nature's power and socio-economic power of the Kalimantan System, and

- To transform the river-based spatial structure into a road-based spatial structure whose road network is carefully planned not only to encourage economic and social development but also to avoid unnecessary environmental disturbance

6.2.2 Basic Strategies of Spatial Development

- Restructuring of the existing road network plan into a road network plan which is carefully made to avoid unnecessary negative environmental impacts of road development

- Formation of Upland Development Corridor to guide plantation development and to encourage smallholder upland agriculture

- Formation of an Urban Center System based on roads to serve the needs of a wider range of residents and their economic activities

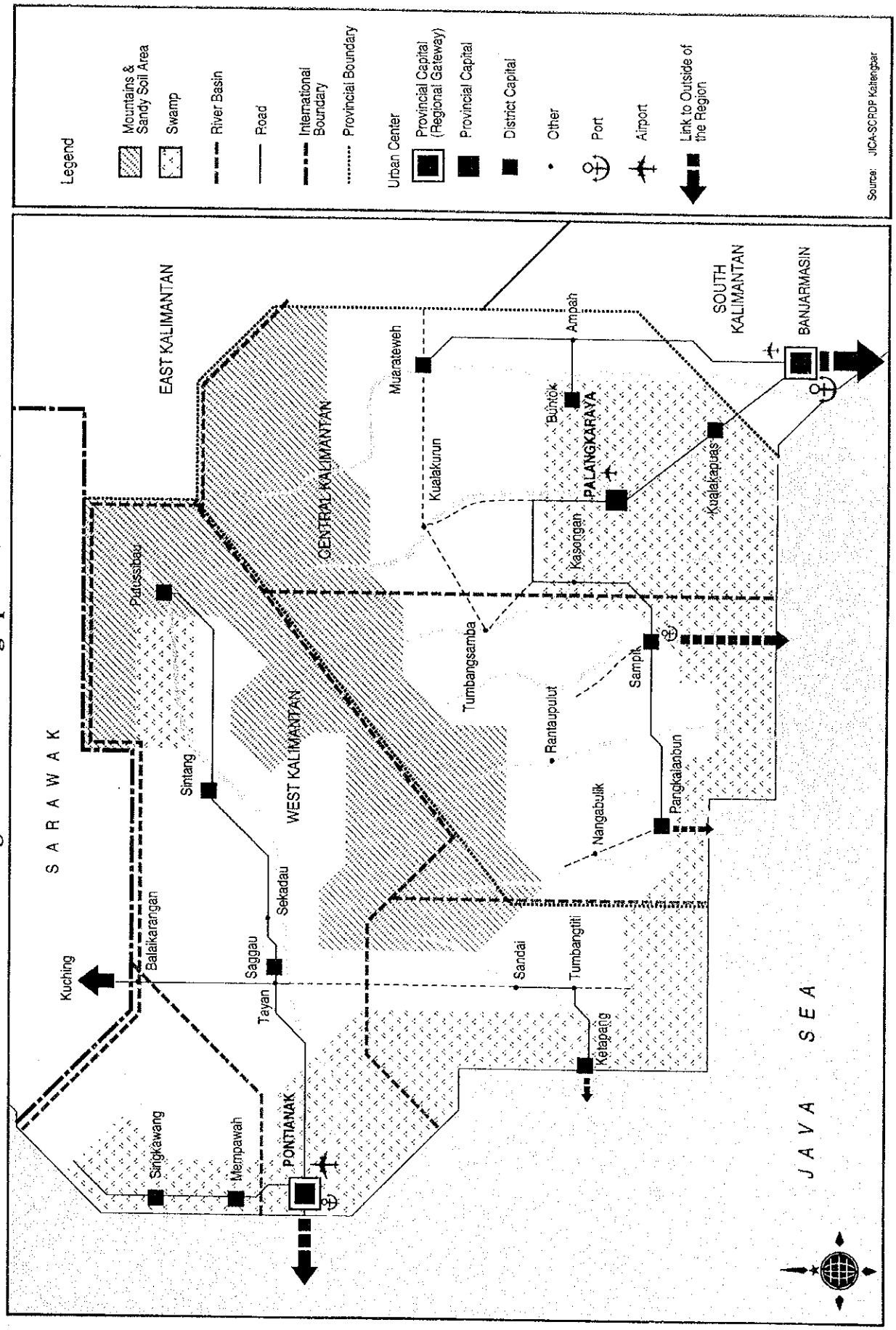
6.2.3 Framework of Spatial Development

(1) Existing Regional Setting and Regional Spatial Structure

The western part of Kalimantan (West and Central Kalimantan) occupies a strategically advantageous location in the international setting. Pontianak is located at a distance of 700 km from Singapore, as well as from Jakarta. Palangkaraya is located at a distance of 700 km from both Surabaya and Semarang of Java.

As for Kalimantan's economic relation to other regions of Indonesia, Kalimantan has been a provider of natural resources to other regions, especially to Java. In the past, Kalimantan was fragmented into river basins without road connections among different river basins. Each river basin was independently connected to Java and other regions, exporting natural resources and importing goods. The river basins in Kalimantan had not been well integrated with each other until recently when roads started crossing and connecting river basins. The existing regional spatial structure is illustrated in Figure 6.2.1.

Figure 6.2.1 Existing Spatial Structure



However, based on its natural resources and its strategic location, Kalimantan should seek a path to become a self-sufficient region. Kalimantan should increase its own geographical integration by expanding and improving its road network, so that it could be an integrated, large and strong economic region.

The major gateways of the region are Pontianak, Entikong, Pangkalanbun-Kumai, and Palangkaraya. Pontianak plays a role of the international gateway for the western part of Kalimantan, while Balikpapan is the international gateway for the eastern part of Kalimantan. Pontianak is also a gateway to other regions of Indonesia by ship and airplane. West Kalimantan has a long national borderline with Malaysia's Sarawak. Entikong is a major gateway through road transport to Sarawak. Pangkalanbun-Kumai will be upgraded as a regional gateway mostly to Java by ship and airplane. Palangkaraya-Banjarmasin is also a major regional gateway to other regions of Indonesia by airplane.

(2) Landuse Framework and Upland Development Corridor

Kalimantan has its own salient features in natural conditions. The land of Kalimantan is largely divided into three categories: 1) peat swamp areas, 2) areas of steep slopes or sandy soils and 3) upland areas. The first two areas, peat swamp areas and steep slope/sandy soils should be conserved, while development should be promoted only on the last one, upland areas. We have identified the upland development corridor in which planned and organized development activities should be concentrated. See Figure 6.2.2.

(3) Changes in Service Coverage of Urban Centers

The economic activities in each river basin used to be supported by river transport, and they were relatively independent of those in adjacent river basins. The downstream towns played roles as gateways. See the present service coverage of major urban centers in the river-based regional spatial structure in Figure 6.2.3.

In the future, a regional road network will be expanded to reach almost all areas of the region. The roads will connect the towns or urban centers which have been developed based on rivers. The road network will help the urban centers to expand their service areas. As a result, the urban centers would increasingly grow in their roles in the age of road-based regional integration. Figure 6.2.3 shows the future service coverage of major urban centers in the road-based regional spatial structure.

