

## 12.6 PRESENT SITUATION OF CENTRAL KALIMANTAN

Many challenges have to be faced by the local government to improve the health and nutritional status of the current population. In general health indicators are rather better than the national average, even though economic growth is not the best in comparison of other Kalimantan provinces. (57% of the village, is considered as the poor village based on the Indonesian government definition.)

Distances between villages are large; flooding occurs seasonally, restricting communication for many months of the year. Moreover, the 1 Million ha Program invites a great influx of transmigrants in the coming years to provide the labor for rice production and the agri-business. Hence, the province doesn't only have to plan for the improvement of the quality of life of the present population but it also has to develop strategy to cope with the expected health demands of the additional population which may be equal in size as present one.

### 12.6.1 Health Status & Morbidity

CDR and IMR are lower than the national average (CDR 7.1 vs 7.9; IMR 45 vs 60) but the Child Mortality rate is higher. Rivers are used for bathing and latrines. About 50% of the urban population and 31 % of rural population have access to clean drinking water.

MMR is estimated of 425 per 100.000 livebirths MMR is the reflection of maternal health status, environmental health and the efficacy of health services rendered, particularly to women during their pregnancy, delivery and after delivery. The direct cause of maternal death is hemorrhage, infection and toxemia gravidarum. About 68% of pregnant women are suffering from anemia, 75% of pregnant women received tetanus toxoid immunization, and about 64.59% of delivery attended by traditional birth attendant (Table 12.6.1).

Rabies, filaria bancrofti and malaria are endemic, the first two in specific areas. The magnitude of TB is unknown due to the limited accessibility of health services. ARI and diarrhea are the main causes of death among children and occur with peaks according to the season. Low birth weight and tetanus neonatorum are the cause of neonatal death.

**Table 12.6.1 The Coverage of deliveries by the Birth Attendant by District in Central Kalimantan, 1996**

No	District/ Municipality	Delivery Estimation	Birth Attendant				% Coverage of Delivery	
			Health Staff	%	Trained TBA	%		Total
1.	Kotawaringin Barat	5,665	3,231	57.03	1,116	19.70	4,347	76.73
2.	Kotawaringin Timur	12,929	7,489	57.92	4,121	31.87	11,610	89.80
3.	Kapuas	14,753	5,322	36.07	2,635	17.86	7,957	53.93
4.	Barito Selatan	5,687	3,081	57.19	933	17.32	4,014	74.51
5.	Barito Utara	4,799	2,787	58.07	1,174	24.46	3,961	82.54
6.	Palangkaraya	3,987	2,442	61.25	490	12.29	2,932	73.54
<b>Central Kalimantan</b>		<b>47,520</b>	<b>24,352</b>	<b>51.25</b>	<b>10,469</b>	<b>22.03</b>	<b>34,821</b>	<b>73.28</b>

### 12.6.2 Health Service and Health Behavior

#### (1) Hospitals

The number of hospitals in this province is 10 with 518 beds. The ADB survey, the number of general practitioners (n=7) and paramedics is sufficient but the number of specialists is inadequate (one obstetrician/gynecologist, one for internal medicine, one pediatrician, one ophthalmologist but no surgeon and anesthesiologist. Equipment and drug supplies were considered adequate. As the other hospitals in the province, these 518-beds are under utilized. According to Health profile data for Central Kalimantan, the BOR of district hospitals is only 41.47% (Table 12.6.2) which is still low. The average total visits to hospitals in 1996 was only 468 visits both new and repeated visits (Table 12.6.3.). In addition, only four out of 10 hospitals have Obstetric Gynecologist such as the district of Kotawaringin Barat, Kotawaringin Timur, Barito Utara and Palangkaraya. Besides, only two hospitals such as the municipality of Palangkaraya and the district of Kotawaringin Timur have 4 primary specialists (C type district hospital).

**Table 12.6.2 Number of Bed, BOR, LOS, TOI, BTO, NDR in the Hospital by District in Central Kalimantan, 1996**

No	Hospital	Hospital Reporting		BOR (%)	LOS (day)	TOI	BTO	GDR (%)	NDR (%)
		Total	Bed						
1.	Sultan Imanudin	1	53	57.44	3.06	3.05	50.92	3.15	1.22
2.	Dr.Murdjani	1	53	58.06	4.14	3.10	49.36	5.28	2.06
3.	Kasongan	1	14	24.83	2.09	6.33	43.36	3.29	0.33
4.	Dr.Sumarno	1	50	34.62	3.88	9.02	28.46	4.01	0.38
5.	Kuala Kurun	1	14	14.15	3.43	26.75	11.71	2.44	0
6.	Buntok	1	50	33.59	6.00	9.88	24.54	4.32	1.63
7.	Tamiang Layang	1	22	20.45	5.06	15.81	18.36	2.23	1.24
8.	Muara Teweh	1	50	46.50	4.51	5.18	37.66	3.66	1.12
9.	Puruk Cahu	1	24	26.93	5.24	14.22	18.75	1.11	0.89
10.	Dr.Doris Silvanus	1	200	42.40	5.34	7.26	28.98	3.07	1.73
<b>Central Kalimantan</b>		<b>10</b>	<b>530</b>	<b>41.47</b>	<b>4.50</b>	<b>6.60</b>	<b>32.39</b>	<b>3.58</b>	<b>1.42</b>

Source: SP2RS Profile Kesehatan Kabupaten/Kodya 1997

**Table 12.6.3 Number of Out Patient Visit, Referral and Average of Out Patient Visit in Public Hospital by District in Central Kalimantan, 1996**

No	District	Out Patient Visit			Referral From			Own Visit	% Referral	Average Daily Visit
		New	Repelled	Total	Puskesmas	Other Facilities	Total			
1	Kotawaringin Barat	7,551	10,902	18,453	566	135	701	17,752	9.28	62
2	Kotawaringin Timur	12,173	9,464	21,637	454	186	640	11,533	5.26	72
3	Kapuas	11,593	10,257	21,847	416	0	413	11,453	3.59	73
4	Barito Selatan	20,875	5,736	26,611	459	112	271	18,658	1.30	89
5	Barito Utara	8,345	5,156	13,501	74	0	7	13,427	0.89	45
6	Palangkaraya	21,657	16,792	38,449	7,914	136	8,050	13,607	37.17	128
<b>Central Kalimantan</b>		<b>82,191</b>	<b>58,307</b>	<b>140,498</b>	<b>9,583</b>	<b>569</b>	<b>10,152</b>	<b>86,430</b>	<b>12.35</b>	<b>468</b>

Source: SP2RS, Profil Kesehatan Kabupaten/Kotamadya.

## (2) Health Centers (Puskesmas)

There are 124 puskesmas in Central Kalimantan. They are managed by young freshly graduated doctors, which may lack capacity in community management and mobilization, organization planning and management, epidemiological surveillance, community analysis, management of basic services for obstetric and neonatal emergency services.

The number of doctors working in puskesmas is 98 of which 70% are PTT doctor. The problem with PTT doctors is that there is a time lag until a new doctor is assigned in a puskesmas when the contract is due. It is also difficult to choose a nurse in the puskesmas to fill the gap, because there is a big discrepancy in terms of education, knowledge between doctor and nurses. This situation might have been slowing down the process for increasing the quality of services and improving the management of puskesmas. It has 18 programs without any priority except for the essential program.

Several features are pointed out on Puskesmas through the interviews with the provincial health services (Dinas Kesehatan Tk. I), the provincial health office (Kanwil Kesehatan) and 14 Puskesmas heads in Kuala Kapuas:

- Transportation is the biggest problem. All Puskesmas have been provided with some transportation means, cars and/or boats; some of them are left when broken. In the dry season, the boat cannot be used since water is too shallow. For the patients, the transportation is too expensive to use. As a result, they do not go to the Puskesmas. For example, one PTT doctor in Bawan Village in Kuala Kapuas performed an amputation using a chainsaw and a knife, since the transportation means to send the patient to a surgeon was not available. As a result, outreach activities are hampered by the vastness of the health center catchment area and very low budget for travel. It has also been observed the unreasonable scheme to pick up drugs far away to the Dinas II, although nearer places have a lot of drugs.
- Quality of service depends on the doctor (Most of the rural puskesmas have only one doctor and 70 % of them are PTT doctor (new graduates serving in Puskesmas with 3 year

contracts.) They do not have a supervisor/advisor nearby. As a result, the quality between his/her services in the first year and the last year are different and usually they do not stay after the contract, the second cycle of the 3 years start after the new doctor comes in. On top of that they have to educate other staff members, since they are trained on medical services for the short time. For example the laymen conduct laboratory tests and non-pharmacists deal with drugs. Moreover, the doctor is responsible for all administrative matters as the head of the Puskesmas. Some of the doctors just serve in the Puskesmas as an obligation to be a specialized doctor.

The doctors are not available many times in puskesmas because they have to go to the District health office every month to get the salaries and attend necessary meetings. Especially for the puskesmas in the northern part of Central Kalimantan, it will take 4 days for them to travel back and forth to the District health office. If the doctor has to go to Dinas at least one time, he will not be available in puskesmas for 5 to 7 days in a month.

The puskesmas has a considerable subdivision of activities by programs namely MCH, communicable disease control, public health nursing, out patient clinic, laboratory, pharmacy. It is a relative over-staffing (15-25 people per health center). Daily visits have relatively low attendance of 20-30 people per day. It also lacks water facilities, laboratory facilities, and visual aids as well as the facilities for the basic services of obstetric neonatal emergency.

The consultation fee is Rp. 1000 of which Rp. 350 is sent to the district of health office for a retribution fee.

Good radio communication, not only for reporting and monitoring but also for distant education and cross-fertilization (exchange of experience) were considered important and cross functioning of health services in this province.

As far as the quality of services are concerned, perhaps it is not necessary that a doctor to be the manager of a puskesmas. The graduate for the Community Health faculty could be recruited for a puskesmas manager. Thus, the doctor can concentrate his time on providing the quality services and supervising the health program.

### **(3) Sub Health Center (Pustu) and Village-based Maternity Home.**

In order to increase the utilization of health services, the government introduced a sub-health center at the village level, which is managed by a young nurse. Medicine is provided by the health center. Pustu is allowed to charge higher than the official fee as long as it does not burden the community. The community pays about Rp.1500 during office hours if they seek treatment at a Pustu. After office hours, they can have their own practice and charge the community much

higher, depending on the type of medicine they provide to the patient. The range is from Rp. 2,500 to Rp. 5,000. The community prefers to go to Pustu because the cost to puskesmas is much higher as transportation cost is relatively expensive in Kalimantan. Since many Pustu are broken, 27% of them are proposed to be fixed (Daftar usulan pembangunan, 1998/1997. P14).