Figure 6.2.2 Landuse Framework and Upland Development Corridor

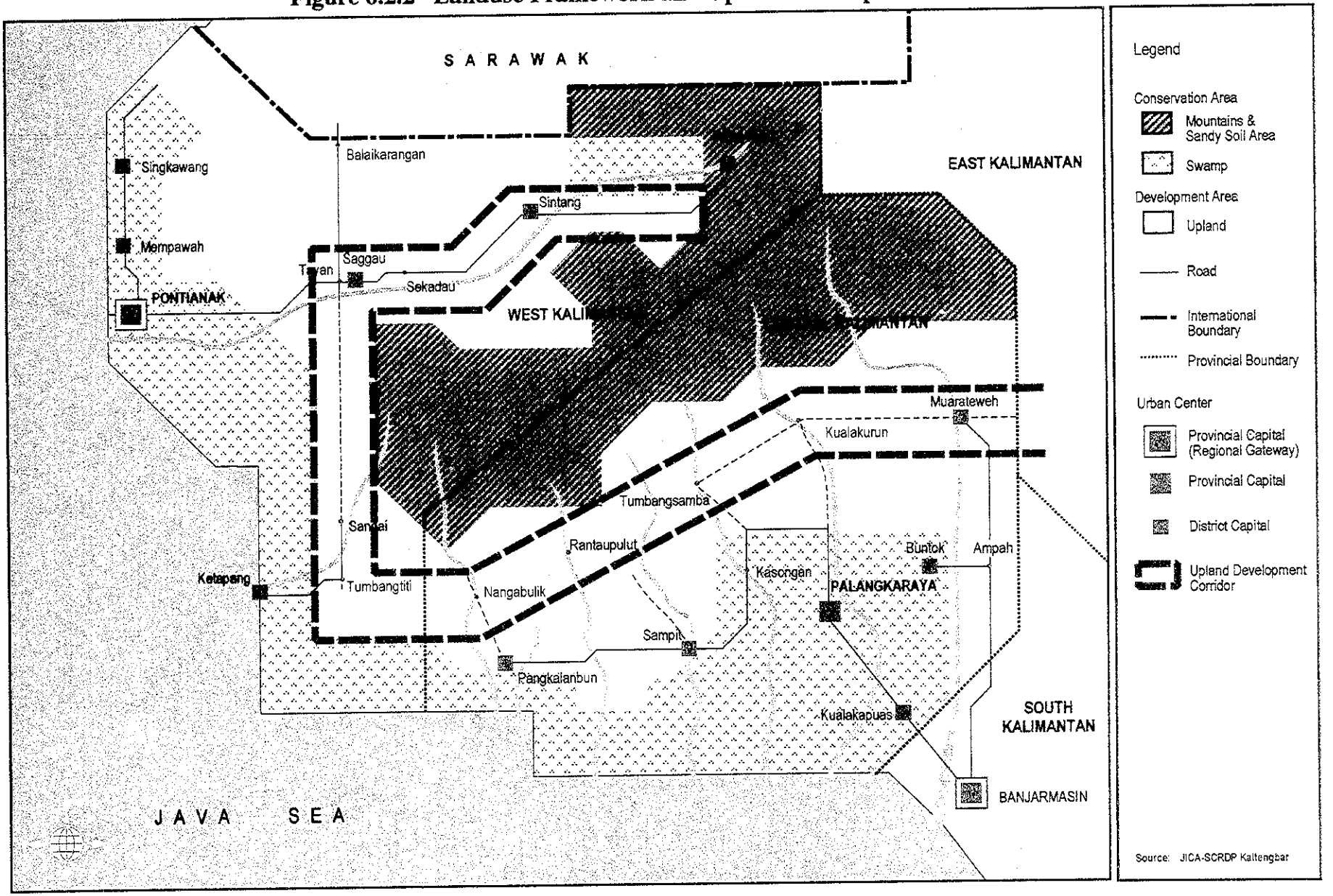


Figure 6.2.2 Landuse Framework and Upland Development Corridor

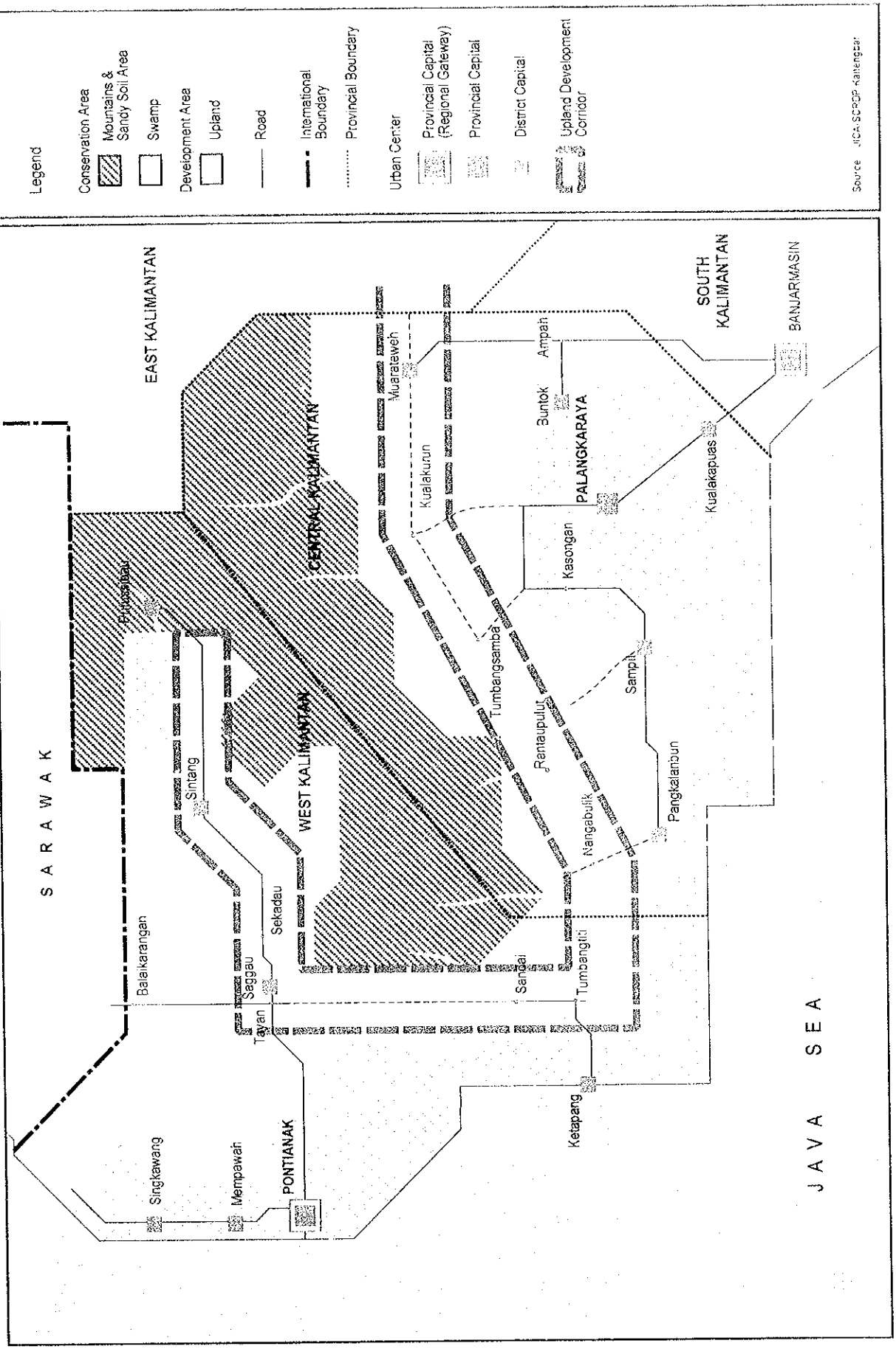
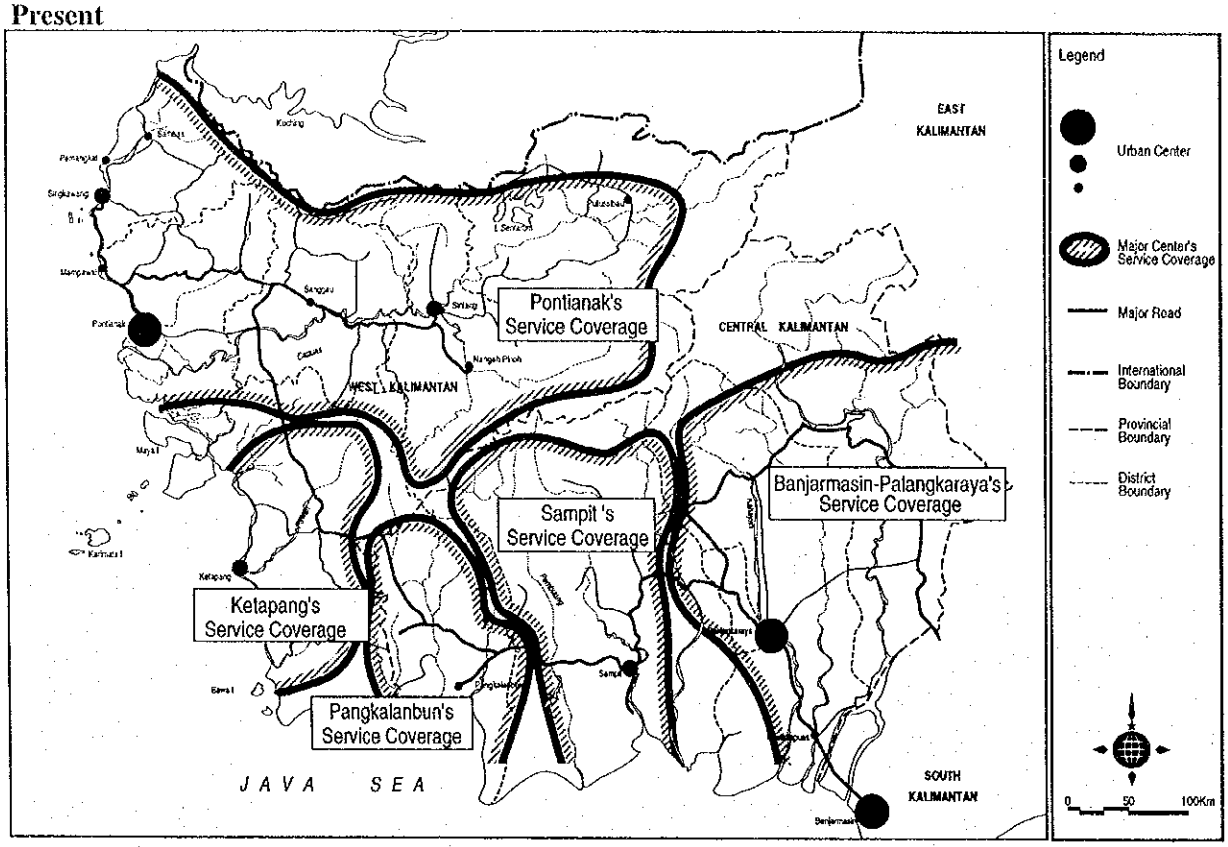
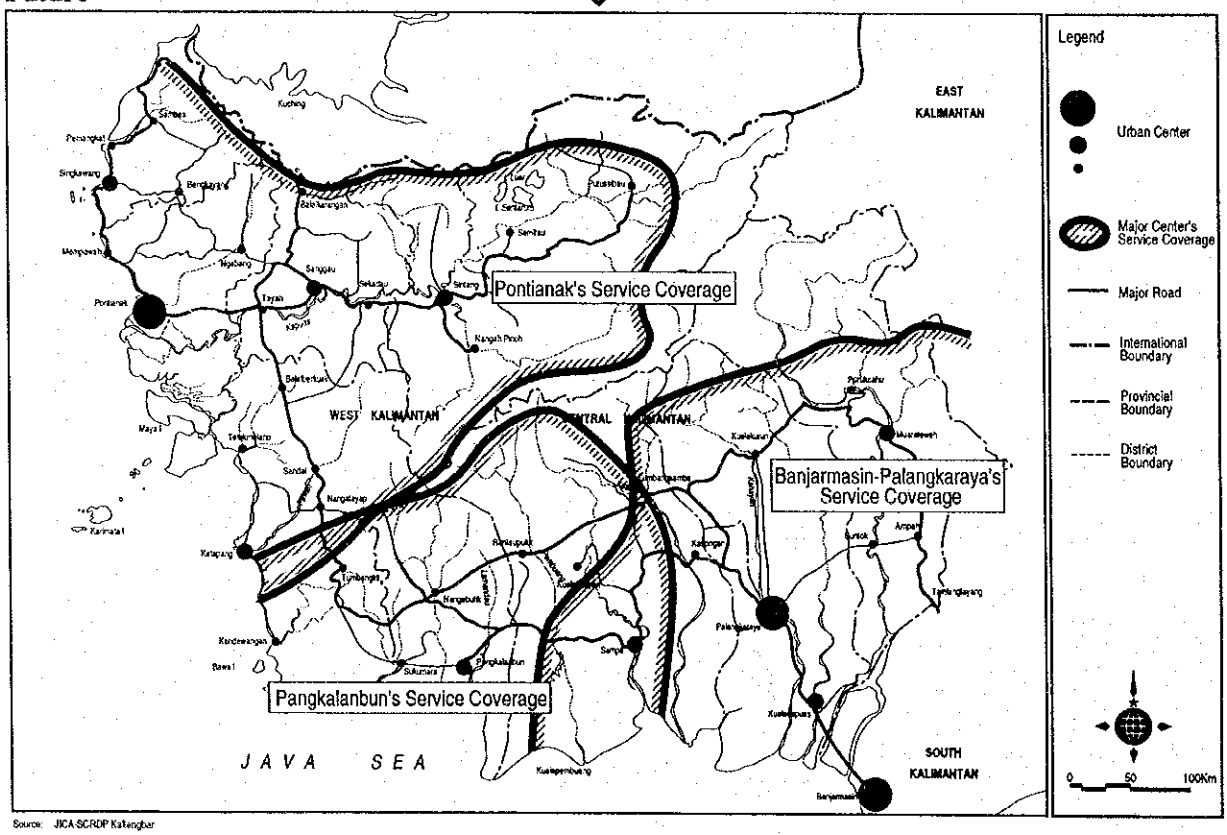


Figure 6.2.3 Service Coverage of Regional Centers

Present



Future



Source: JICA-SCRDP Kaltengbar

(4) Future Regional Spatial Structure

In the shift in regional transport from rivers to roads, the road development connecting downstream areas with upland areas has increased the development potential of upland areas, especially for oil palm plantations. To respond to this regional spatial structural change, the major road network of the region should be reorganized. The major road network should serve the formulation of the upland development corridor. See Figure 6.2.4.

The road network is to be established by connecting roads to Pontianak and to Palangkaraya/Banjarmasin, which are regional primary urban centers and regional gateways. The areas surrounding Pangkalanbun and Kumai are far from both Pontianak and from Palangkaraya/Banjarmasin. As a result, the accessibility to higher urban functions is relatively poor in these areas at present. Therefore, Pangkalanbun and Kumai should be developed as a regional urban center with a wide service area.

In addition, the upland development corridor we identified is not vacant land but also the place of traditional upland communities. Our strategy based on the Kalimantan System pays attention to the social power of the Kalimantan System. These communities practice extensive agriculture along the rivers and streams. The formulation of the upland development corridor should allow the co-existence of new land development businesses, such as oil palm plantation, and the existing livelihood systems. It is necessary to prepare some arrangements which allow the upland farmers to combine the new coming oil palm smallholder plantations with the existing livelihood options of rubber and upland paddy cultivation.

The prospective increase of road transport' roles does not reduce the importance of rivers in local passenger transport and long distance bulk cargo transport. Therefore, it is necessary for the government to make efforts at maintaining river transport.

(5) Service Areas of Tertiary Urban Centers (Order-3 Urban Centers)

For the purpose of regional integration based on road development, it is strategically important to promote tertiary urban centers and to make substantial linkages between tertiary urban centers and the road network, since secondary urban centers (mostly district capital towns) have been involved in the road network. The tertiary urban centers have service areas covering the most remote areas in upper stream areas. See the future service areas of tertiary urban centers (Order-3 urban center) in Figure 6.2.5.