As the budget for travel is limited, supervision to pustu seems not to be undertaken by the puskesmas doctor.

A village midwife manages the village-based maternity (polindes). They are relatively young (18 –20 years and freshly graduated). The contracted village midwife's salary is higher than the regular village midwife is. She works as the front-line of maternal health services at the village. The number of deliveries she attends is 3 – 4 a month. The facilities for delivery are very simple and practical, the home is not used for delivery. Most of pregnant mothers give birth at home. They are provided with a bicycle as a transportation means, which is not appropriate for geographical situation of Kalimantan. The supervision from the health center is also a problem of polindes. They charge about Rp. 40,000 to Rp. 50,000 for a delivery.

Supervising posyandu activities and training posyandu's cadres on health education are among the tasks of the nurses and midwives. However, in Tumbang Terusan village, none of them attend the posyandu activities.

#### **(4) Posyandu and Health Volunteers (Kader)**

Like in West Kalimantan, posyandu activities are well known in Central Kalimantan. The KMS (health card for children weighed) are not used sometimes as a physical record for children.

Posyandu provides primary health services, integrated with family planning. Performance depends on the Puskesmas doctor/staff and the visits from local authorities. In a good Puskesmas, there were no dropouts of volunteers. Incentives to maintain the kaders to be active in posyandu are: official recognition by a kind of appointment, free treatment for the family, lotteries, capital for small scale business, etc. There are about 1839 Posyandu in Central Kalimantan.

The weakness of most Posyandu is the health education component. Relying on cadres for health and nutrition education seems to be ineffective. Most of the time there is no health education conducted. Most kaders lack the capacity to deliver the messages. The visual aids provided for health education might not be appropriate for local conditions and sometimes are not available in a posyandu. Refresher courses for kader is necessary, but education during

monthly visits by a puskesmas doctor or village midwife or nurse is more important to improve the capacities of kaders to manage a Posyandu.

### **(5) Family Planning**

In general, the coastal population is still reluctant to use contraceptives. The Central part, the Catholic religion does not encourage the use of contraceptives but individuals appear to be more rational and accept family planning. The applies (surprisingly) to the traditional population in the northern area.

BKKBN has excellent logistics, distributing contraceptives via private enterprises and other existing systems like the village cooperatives (KUD), etc. It has a mobile unit for IEC but no speedboats. Its annual budget is Rp. 2.2 million of which 90% is from the central government (APBN). Modest funds are generated from private enterprise (i.e., IEC from local radio station) or local government finances special activities but this is an exception rather than rule.

Table 12.6.1 shows the percentage of acceptors by the type of contraceptives used.

The percentage of new acceptors and active acceptors in 1996 are 64.44% and 77.15% respectively which seems to be low. The pill and injection are the most popular among active and new acceptors; the percentage of acceptors who use the pill and injection is 43.06% and 32.78% respectively of active acceptors, 36.22% and 47.58% respectively for new acceptors. The cost is the reason for the contraceptive choices, which are Rp. 500 for the pills and Rp. 5,000 for injection respectively. While the cost for in-plant is Rp. 40,000 and IUD is about 10,000 to Rp 15,000.

The JICA study team observed during the social survey study in Tumbangterusan village, the husband decides when the couple want to have more children. However, women decide themselves to be the acceptors, without consulting with the husbands. The reasons are that, they do not want to have more children as most of them are acceptors after having several children.

As far as AIDS concerned, the contraceptive used does not protect the women from AIDS as very small percentage of people use condoms.

#### **12.6.3 Nutrition**

Protein Calorie malnutrition, Vitamin A deficiency, Anemia and Goiter are nutritional problems in Central Kalimantan. Based on the 1995 Children's Nutritional status (BPS, 1995) the

prevalent of PCM found is 19.97%. At the end of Pelita V 3.8% of children under 5 years of age suffered from vitamin A deficiency.

Based on the 1995 Social Indicator on women in Indonesia the percentage of (mild and poorly nourished) children under five years of age were 24.57% for males and 15.37% for females. This condition is higher than the national figure, which is 15.98% for males and 13.21% for females.

Four nutrition programs are implemented by the government. Those are Family Nutrition improvement (UPGK), Vitamin A Capsule distribution, and iron tablet distribution to pregnant women through integrated KB-KES program in posyandus.

**Table 12.6.4 Percentage of Family Planning Acceptors and New Acceptors by Types of Contraceptives by District in Central Kalimantan, 1996**

No	District	% of FP Active Acceptors							% New FP Acceptors						
		IUD	Injection	Implant	Sterilization	Pill	Condom	Other Methods	IUD	Injection	Implant	Sterilization	Pill	Condom	Other Methods
1.	Kotawaringin Barat	7.37	33.37	12.39	1.75	44.35	0.63	0.13	1.06	55.49	12.63	0.49	28.72	1.53	0.08
2.	Kotawaringin Timur	5.10	34.80	13.90	1.20	44.35	0.40	0.10	1.60	48.30	11.70	0.50	37.50	0.4	0.10
3.	Kapuas	0.08	0.32	0.10	0.02	0.47	0.01	0	0.01	0.45	0.09	0	0.43	0.01	0
4.	Barito Selatan	6.32	21.90	10.80	0.80	59.40	0.70	0	1.65	36.70	11.70	10.02	48.70	1.08	0
5.	Barito Utara	3.70	32.00	4.80	0.80	58.10	0.50	0.10	0.60	53.60	4.80	0.30	39.70	0.70	0.30
6.	Palangkaraya	13.94	40.15	4.21	2.56	0	0	39.15	4.92	48.12	4.17	0.70	0	0	42.10
Central Kalimantan		29.14	29.65	10.25	6.68	19.22	0.25	26.11	2.36	46.47	6.70	4.85	16.29	0.52	22.80

Source: Profile Kesehatan Kabupaten/Kotamadya 1997

In Central Kalimantan, Nutrition programs funded by the Asian Development Bank is aimed at reducing the prevalence of four main problems (1) protein energy malnutrition; (2) vitamin A deficiency; (3) iodine deficiency; and (4) iron deficiency anemia, especially among pregnant women. The Family Nutrition Improvement Program, an intersectoral program with regional implementation, began in 1969. The Additional Nutrition for School Children program was pilot tested in 1994/5, has become a Government priority program, and will be expanded to all poor villages outside Java and Bali. Under this program, low-cost locally produced meals are supplied through schools in poor communities to supplement the students' diet.

The province is not yet self sufficient in rice. Fortunately, farmers do not sell their harvest before the next harvest, limiting seasonal fluctuations in availability. Problems occur in case of flooding. People then resort to maize and cassava as staple foods. ADB pointed out the instant noodles are a popular food since they are available anywhere. Fish is abundant and eaten daily. The availability of vegetables has been limited and very expensive to buy (ex. Carrots per kg in Jakarta costs Rp.1,500: Rp.4,000 in Palangkaraya, Rp.125,000 in Tumbangterusan village, Kapuas district). Horticulture is recommended to be promoted.

#### **12.6.4. Community Participation**

Similar to West Kalimantan, community participation has been encouraged and health facilities have been established through community resources such as the posyandu (Community Health post), Pos Obat Desa (POD; Village Drug Post) and Pos Bersalin Desa (Village based maternity home) and Dana Sehat (Village based insurance scheme). From the data 1996 of Central Kalimantan Health profile about 1839 posyandu, 124 POD and 355 Pondok Bersalin (Polindes) respectively. The ratio of these facilities is posyandu for 185 families, 0.12 POD per village and 0.30 Polindes per village. Number of kader involved in posyandu is 4.67, which considered almost good because the standard figure is 5 kaders.

The coverage of services at a posyandu is one of the measurements for the community participation. The coverage of weighing in 1996 was 88% for infants with visit frequency of 6 times a year and 57% for children under five with the visits frequency of 1 time a year. The high frequency of infant visits may be caused by the immunization program. This can be related to the high coverage of immunization, which is 108.14% with the drop out of 6.8%. Mothers are not concerned about taking children to Posyandu for weighing after children are older. This means that the importance to monitor health of children might not be understood by the mother.

The coverage of Tetanus Toxoid immunization for pregnant women is quite high which is 79.24% (Table 12.6.5). The traditional birth attendants were trained. About 74.92% of TBA were participating in the training of safe delivery conducted by the puskesmas.

#### **12.6.5 Health Financing**

Puskesmas, Pustu consultation fees are higher than the amount set by the local government. The revenue, sent to the District Health office, is Rp. 300 – 350 for a retribution fee. Puskesmas and pustu manage the rest of money themselves. Polindes also charge for delivery. There is no fixed rate set by local government for delivery. Therefore health financing is partly bear by community. Besides that the health sector budges are obtained from the government. Most resources are obtained from the central government of the MOH through APBN and the MOHA through INPRES. Small amounts of expenditure come from the local government. The breakdown is (54.38%) from APBN, (30.84%) from INPRES, (1.9%) from APBD I and (6.04%) from APBD II and only (7.10% from foreign funding assistance. Data from the private sector can not be gathered).

PT. Askes provides an insurance scheme for government civil servants with a small amount of premium paid by them. The policies have been changed so that the private sectors can also become members of the scheme with a different amount of premium.



Kartu sehat is also used in some areas. It is not broadly distributed to the low income of the people. The problem is similar to that in West Kalimantan.

**Table 12.6.5 The Coverage Frequency of the Pregnant Mothers Visit and the Coverage and the Drop Out of TT2 Immunization by District in Central Kalimantan, 1996**

No	District/ Municipality	Number Pregnant Mothers	Total of Visit		Immunization		Coverage of Pregnant Mother		Coverage of TT2 (%)	Drop Out TT2
			K1*	K4*	TT1	TT2	K1	K4		
1.	Kotawaringin Barat	5,665	5,064	4,242	4,463	4,305	89.39	74.88	75.99	3.65
2.	Kotawaringin Timur	12,929	12,179	10,063	10,928	9,877	94.20	77.83	76.39	8.00
3.	Kapuas	14,753	13,062	8,776	11,664	10,785	88.54	59.49	73.10	10.50
4.	Barito Selatan	5,387	4,517	3,987	4,245	4,446	83.85	74.01	82.53	1.92
5.	Barito Utara	4,799	4,443	3,923	4,797	4,673	92.58	81.75	97.37	3.18
6.	Palangkaraya	3,987	3,959	3,218	3,808	3,569	99.30	80.71	89.52	7.50
<b>Central Kalimantan</b>		<b>47,520</b>	<b>43,224</b>	<b>34,209</b>	<b>39,885</b>	<b>37,355</b>	<b>90.96</b>	<b>71.99</b>	<b>79.24</b>	<b>6.70</b>

Source: SP2TP, SP2RS, Profil Kesehatan Kabupaten /Kodya

\*K1 = The first visit to Health Professional

\*K2 = The Fourth visit to Health Professional

## 12.7 TRANSMIGRATION HEALTH PROGRAM.

(Summarized from and Transmigration Health in number 1995)

Common diseases in transmigration areas in West and Central Kalimantan as follows:

**Table 12.7.1 Morbidity Figure in Transmigration Area in West and Central Kalimantan, 1995**

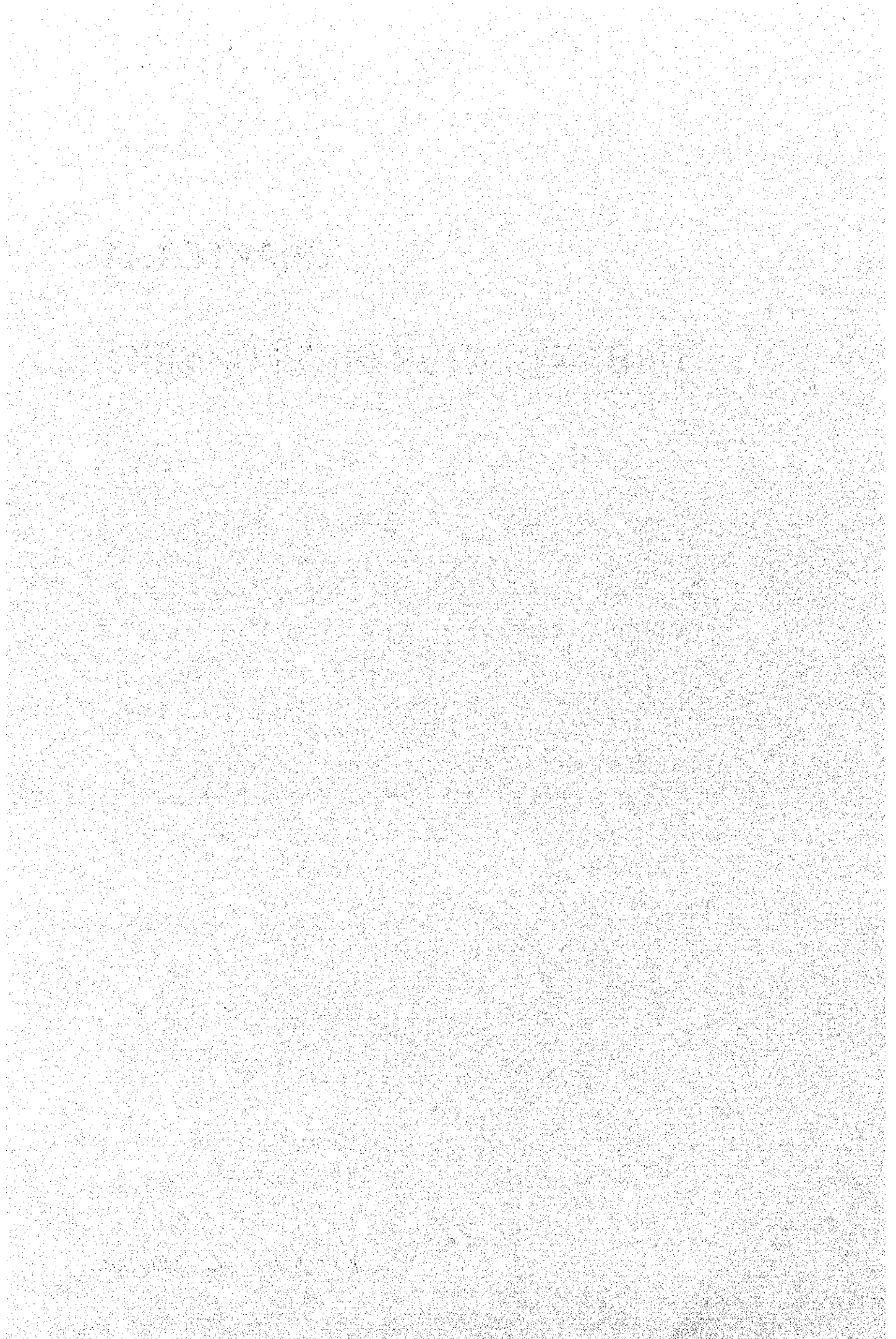
<i>Diseases</i>	<i>West Kalimantan</i>	<i>Central Kalimantan</i>	<i>National</i>
Malaria	57.42	34.30	42.85
Diarrhea Incidence	58.59	23.91	24.92
Skin disease	40.81	58.12	66.32
Measles Incidence	17.44	2.35	6.05
Respiratory Infection	247.73	164.35	133.33

Source: JICA-SCRDP Kaltengbar

The table shows that the health situation in transmigration areas in West Kalimantan is worse than that in Central Kalimantan. The health figure for Central Kalimantan even lower than the national figures except for Respiratory Infection which is higher in both provinces than the national figure. However, West Kalimantan has the highest.

# **CHAPTER 13**

## **URBAN CENTER DEVELOPMENT**



## CHAPTER 13 URBAN CENTER DEVELOPMENT

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### 13.1 MAJOR ISSUES

Kalimantan is in a transition process from a river-based spatial structure to a road-based spatial structure. In the last decade, roads were constructed into inland areas, and development activities, mostly plantation development and natural resource extraction, were started in upland areas. In this context, there are many problems inherent to the present transition from a river to road based spatial structure in the urban and rural areas throughout the region.

- How to improve the business environment of the region for attracting foreign and domestic investment in the region
- How to improve urban services in upland areas, and how to solve urban problems emerging in inland urban centers in the course of road development into upland areas
- How to provide upland rural communities with appropriate access to urban services support upland rural communities (How to establish urban-rural linkages of the upland areas)

### **13.2 OBJECTIVES**

There are two objectives which must be focused on in order to attain sustainable development for existing and new human settlements in the entire region. They are as follows.

- To provide urban services for supporting the development of large businesses, SMEs and urban/rural communities
- To establish a road-based urban system following on-going road development in the region

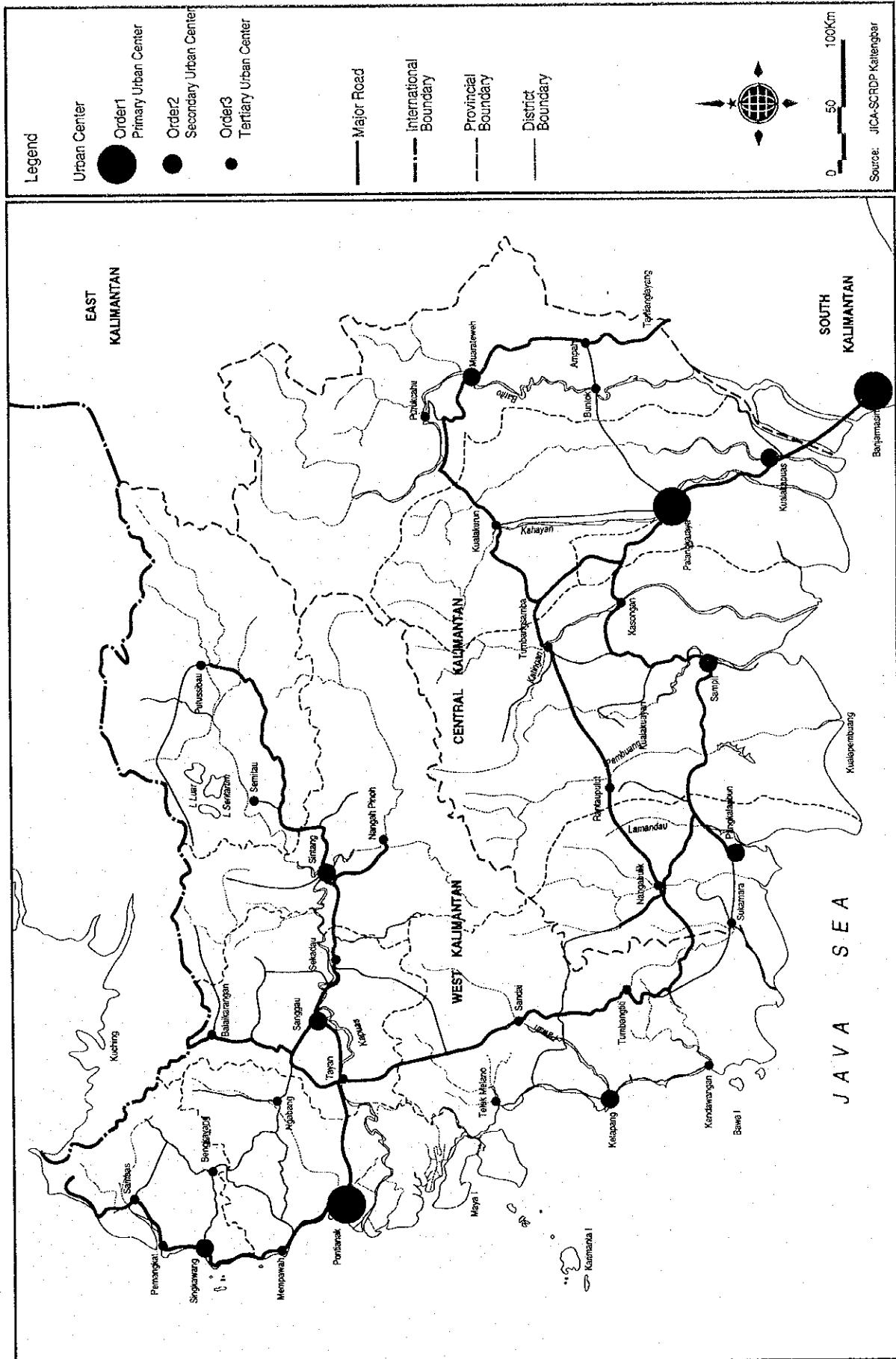
### **13.3 STRATEGIES**

We recommend that the urban system composed of primary, secondary, tertiary and quaternary urban centers should be developed as shown in Figure 13.3.1

The strategies by which the urban system should be developed are as follows:

- To promote the development of regional-level of primary urban centers for providing business and municipal services to each hinterland area (Pontianak, Pankalanbun-Kumai and Banjarmasin-Palangkaraya)
- To improve urban infrastructure and services of secondary urban centers in the upland development corridor in the Kapuas river basin and the Barito river basin (Sanggau, Sintang and Muarateweh)
- To improve urban infrastructure and services of tertiary urban centers in the upland development corridor, especially in the district of Ketapang of West Kalimantan and in the districts of Kotawaringin Bara and Kotawaringin Timur of Central Kalimantan

Figure 13.3.1 Recommended Urban System of the Region



### 13.4 EXISTING POLICIES FOR HUMAN SETTLEMENT

#### 13.4.1 Review of the Existing National Spatial Structure Plan

The article 40 of regulation No. 24/1992 on spatial structure states the function and contents of the National Spatial Structure. Based on the government administration system, the National Spatial Structure Plan (RWRTN), Island Spatial Structure Plan, Provincial Spatial Structure Plan (RWRTTP) and District and Municipality Spatial Structure Plan (RTRWK) are prepared.