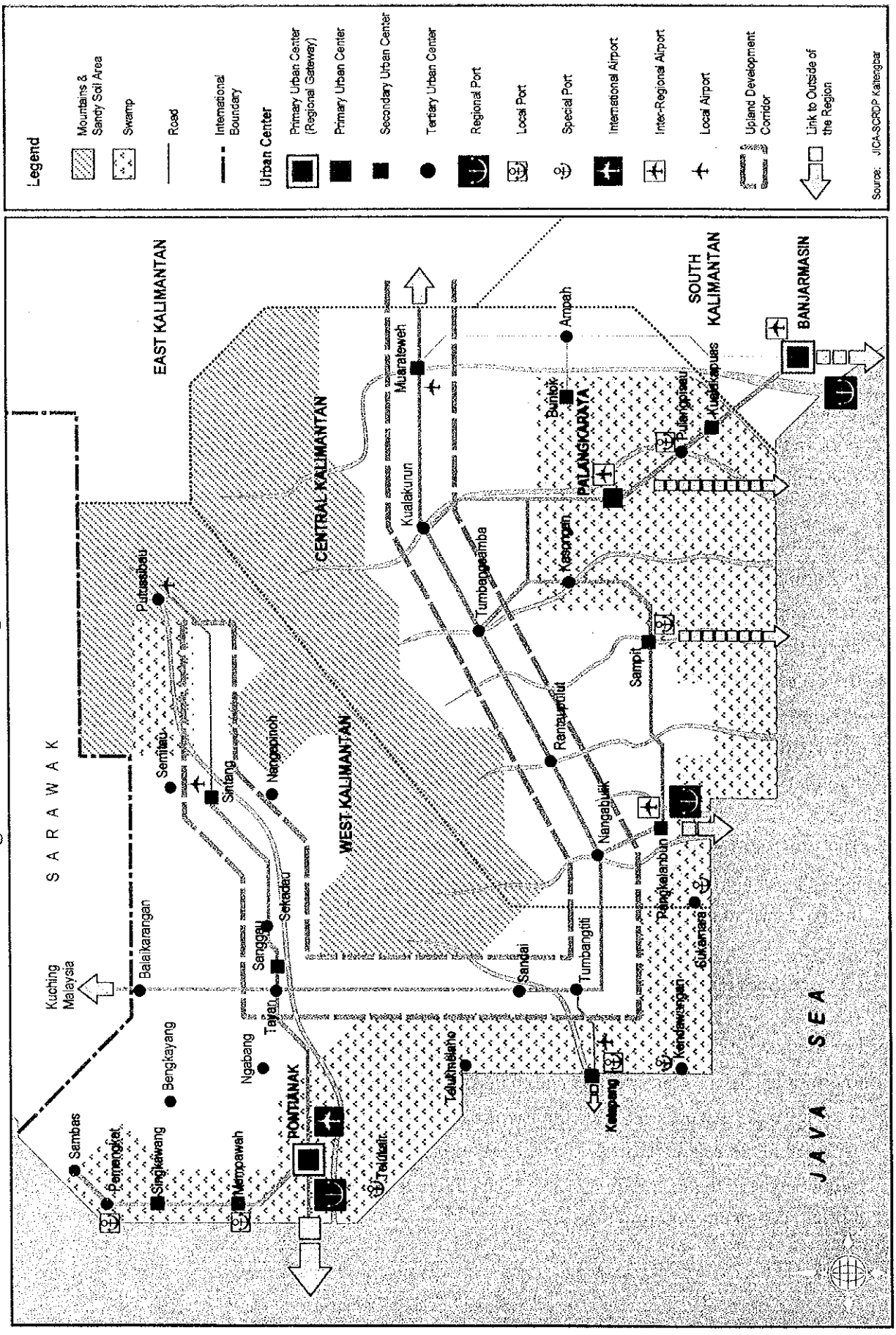


Figure 6.2.4 Future Spatial Structure

Figure 6.2.4 Future Spatial Structure

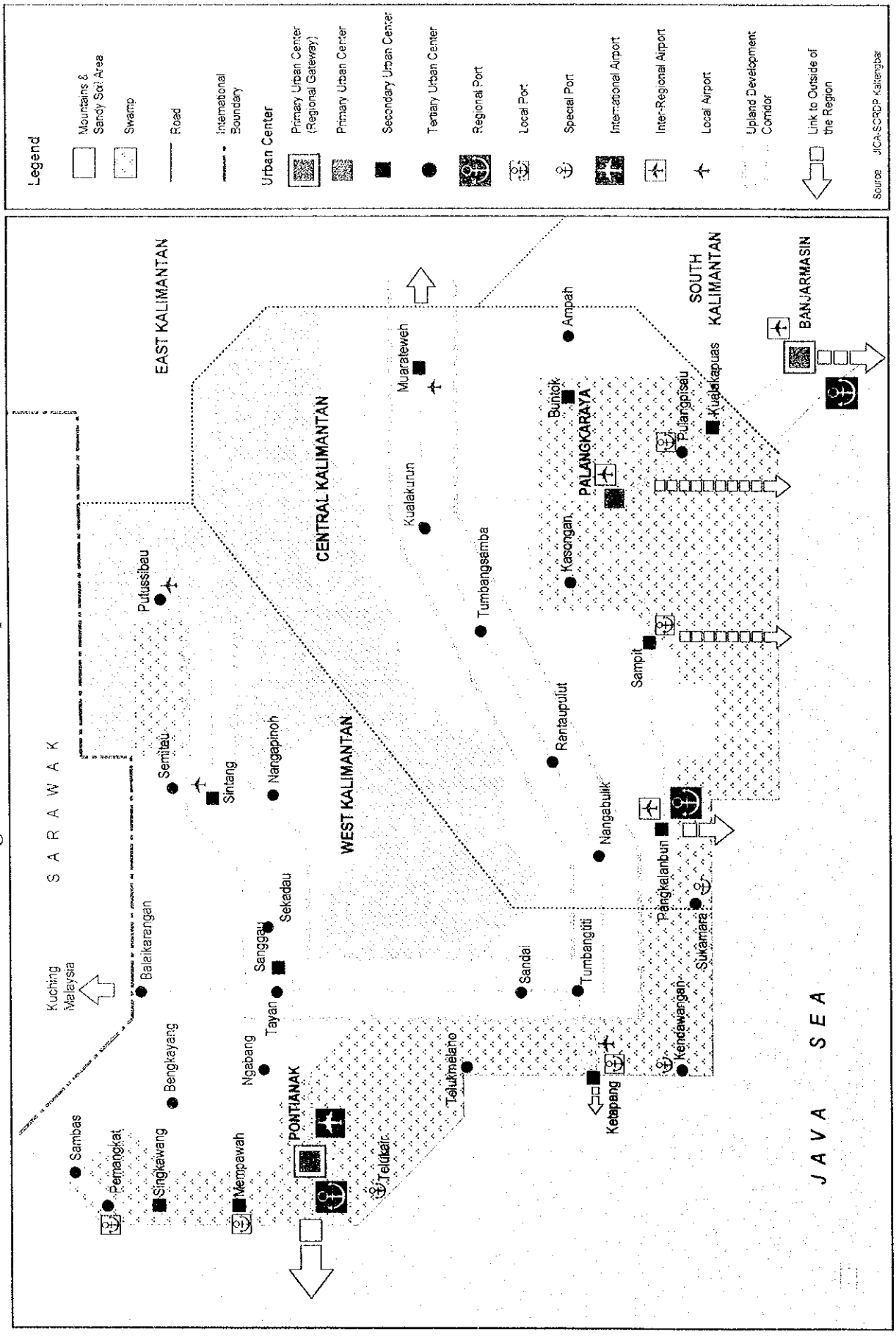