The National Spatial Structure Plan (RTRWN) gives the strategy and direction of the policy on state region spatial utilization which includes the national policy of spatial utilization for the society's welfare and security defense improvement, structure and pattern of national region spatial utilization as well as the management criteria and development patterns of protected, cultivation and other areas. The contents of the RTRWN is mentioned on Table 13.4.1.

**Table 13.4.1 The Contents of the National Spatial Structure Plan**

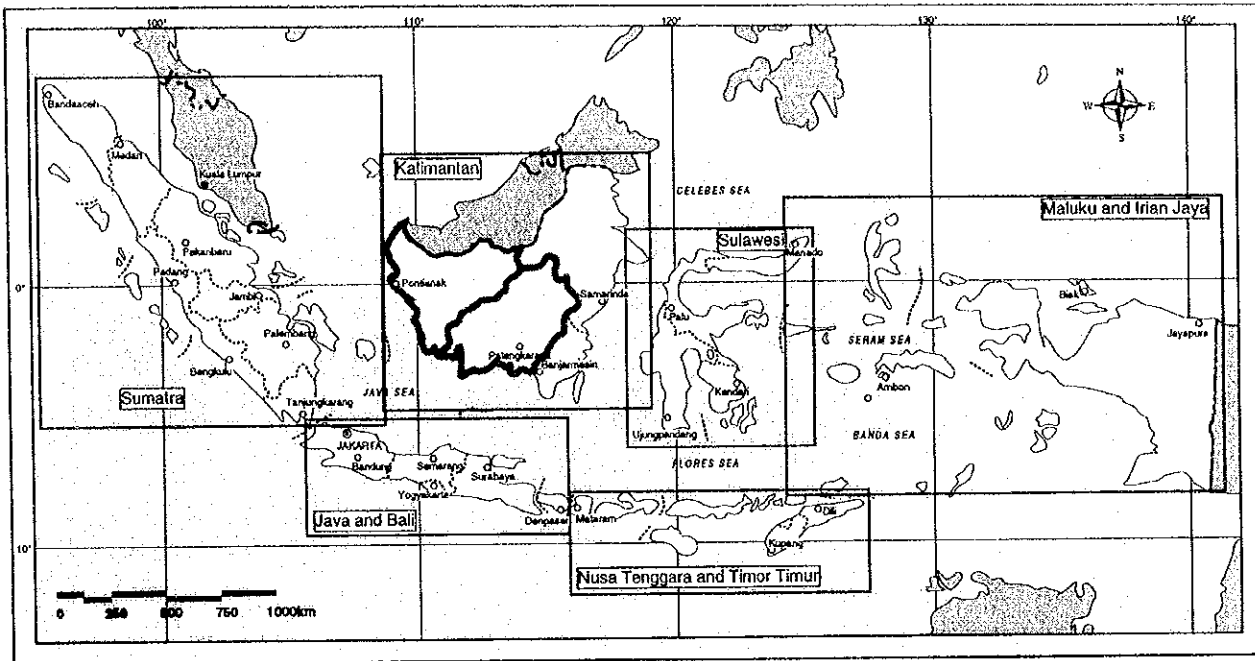
Basic Spatial Structure	Land Use Pattern	Protection Area	
		Cultivation Area	Main Function - Industry - Plantation - Forestry - Agriculture - Tourism - Commercial
		Mainstay Area	
	Area and Activities Function	Rural Area	
		Urban Area	Function in 2018
		Other Areas	
Transportation System	Land	Road System	Function of Road in 2018
		Railway	
	Air	Function of Airport in 2018	
	Sea	Function of Port in 2018	
Territory	Land, Sea and Air		
Infrastructure	Power supply		
	Telecommunication		

Source: National Spatial Structure Plan (RWRTN) 1996

The RTRWN has divided Indonesia to six regions; Sumatra, Java and Bali, Kalimantan, Sulawesi, West and East Nusa Tenggara and Timor Timur, and Maluku and Irian Jaya. Kalimantan is one of six regions and the plan is generally discussed based on these six regions.



Figure 13.4.1 The Six Regions in the National Spatial Structure Plan



Source: National Spatial Structure Plan 1996

The National Spatial Structure Plan (RTRWN) was approved in 1996. The RTRWN is in effect until 2018 which is the same as the Second Long Term Plan (PJP II). The population and urban population in 2018 for the six regions are estimated in the RTRWN and mentioned on Table 13.4.2. It is expected that the population of Indonesia will reach 258 million at the end of PJP II and the urban population rate will be 52%; 56% of total population and 60 % of urban population will be concentrated on Java Island. There is clearly a biased distribution of population toward Java Island.

Kalimantan Island will have a population of 16.5 million and of which 5.2 million will be in urban areas. The total population will be 1.8 times as large as the 1990 population; the urban population will be double the 1990 urban population. The annual average population growth rate of Kalimantan from 1990 to 2018 is highest of the islands and higher than the national average. Moreover, urban population is lower than in the whole Indonesia. This means that the population growth in Kalimantan is higher than the natural growth and Kalimantan will be expected to accept migration from the other islands to its rural areas. This implies that transmigration, which most of them comes from the Java island, will continue coming to rural areas in Kalimantan.

**Table 13.4.2 The Population and Urban Population Projection in 2018**

Unit: Million persons

Island	Population								Population Growth		
	1990				2018 (End of PJP II)				1990-2018 (%)		
	Population		Urban Population		Population		Urban Population		Population	Urban	Rural
	persons	(%)	persons	(%)	persons	(%)	persons	(%)	Population	Population	Population
Java	107.5	60.0%	36.7	67.1%	144.05	55.8%	81.23	60.5%	1.05%	2.88%	-0.43%
Sumatera	36.4	20.3%	10.2	18.6%	58.4	22.6%	33.32	24.8%	1.70%	4.32%	-0.16%
<b>Kalimantan</b>	<b>9.1</b>	<b>5.1%</b>	<b>2.5</b>	<b>4.6%</b>	<b>16.47</b>	<b>6.4%</b>	<b>5.15</b>	<b>3.8%</b>	<b>2.14%</b>	<b>2.61%</b>	<b>1.95%</b>
Sulawesi	12.5	7.0%	2.7	4.9%	18.67	7.2%	8.15	6.1%	1.44%	4.02%	0.25%
Others	13.6	7.6%	2.6	4.8%	20.63	8.0%	6.36	4.7%	1.50%	3.25%	0.93%
<b>Total</b>	<b>179.1</b>	<b>100.0%</b>	<b>54.7</b>	<b>100.0%</b>	<b>258.22</b>	<b>100.0%</b>	<b>134.21</b>	<b>100.0%</b>	<b>1.32%</b>	<b>3.26%</b>	<b>-0.01%</b>

Source: Rencana Tata Ruang Wilayah Nasional (RTRWN), 1996

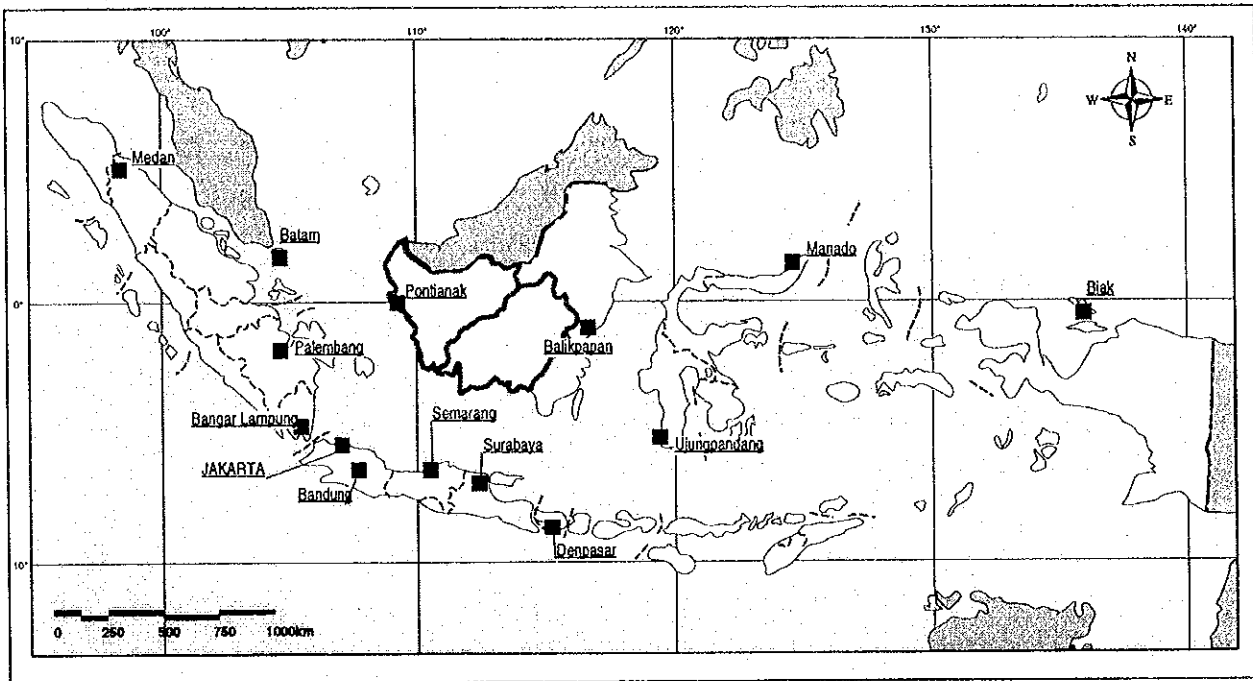
The cities are categorized into three levels of hierarchy: the National Activity Center which is the center for the national levels of industry, finance and transportation, the Regional Activity Center which is the center for a province and some districts and the Local Activity Center which is the center for a district and some subdistricts. The national center's populations in 1995 and populations projections in 2018 are summarized on Table 13.4.3, Figure 13.4.2 and 13.4.3.