Figure 6.2.5 Future Service Area of Order 3 Urban Centers

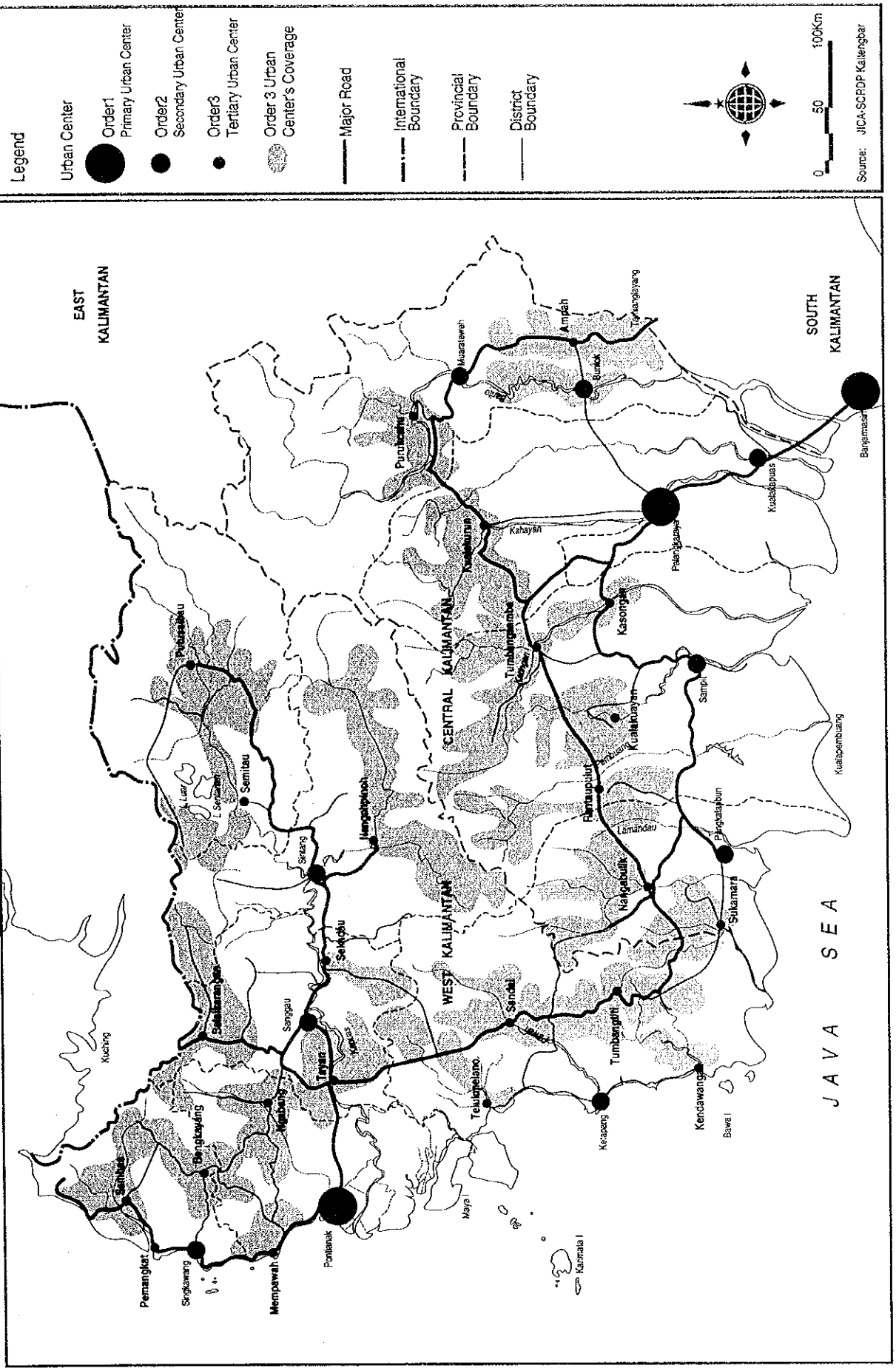
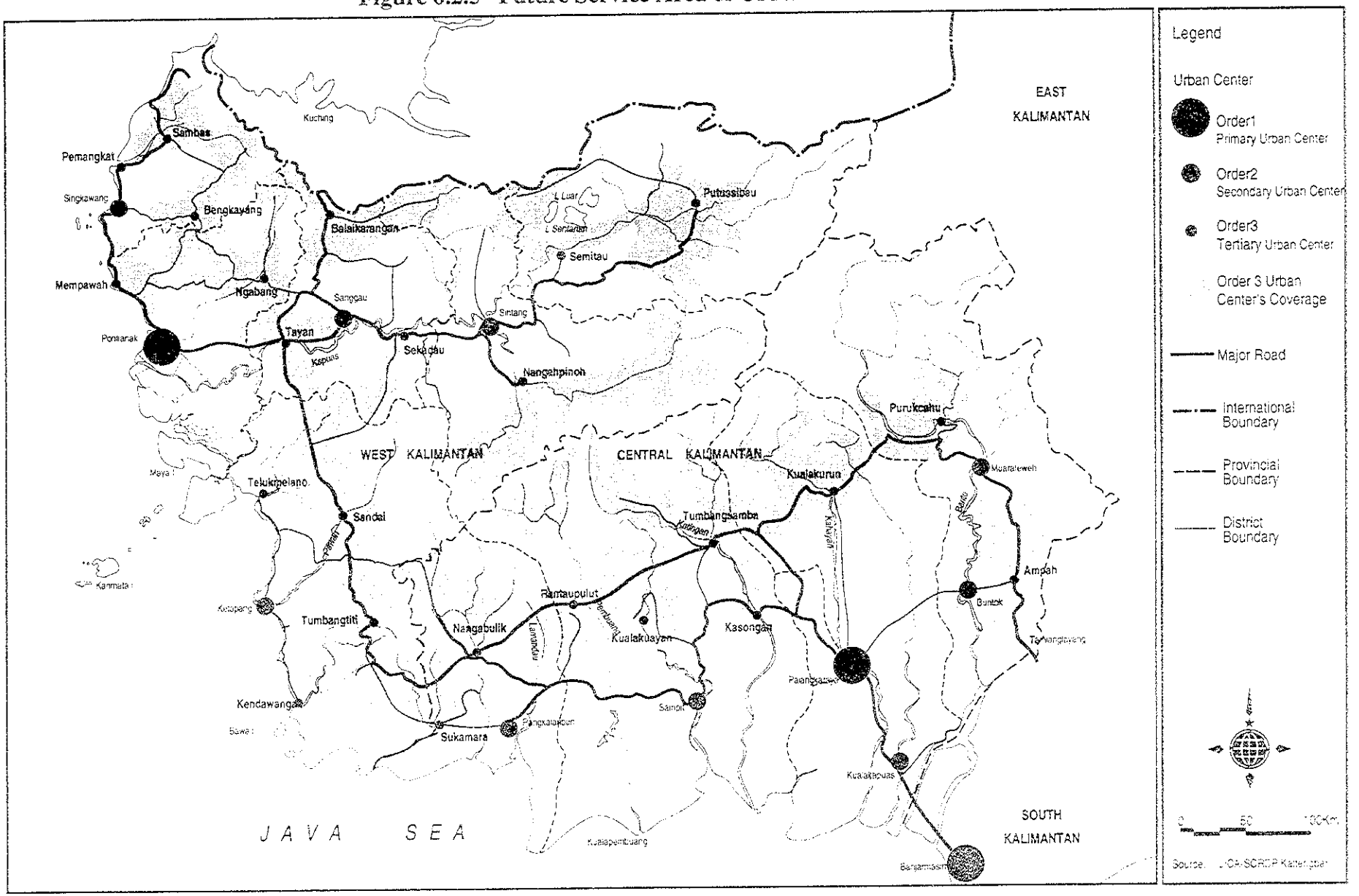