**Table 13.4.3 Population in 1995 and Population Projection in 2018 of National Activity Centers**

Name of National Activity Center (1)	(Persons)	
	1995 Population (2)	2018 Population (3)
Medan	1,901,935	5,146,000
Batam	164,859	754,000
Palembang	1,346,399	2,708,000
Bandar Lampung	826,396	1,119,000
Jakarta	9,112,652	33,000,000
Bandung	2,536,120	9,724,000
Semrang	1,346,352	2,534,000
Surabaya	2,694,564	9,882,000
Denpasar	433,014	1,489,000
Pontianak	447,632	1,262,000
Balikpapan	412,581	856,000
Manado	382,567	938,000
Ujung Pandang	1,086,121	2,697,000
Biak	100,241	131,000

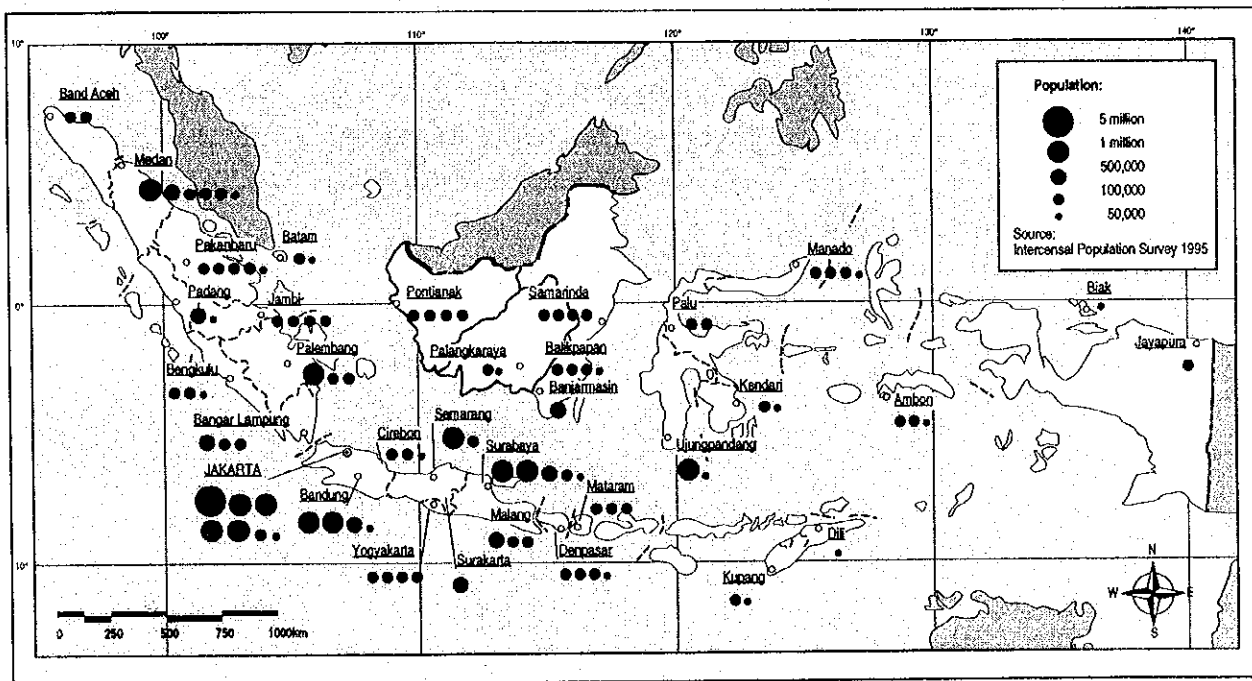
Source: (1) Rencana Tata Ruang Wilayah Nasional (RTRWN), 1996  
 (2) Result of the 1995 Intercensal Population Survey, Series S.2.1-27  
 (3) Rencana Pembangunan Lima Tahun Keenam 94/95-98/00 (Repelita VI) Buku II

Figure 13.4.2 The National Activity Centers in 2018



Source: National Spatial Structure Plan 1996

Figure 13.4.3 The Population by Major Cities in 1995



Source: National Spatial Structure Plan 1996

The urban system of Kalimantan in 2018 proposes two national service centers which are Pontianak in West Kalimantan and Balikpapan in East Kalimantan. Banjarmasin in South Kalimantan is categorized as a regional activities center, though it has the largest population in Kalimantan (534,000 persons in 1995<sup>1</sup> and is also expected to keep the position as the center in the future. The functions of Pontianak which has strong relationships with Jakarta and Sumatra (mainly the western part of Indonesia) as well as with Singapore and Kuching of Sarawak, Malaysia, are strengthened as the center of the western part of Kalimantan, while Balikpapan is the center of the eastern part of Kalimantan and will be expected to connect with Sulawesi, Mindanao island of the Philippines and Sabah of Malaysia.

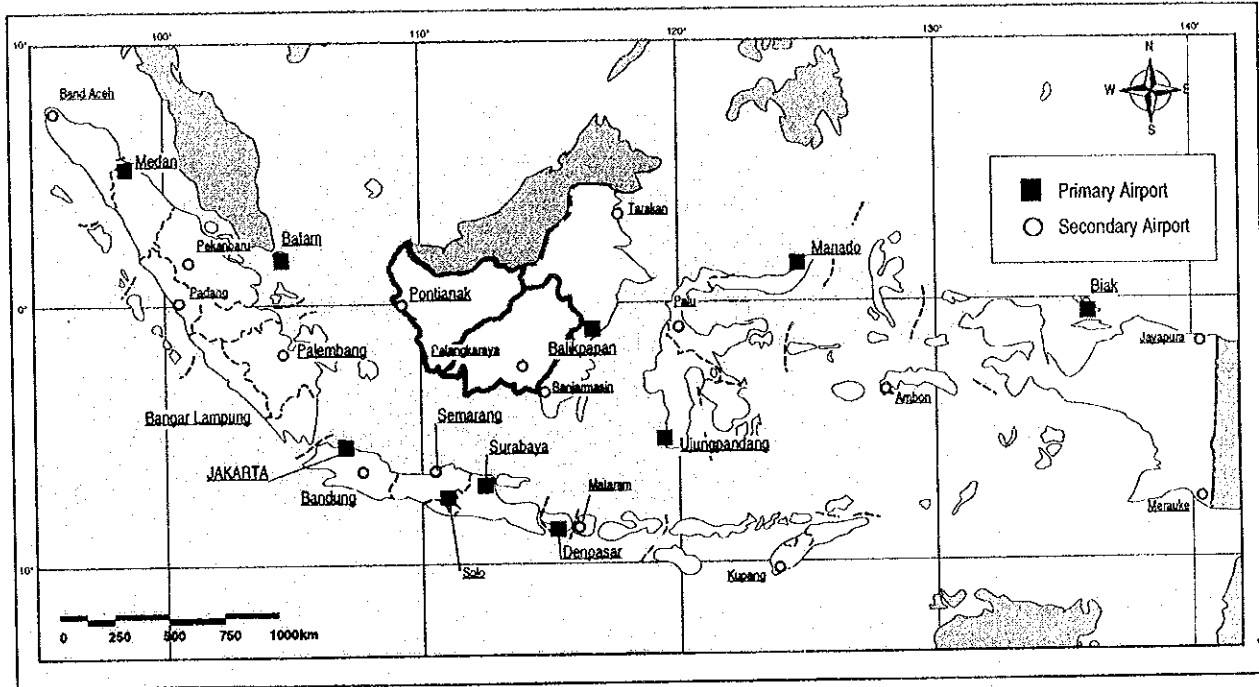
Pontianak and Balikpapan have the only airports which have international air routes in Kalimantan. According the hierarchy of airports in 2018 proposed in the RTRWN (see Figure 13.4.4), only the airport in Balikpapan is categorized as a primary airport in Kalimantan. Pontianak, Palangkaraya and Banjarmasin have secondary airports. The main gateways to Kalimantan are Balikpapan and Pontianak at present. Balikpapan has flights to Jakarta and Surabaya in Java, Ujunpandang, Palu and Manado in Sulawesi, so that Balikpapan covers mainly the eastern part of Indonesia. Pontianak has direct flights to Jakarta, Singapore and Kuching in Malaysia. The function of airports in Balikpapan and Pontianak is also strengthened in the RWRTTP as well as the urban hierarchy, so that the dominant position of two cities is emphasized.

Concerning with inter-city flights on Kalimantan island, there is no direct flight from Pontianak to Palangkaraya, though Palangkaraya is connected by air to Banjarmasin and Balikpapan. It means that there is no relationship between Pontianak and Palangkaraya. There are not many flights in Kalimantan and each city connects with Java more strongly than with the other cities in Kalimantan. However Pontianak, Palangkaraya and other cities will be connected by the Trans-Kalimantan Highway, so that circumstances will change and it will be necessary to develop flights between cities in Kalimantan for the strong relationship between cities in Kalimantan.

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<sup>1</sup> Population of Kalimantan Selatan, Results of the 1995 Population Census, Series: S2.20

Figure 13.4.4 The Hierarchy of Airport in 2018



Source: National Spatial Structure Plan 1996

### 13.4.2 Review of the Existing Kalimantan Spatial Structure Plan

The spatial structure plan in Indonesia is based on the annual coordination of development at the provincial level. However, there is also a regional spatial structure plan at the island level which is called the Kalimantan Spatial Structure Plan, which is supposed to meet the needs for comprehensive planning covering all of Kalimantan.