Figure 6.2.5 Future Service Area of Order 3 Urban Centers



6.2.4 Development Zones

As shown in Figure 6.2.6, the following seven development zones are identified as strategic areas for priority development throughout the next 20 years, 1999-2018:

1) Upland Ecological Development Corridor
2) Pontianak Urban and Industrial Development Zone
3) Tayan-Sanggau Urban Development Zone
4) Pangkalanbun-Kumai Port and Industrial Development Zone
5) Entikong Border Free Trade and Processing Zone
6) Coastal Industrial Zone (Pontianak-Sambas)
7) Kualakapuas SME Promotion Zone
8) Kapuas Hulu Eco-Tourism Zone

(1) Upland Ecological Development Corridor

The Upland Development Corridor is the identified zone which has a high potential for economic and social development as shown in Figure 6.2.2. Stretching from the district of Ketapang in West Kalimantan through the Central Kalimantan districts of Kotawaringin Barat and Kotawaringin Timur, is the lower part of the Upland Development Corridor which, should be designated as "Upland Ecological Development Corridor" for priority development efforts. It is because this zone has relatively good soils although it is relatively underutilized. In fact, many development permits of oil palm plantations have been already obtained by private companies.

At present, small-scale upland farming communities are scattered throughout the corridor. The mainstay of their livelihood is upland paddy and rubber trees. Many of them will be involved in prospective oil palm plantation development as smallholders. Even though they will be joining oil palm plantation schemes, they should retain existing livelihood measures to keep their livelihood diversified and stable, to keep their bases of culture and society rooted to forests, and to keep their forest-based environment biologically diversified.

Well coordinated efforts for integrated development of the corridor should be made to realize an economically efficient, ecologically sound and socially stable zone. To achieve this, it is necessary to invent special measures to attain desirable landuse patterns.

This corridor is divided into two parts: one in West Kalimantan and the other in Central Kalimantan. The whole area of the Upland Ecological Development Corridor covers approximately 2.3 million ha of land, which will include 0.5 million ha of oil palm plantations. The population in this corridor will be 1.4 million in 2018.

(2) Pontianak Urban and Industrial Development Zone

Pontianak will be a primary regional center covering the western part of Kalimantan. It is necessary for Pontianak to prepare for both physical expansion and upgrading of urban functions. The areas of the western part of Kalimantan will be increasingly connected to Pontianak by road. In the age of road development and regional integration, the roles of the primary regional center are expanding. Pontianak should be well prepared for increasing demands for road transport serving the whole region. An urban structure plan and landuse control measures should be made by modifying the existing plan to the road-based situation at the early stage of development.

On the other hand, Pontianak has the largest industry base in the western part of the Kalimantan. Although its main industries are the wood processing industries, which are faced with the foreseen decline of production due to timber shortage, alternative industrial development should be promoted on the basis of the potential of the existing industries.

(3) Tayan-Sanggau Urban Development Zone

Tayan is located at the intersection of the east-west axis from Pontianak to Sanggau extending to Sintang and the north-south axis from Entikong to the district of Ketapang. The Upland Development Corridor, which is identified in the above section, is along the two axes of national roads (Trans-Kalimantan Highway). Tayan is also located on the Kapuas river. It is said that 3,000 DWT of barge can navigate throughout one year from Pontianak up to Tayan. Crude palm oil and other bulky goods can use the waterway to and from outside the region, such as Singapore and other parts of Indonesia.

In this sense, Tayan is suitable for the development of a transport terminal covering river and road transport, as well as for industrial development based on material from the surrounding areas. In addition, Sanggau, a district capital with commercial and administrative functions, is in the vicinity of Tayan. Tayan-Sanggau is a strategic zone for upgrading urban and industrial functions. However, since the Tayan-Sanggau zone is located in the upper stream of Pontianak, environmental impacts would be a serious concern in the industrial development of this area. Serious consideration of industrial location and its environmental impacts is required.

(4) Pangkalanbun-Kumai Port and Industrial Development Zone

Pangkalanbun-Kumai should be designated as a strategic development zone for an industrial port and industrial estate. Pangkalanbun-Kumai satisfies the following strategic locational conditions of the oleochemical industries:

- Kumai has deep sea port conditions.
- Kumai has low sedimentation partly because of its location at the mouth of a relatively short river.

- Kumai is the nearest port from the surrounding upland oil palm plantations.
- Pangkalanbun, a district capital, which could be an urban service and business center for Kumai, is closely located to Kumai.
- Pangkalanbun has direct flight connections with Pontianak, as well as with Semarang, Java.
- Pangkalanbun and Kumai are not in swamp areas, unlike the other ports, such as Sampit and Kualakapuas.
- Trans-Kalimantan Highway passes through Pangkalanbun close to Kumai.

When the Upland Ecological Development Corridor is realized, the future hinterland population of Pangkalanbun-Kumai will be 1.4 million, and the crude palm oil (CPO) production will be 1.5 million tons per year. This means that Kumai port can expect 1.5 million tons of cargo outgoing and 1.5 million tons of cargo incoming (0.8 million tons for fertilizer, pesticide and plantation-related goods, 0.7 million tons of general cargo for the hinterland population). Therefore, the total cargo handling would be 3 million tons per year. In addition, if oleochemical industries are established, additional supporting goods will be handled by Kumai port.

In 1990, the urban population of Pangkalanbun was 24,500. In general, the size of a regional center is approximately 10 % of the hinterland population. If this general assumption applies, the urban population of Pangkalanbun and Kumai would be beyond 100,000 in the next two decades.

(5) Entikong Border Free Trade and Processing Zone

Entikong is one of the border crossing areas between Indonesia's West Kalimantan and Malaysia's Sarawak. Kuching is a potential market and an urban service center on the Malaysian side. The relatively cheap labor force on the Indonesian side and the higher investment capacity and management skill of Malaysian side can be combined to create a border free trade and processing zone at Entikong. In fact, after the economic crisis, taking advantage of weaker rupiah, the border trade at Entikong and other borders are flourishing. In order to achieve a more orderly and organized development of border trade and processing, it is necessary to designate and set up a special zone for free trading and processing at Entikong.

(6) Coastal Industrial Zone (Pontianak - Sambas)

The coastal zone between Pontianak and Sambas in West Kalimantan has developed intensive lowland agriculture of food crops, horticultural products and coconuts. Fisheries has been also one of the main economic activities. Compared to inland areas, this zone has accommodated a higher density of population and has developed market towns. Due to the existence of entrepreneurs and markets in relatively densely populated areas, small and medium enterprises (SME) in the food processing industries have potential to develop in this zone. In fact, more than half of the SMEs in West Kalimantan are located in this zone.

Because of increasing population not only in Kalimantan but also in the whole of Indonesia, food supply will be one of the significant issues. The SME promotion especially for food processing in this zone, could contribute to the national and regional food supply, as well as to the increase of value added based on raw material to be provided by the region's agriculture.

(7) Kualakapuas SME Promotion Zone

Kualakapuas is strategically located on the bank of the Kapuas river which already has many SMEs (mainly wood processing industries) and on the road from Palangkaraya 2 hours west and to Banjarmasin 2 hours east. As a result, Kualakapuas is a thoroughfare for SME commodities. The development of an SME promotionzone with an industrial estate would enhance existing SMEs in the zone by encouraging the accumulation of processing know-how and the development of marketing channels. It could also promote the diversification of SMEs to meet new regional, national and international economic trends and promote out-of-province investment.

(8) Kapuas Hulu Eco-Tourism Zone

The upper stream area of the Kapuas River Basin has substantial potential of attracting ecotourism activities based on relatively undisturbed highland natural forests and peat swamp lakes. The former highland natural forest area is designated as the national parks of Gunung Bentuang Dan Karimun by the government. The latter lake area is also designated as the natural reserve of Danau Sentarum by the government. In both areas, environmental researches and planning studies for nature conservation have been conducted on a small-scale by international NGOs.

In both areas, local people are existing within and beside the designated conservation areas. They are supposed to play key roles of conservation activities and supporting ecotourism activities in the zone.

For the purpose of sustainable development of ecotourism activities in the Upper Kapuas, it is essential to make efforts at nature conservation, nature research and local people's livelihood development. Furthermore, at the first stage of development, it is necessary to establish an information center at Putussibau town, gateway to the ecotourism zone, which could provide scientific knowledge and guide services.

6.2.5 Future Landuse

It is recommended that landuse should be in harmony with soil characteristics. The present landuse plans could be improved by following the recommended changes of landuse status. See Figure 6.2.7. The concept of future basic landuse strategy is shown in Table 6.2.1.