The Kalimantan Spatial Structure Plan is based on the National Spatial Structure Plan (RTRWN) and the Provincial Spatial Structure Plan (RTRWP). Although the RTRWP is expected to cope with and consider the situation which is beyond the provincial boundary, it is difficult that only one province solves problem. It is also efficient and effective to work together four provinces for equitable development from the point of view of Kalimantan island. Moreover, as the provinces in Kalimantan are connected by the Trans-Kalimantan Highway, the needs of the Kalimantan spatial structure plan will be increased. Concerning infrastructure, priorities for infrastructure development, such as sea ports, airports and so forth should be given primarily based on the island level aspect as in the Kalimantan Spatial Structure Plan.

#### (1) Population Growth of Kalimantan Island

Kalimantan island is characterized by the vast area, small population and lower population density, and rich in natural resources, such as oil and natural gas, gold and minerals and forestry.

In spite of the lower population density of the provinces in Kalimantan (from 11 persons/km<sup>2</sup> of Central Kalimantan up to 79 persons/km<sup>2</sup> of South Kalimantan in 1995<sup>2</sup>) which differs greatly from the more than 13,000 persons/km<sup>2</sup> of Java, the annual average population growth rate for the period of 1971-1995 of Kalimantan is much higher than the national rate. East Kalimantan leads growth at over 4% annually with West Kalimantan following. Central Kalimantan has the third fastest growth rate, with South Kalimantan following. It is clear that the Kalimantan population is continuing to grow at a high pace. However, Indonesia's growth has remained below the 2% natural growth rates since 1980, this implies that Kalimantan has accepted migration from other islands. The population growth in Kalimantan from 1971 to 1995 is mentioned on Table 13.4.4.

**Table 13.4.4 Provincial Population Growth in Kalimantan from 1971 to 1995**

	Population (unit: 1000 persons)				Population Growth		
	1971	1980	1990	1995	1971-1980	1980-1990	1990-1995
West Kalimantan	2,020 (1.00)	2,486 (1.23)	3,229 (1.60)	3,636 (1.80)	2.33%	2.65%	2.40%
Central Kalimantan	702 (1.00)	954 (1.36)	1,396 (1.99)	1,627 (2.32)	3.47%	3.88%	3.11%
South Kalimantan	1,699 (1.00)	2,065 (1.22)	2,597 (1.53)	2,893 (1.70)	2.19%	2.32%	2.18%
East Kalimantan	734 (1.00)	1,218 (1.66)	1,877 (2.56)	2,314 (3.15)	5.79%	4.42%	4.27%
Kalimantan	5,155 (1.00)	6,723 (1.30)	9,099 (1.77)	10,470 (2.03)	2.99%	3.07%	2.85%
Indonesia	119,208 (1.00)	147,490 (1.24)	179,379 (1.50)	194,755 (1.63)	2.39% *	1.98%	1.66%

Source: Statistik Indonesia 1996,

1) Including persons with no permanent residence, except in 1995

2) Based on Population Censuses

3) Based on 1995 Intercensal Population Survey

\*Excluding Timor Timur

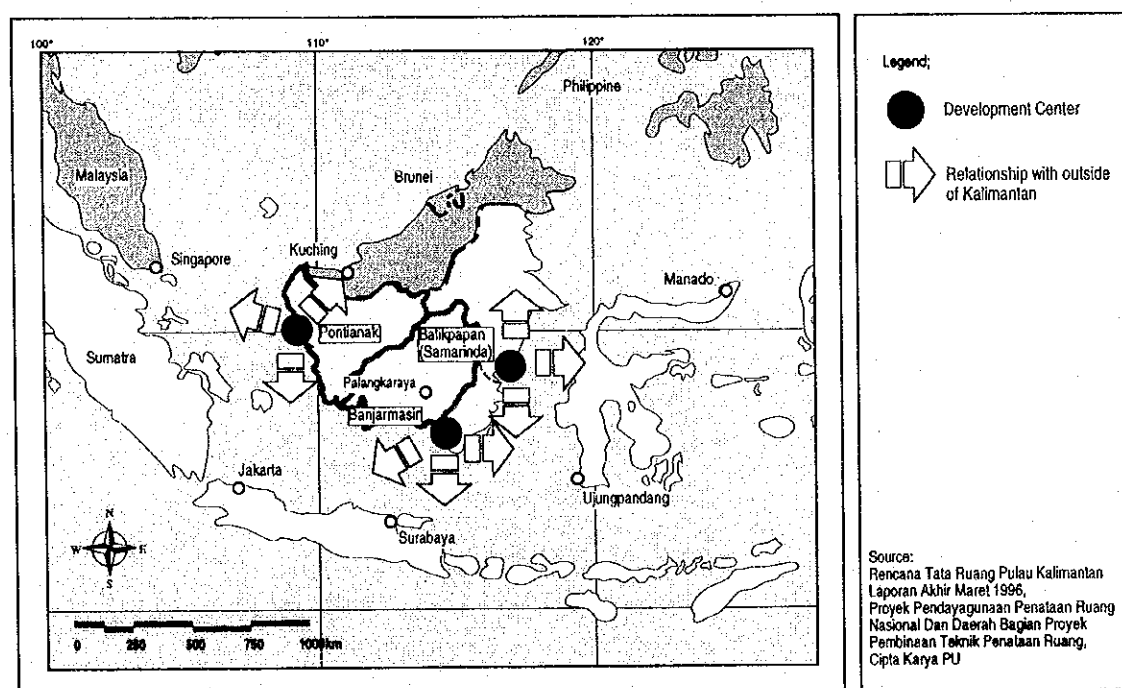
## (2) Review of the Existing Kalimantan Spatial Structure Plan

<sup>2</sup> Source: Statistik Indonesia 1996,

The Kalimantan Spatial Structure Plan divides Kalimantan island into subregions and the center city of subregion is proposed as a center of Kalimantan. There are three alternatives. The first is that there are two subregions and two centers, Pontianak and Balikpapan as well as the national activity center of the National Spatial Structure Plan. The second alternative is of two subregions and two centers of Pontianak and Banjarmasin. The third proposes that Kalimantan has three subregions and three centers, Pontianak, Banjarmasin and Balikpapan. Kalimantan Spatial Structure Plan considers alternative 3 the most suitable.

The alternative 3 is more understandable than the two national centers, Pontianak and Balikpapan, suggested by the National Spatial Structure Plan, because Banjarmasin has largest population of 534,000 and has historically been the commercial center of Kalimantan. Banjarmasin is more industrialized than other cities in Kalimantan and has a strong relationship with Java (especially two largest cities of Indonesia, Jakarta and Surabaya), because it is located between Jakarta and Surabaya, while Pontianak and Balikpapan are connected with only one city, Jakarta or Surabaya. Thus, the function of Pontianak covers the western part of Kalimantan and Pontianak has relationships with the Jakarta and Sumatra, Singapore and Kuching of Sarawak, Malaysia. Balikpapan covers East Kalimantan and is also one of the centers of the BIP-EAGA development area including the northern part of Sulawesi, Malaysia, Brunei and the southern part of the Philippines. Banjarmasin covers South and Central Kalimantan and has a relationship with Java, especially Surabaya. The concept of the subregion centers is shown Figure 13.4.5.

**Figure 13.4.5 The Concept of the Subregion Centers**

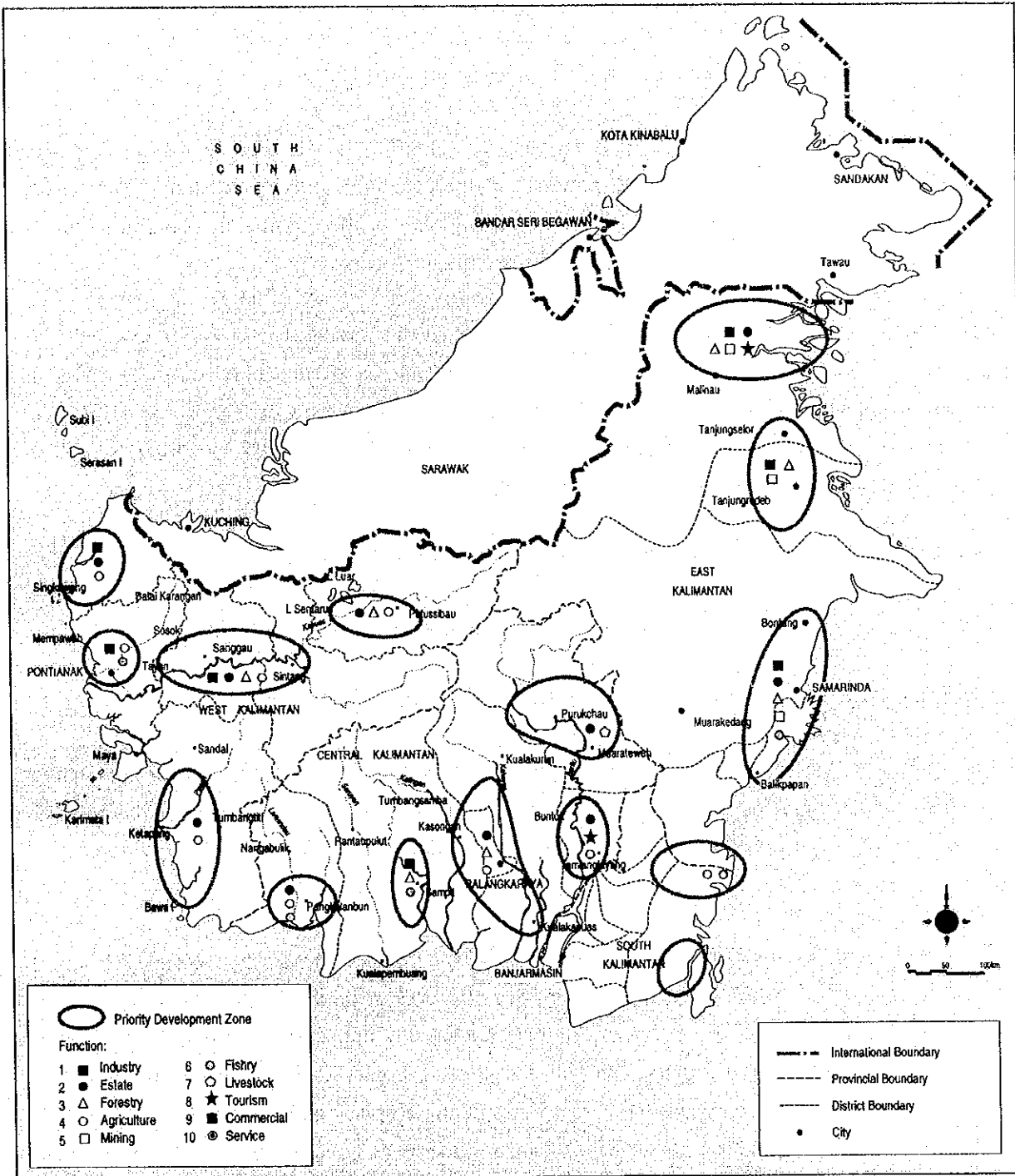


The priority development zone (Kawasan Andalan) is mentioned on the Kalimantan Spatial Structure Plan (see Figure 13.4.6). However, the priority development zone is not very common. One strategic zone is selected in each province of the eastern Indonesia as an integrated development area (KAPET). The KAPET of West Kalimantan is the Sanggau area including the Sambas district and a part of the Pontianak district, while that of Central Kalimantan is the Kuala Kapuas area which is called PLG.