Figure 6.2.6 Development Zones

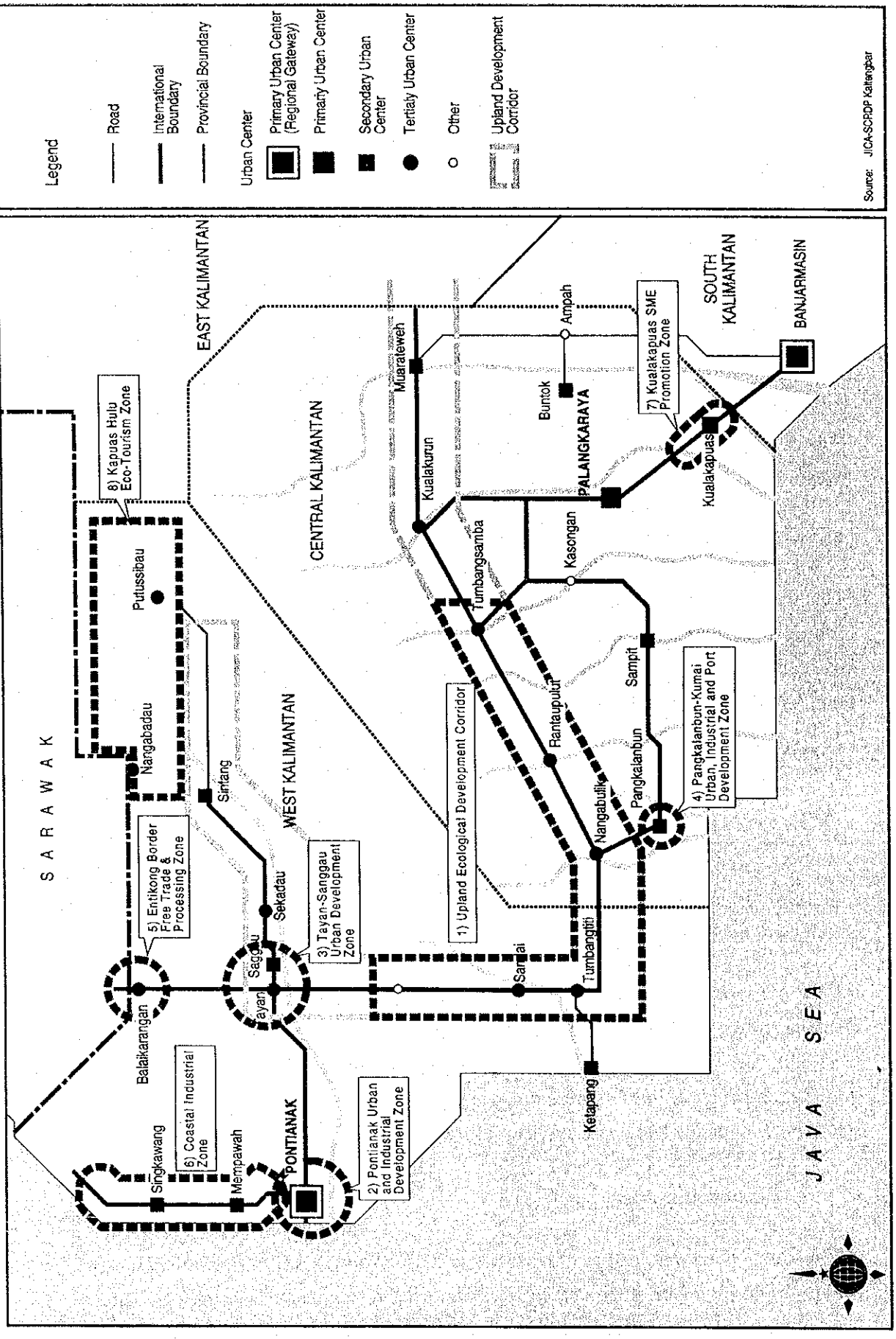
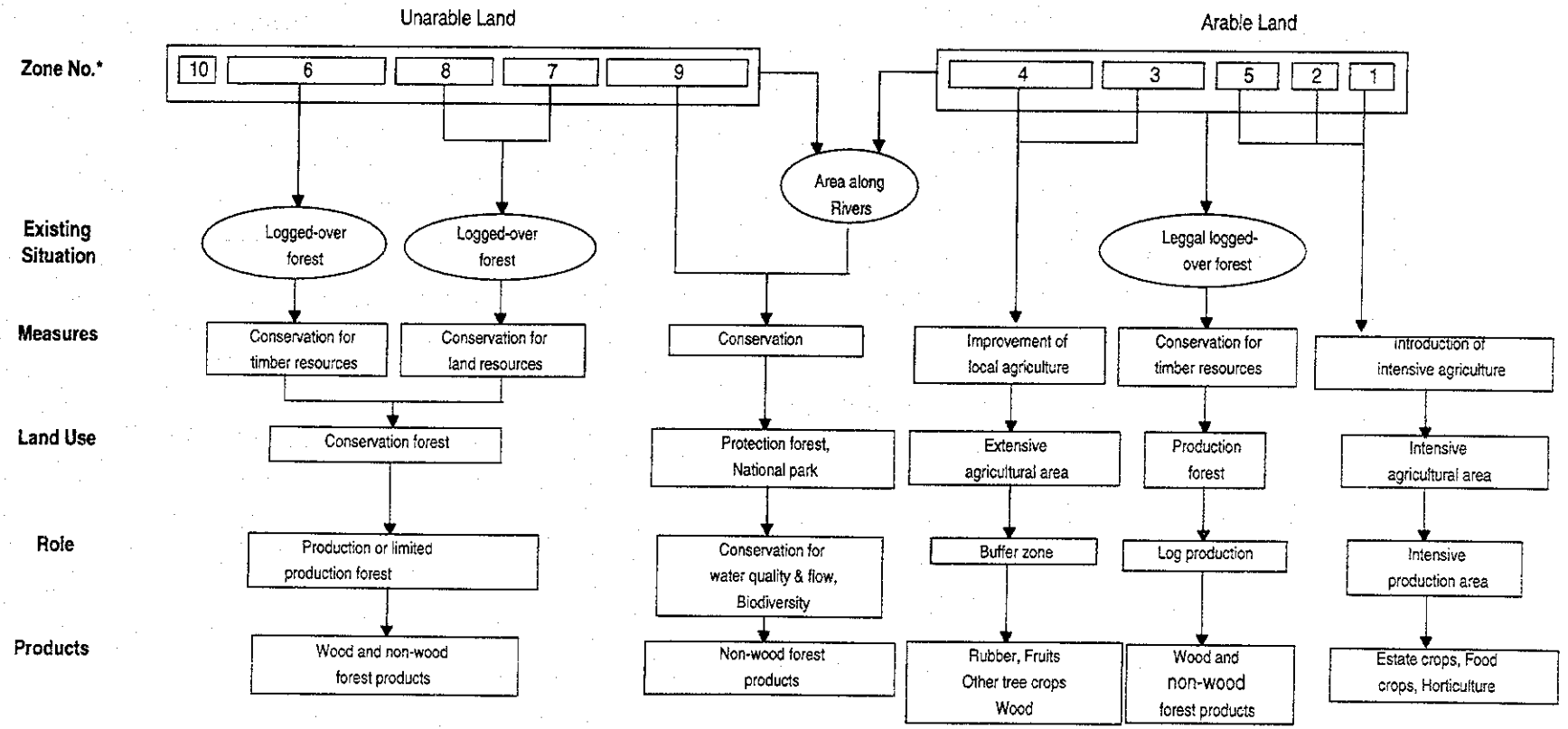


Figure 6.2.7 Concept of Landuse Plan



Zone No.: See Figure 3.2.2 Land Potential Map

Table 6.2.1 Proposed Landuse

	Zone	Land Characteristics	Type of Forest	Crop Suitability	Existing Land Use	Problems	Target & Role	Proposed Land Use	Counter Measures to Achieve
ARABLE LAND	1	Fertile alluvial soils	Lowland dipterocarp forest	All kinds of crops	Annual crops (Rice,Vegetables)	Low intensification	Increasing productivity, Food supply for the region	Intensive agricultural area (Annual crop)	Technical extension, irrigation facility
	2	Flat, acid, Well drained, Fertile	Lowland dipterocarp forest	All kinds of crops except paddy	Perennial crops(Oil palm, Rubber, HTI), Forest concession	Disordered land use plan	Land use plan for high land productivity.	Intensive industrial crops production area (Oil palm)	Adjustment of land use plan, Technical extension
	3	Rolling, Strongly acid	Lowland dipterocarp forest	Tree crops	Perennial crops (HTI, Rubber, Oil palm), Forest concession	Disordered land use plan,	Harmony between production and protection	Coexistence of extensive and intensive agriculture	Technical extension, Distribution of nursery stock
	4	Rolling, Strongly acid	Lowland dipterocarp forest	Tree crops except oil palm	Perennial crops (Rubber, Oil palm), Forest concession	Disordered land use plan,	Buffer zone, Harmony between production and protection	Agro-forestry	Technical extension, Distribution of nursery stock
	5	Alluvial soils, Poor drainage	Freshwater swamp forest	Paddy	Paddy, horticulture	Low productivity	Production of basic food, Supply vegetables to city	Intensive paddy and horticulture	Technical extension, Expanding raised bed cultivation
UNARABLE LAND	6	Peat soil, Infertile	Peat swamp forest	No	Logged over forest, Alang-alang	Over logging (Illegal logging)	Protection of the peat swamp, Conservation of the biodiversity, Increasing productivity	Conservation forest for timber resource and watershed management	Natural regeneration, Research on forest products except timber
	7	Acid sulfate soil	Mangrove forest	No	Mangrove forest, Shrimp pond	Illegal logging	Conservation of the fishery resources	Conservation forest for land resource protection	Reforestation, Research on forest products
	8	Sandy soil, Infertile	Highland dipterocarp forest	No	Logged over forest, Alang-alang	Over logging (Illegal logging)	Protection of the land, Conservation of biodiversity, Increasing productivity	Conservation forest for land resource protection	Natural regeneration, Research on forest products except timber
	9	Very steep slope	Mountain forest	No	Natural forest, National park, Logged over forest	Illegal logging	Watershed management, Conservation of biodiversity	Conservation forest for watershed management, National park	Forest management
	10	Coastal sand	No vegetation	No	No vegetation	-	-	Coastal beach	-