The large scale oil palm plantation development and bauxite development are planned in Sanggau KAPET area. Moreover, by the construction of the Trans Kalimantan Highway the Sanggau KAPET area will be at the junction of the east-west and north-south arterial roads. The development of the Sarawak border area is also included in plan. Thus, it is clear that the Sanggau KAPET area has great potential, the development of Sanggau KAPET area will take a leading part of development in West Kalimantan. The development of KAPET in Central Kalimantan is controversial agricultural development of one million hectare of land which is expected to produce rice for Java island. However, there is some doubts in project from environmental and social aspects, the scale of project was reduced.



Figure 13.4.6 Priority Development Zone (Kawasan Andalan) in Kalimantan



Source: Rencana Tata Ruang Pulau Kalimantan Laporan Akhir Maret 1996, Proyek Pendayagunaan Penataan Ruang Nasional Dan Daerah Bagian Proyek Pembinaan Teknik Penataan Ruang,

Cipta Karya, PU

### 13.4.3 Review of the Existing Regional Spatial Structure Plan

In the spatial structure plan, the provincial spatial structure plan has been prepared from the early stage. The directorate general of Human Settlements (Cipta Karya) of the Ministry of Public Works provides the technical guidelines to the province.

In Article 20 of Regulation No. 24/1992 on the Spatial Structure, Presidential Decree No. 75/1993 on the coordination of the national spatial structure and Presidential Decree No. 32/1990 on the management of protected areas, it defines that the provincial spatial structure is provided by provincial government and authorized by governor.

The Regulation No.24/1992 on the Spatial Structure and Presidential Decree No. 32/1990 on the management of protected areas states that coordination is needed between the Provincial Spatial Structure Plan (RTRWP) and the Forest Land Use Plan by Consensus (TGHK). The coordination of RTRWP and TGHK was carried out from 1994/1995 to 1995/1996. The planning term of RTRWP is fifteen years and revised every five years.

#### (1) Existing Conditions of West and Central Kalimantan

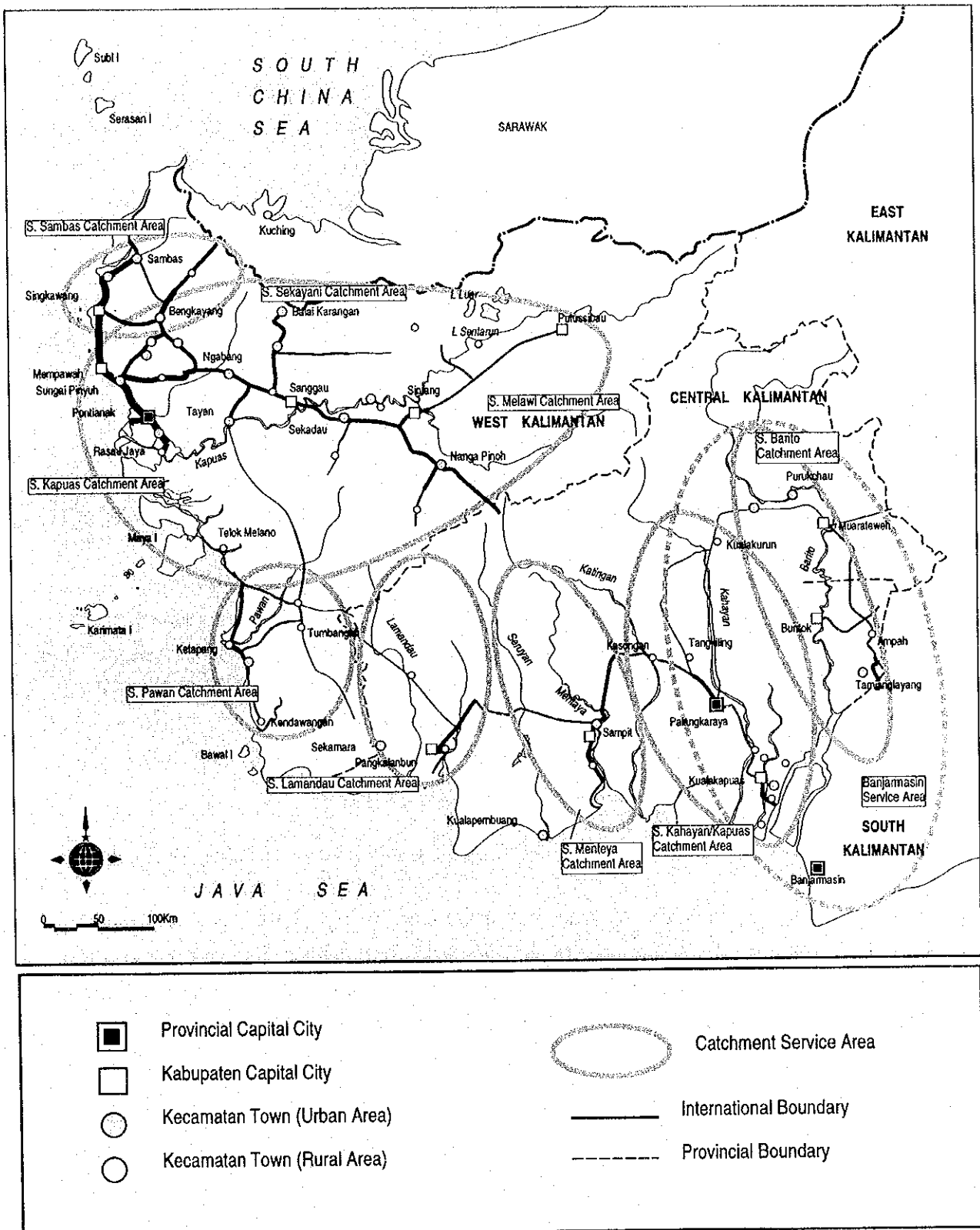
##### 1) Existing Structure of the Settlement System in West and Central Kalimantan

#### River Based Settlement System Features in West and Central Kalimantan

The settlement systems in Kalimantan have been based on the river systems. Port towns acting as gateways from inland areas to the outside world have grown in the lower reaches, or estuaries, of major rivers. A river's length and catchment area determines a town's scale, character and settlement system.

Long rivers with large catchment areas, such as the Kapuas and the Barito rivers in West and Central Kalimantan respectively, and other shorter rivers with small catchment areas have developed into different town systems in the middle and upper stream areas (see Figure 13.4.7). Major commercial centers, covering the junction points up to the upper stream areas, have grown in the middle and upper stream areas of the Kapuas and the Barito rivers where tributaries intersect the main river in which their service areas cover the intersection up to the upper stream. Smaller rivers have also developed commercial centers

Figure 13.4.7 Settlement System and River Catchment Areas



in the middle and upper stream areas in the same manner but on a smaller scale.

Generally, most commercial centers in the middle and upper stream areas also have function as administrative centers of a subdistrict or 'kecamatan'. The towns, which have only an administrative function without a commercial function, are commonly located in shorter rivers with smaller catchment areas because fewer commercial towns along these rivers have been developed enough. In the case of the Kapuas and Barito rivers' catchment areas, district level administrative units have divided the middle and upper stream areas with the major commercial towns at the branch points acting as administrative as well as commercial centers of a district.

The major difference between the urban system features of West and Central Kalimantan are the difference in length and catchment area size of the rivers. In West Kalimantan, the Kapuas river is the longest (1,100km) in Indonesia as well as having a catchment area which covers 70% of the province. There are different scales of commercial towns at the branch points of the middle and upper stream areas. Major commercial cities such as Sanggau and Sintang have grown at bigger branch points. Pontianak, the largest city in the province, is the provincial capital as well as the regional capital because of its strategic position near the mouth of the Kapuas river where commodities are assembled (see Figure 13.4.8).

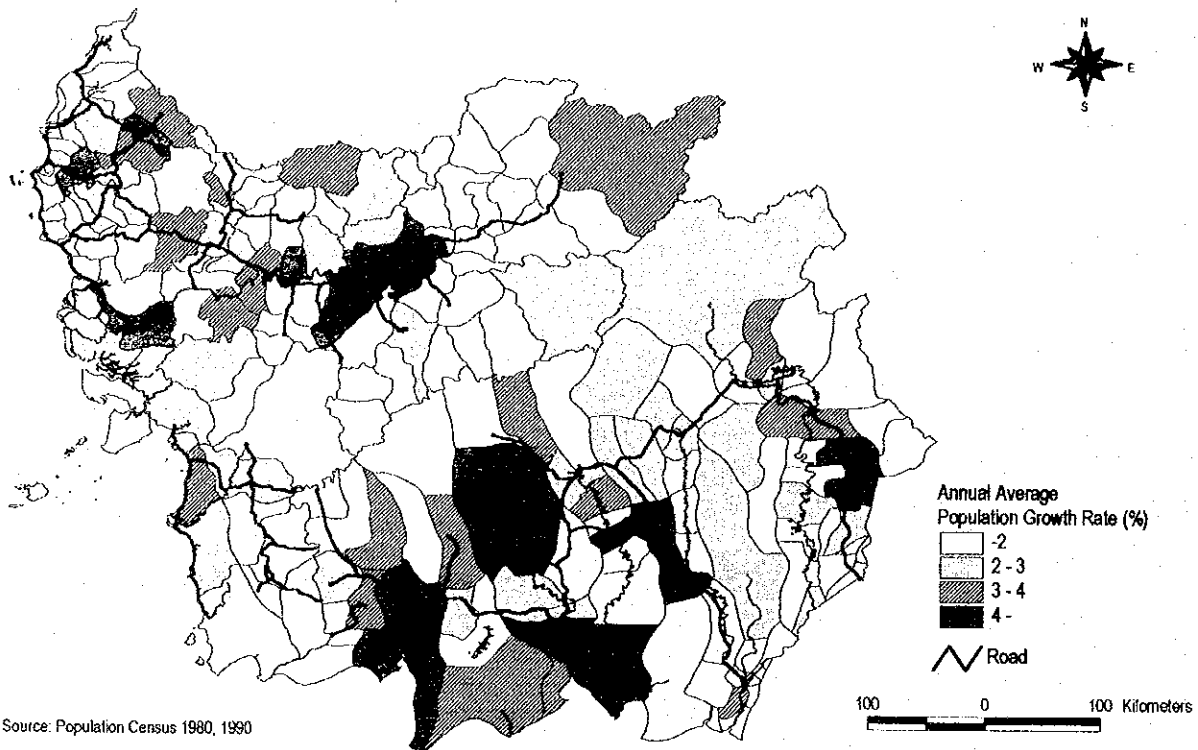
In contrast, the rivers in Central Kalimantan have not developed the big commercial towns in the middle and upper stream areas, because they are not of a sufficient scale. Central Kalimantan has seven parallel rivers of which the Barito river is the longest (900km) and the Seruyan is the shortest (350km). The Barito's catchment area covers only 28% of the province. The Barito river has brought up the commercial towns, Muarateweh and Buntok which also act as district administrative centers in middle and upper stream areas.

## 2) The Changing Settlement System by Road Construction and Oil Palm Development

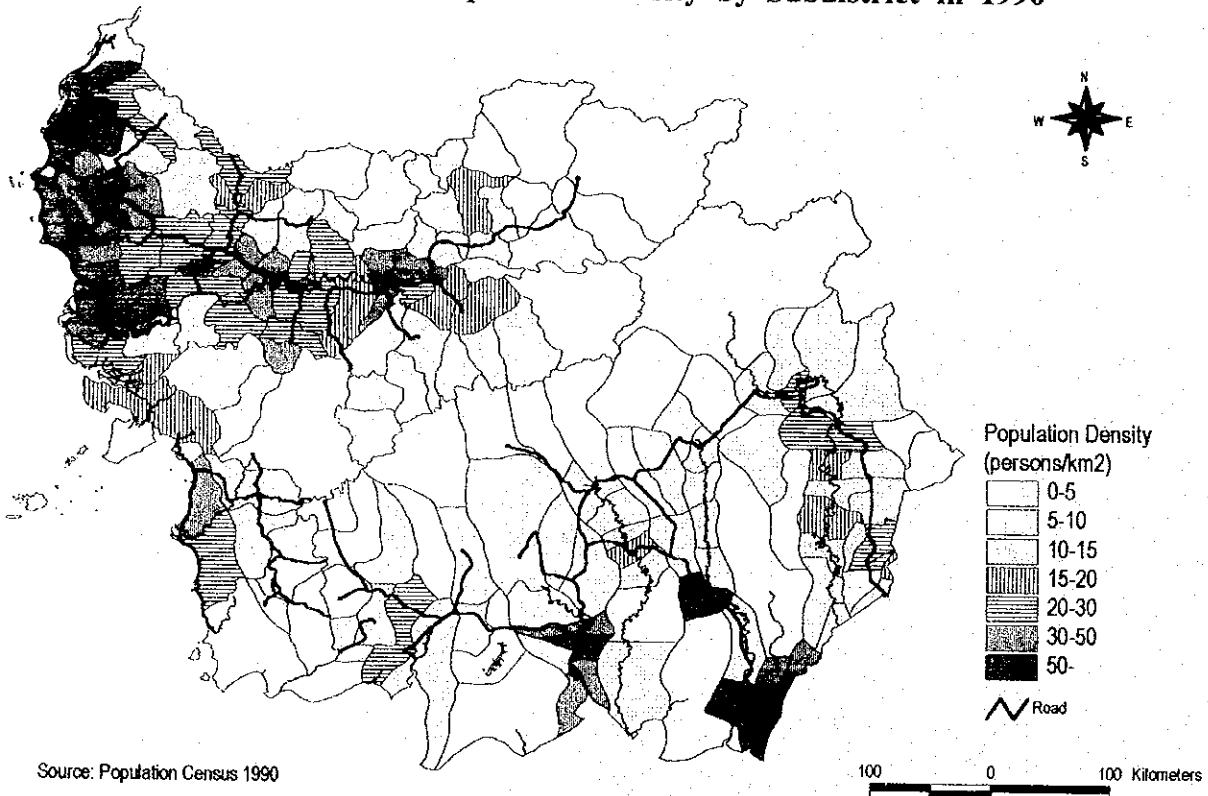
As oil palm plantations open roads in more remote areas, the river based settlement system is shifting to a road based system. In particular, the Trans-Kalimantan Highway has drastically changed the scale and service of the urban centers along it with the provision of electricity, telecommunication and other infrastructure from the lower towns. Inland towns



**Figure 13.4.9 Annual Average Population Growth Rate 1980-1990**



**Figure 13.4.10 Population Density by Subdistrict in 1990**



**Table 13.4.5 Population Growth by District (Kabupaten) and Municipality (Kotamadya) 1980-1995**

		Total			Urban Population			Rural Population		
		1980	1990	1995	1980	1990	1995	1980	1990	1995
West Kalimantan	Kab. Sambas	603,058	761,375	844,154	90,403	117,441	132,319	512,655	643,934	711,835
	Kab. Pontianak	608,849	778,546	868,885	12,207	69,450	155,050	596,642	709,096	713,835
	Kab. Sanggau	323,499	428,295	487,463	9,513	21,640	30,051	313,986	406,655	457,412
	Kab. Ketapang	253,069	326,377	365,389	12,661	22,092	26,404	240,408	304,285	338,985
	Kab. Sintang	263,279	377,399	446,562	13,181	20,837	23,490	250,098	356,562	423,072
	Kab. Kapuas Hulu	128,647	159,423	175,645	2,293	6,647	10,725	126,354	152,776	164,920
	Kod. Pontianak	304,490	396,658	447,632	276,665	386,427	409,632	27,825	10,231	38,000
	Sub-Total	2,484,891	3,228,073	3,635,730	416,923	644,534	787,671	2,067,968	2,583,539	2,848,059
Central Kalimantan	Kab. Kotawaringin Barat	94,367	165,731	210,392	5,082	27,377	61,336	89,285	138,354	149,056
	Kab. Kotawaringin Timur	183,166	378,706	448,496	16,377	49,868	85,340	166,789	328,838	363,156
	Kab. Katingan	66,023	-	-	-	-	-	66,023	-	-
	Kab. Kapuas	258,473	441,062	500,238	15,685	24,850	30,303	242,788	416,212	469,935
	Kab. Barito Selatan	69,020	152,296	164,368	9,427	19,283	27,406	59,593	133,013	136,962
	Kab. Barito Timur	51,209	-	-	-	-	-	51,209	-	-
	Kab. Barito Utara	63,601	145,707	156,488	0	24,178	27,900	63,601	121,529	128,588
	Kab. K Hulu/Gunung Mas	56,034	-	-	-	-	-	56,034	-	-
	Kab. Murung Raya	51,836	-	-	-	-	-	51,836	-	-
	Kod. Palangkaraya	60,447	112,511	147,471	51,686	99,693	133,485	8,761	12,818	13,986
Sub-Total	954,176	1,396,013	1,627,453	98,257	245,249	365,770	855,919	1,150,764	1,261,683	
<b>Total</b>	<b>3,439,067</b>	<b>4,624,086</b>	<b>5,263,183</b>	<b>515,180</b>	<b>889,783</b>	<b>1,153,441</b>	<b>2,923,887</b>	<b>3,734,303</b>	<b>4,109,742</b>	
		Growth Rate(Total)		Growth Rate(Urban)		Growth Rate(Rural)				
		1980-1990	1990-1995	1980-1990	1990-1995	1980-1990	1990-1995			
West Kalimantan	Kab. Sambas	-	2.36%	2.09%	-	2.65%	2.41%	-	2.31%	2.03%
	Kab. Pontianak	-	2.49%	2.22%	-	18.99%	17.42%	-	1.74%	0.13%
	Kab. Sanggau	-	2.85%	2.62%	-	8.57%	6.79%	-	2.62%	2.38%
	Kab. Ketapang	-	2.58%	2.28%	-	5.72%	3.63%	-	2.38%	2.18%
	Kab. Sintang	-	3.67%	3.42%	-	4.69%	2.43%	-	3.61%	3.48%
	Kab. Kapuas Hulu	-	2.17%	1.96%	-	11.23%	10.04%	-	1.92%	1.54%
	Kod. Pontianak	-	2.68%	2.45%	-	3.40%	1.17%	-	-9.52%	30.01%
	Sub-Total	-	2.65%	2.41%	-	4.45%	4.09%	-	2.25%	1.97%
Central Kalimantan	Kab. Kotawaringin Barat	-	5.79%	4.89%	-	18.34%	17.51%	-	4.48%	1.50%
	Kab. Kotawaringin Timur	-	7.53%	3.44%	-	11.78%	11.34%	-	7.02%	2.01%
	Kab. Katingan	-	-	-	-	-	-	-	-	-
	Kab. Kapuas	-	5.49%	2.55%	-	4.71%	4.05%	-	5.54%	2.46%
	Kab. Barito Selatan	-	8.24%	1.54%	-	7.42%	7.28%	-	8.36%	0.59%
	Kab. Barito Timur	-	-	-	-	-	-	-	-	-
	Kab. Barito Utara	-	8.64%	1.44%	-	-	2.91%	-	6.69%	1.14%
	Kab. K Hulu/Gunung Mas	-	-	-	-	-	-	-	-	-
	Kab. Murung Raya	-	-	-	-	-	-	-	-	-
	Kod. Palangkaraya	-	6.41%	5.56%	-	6.79%	6.01%	-	3.88%	1.76%
Sub-Total	-	3.88%	3.12%	-	9.58%	8.32%	-	3.00%	1.86%	
<b>Total</b>	<b>-</b>	<b>3.01%</b>	<b>2.62%</b>	<b>-</b>	<b>5.62%</b>	<b>5.33%</b>	<b>-</b>	<b>2.48%</b>	<b>1.93%</b>	

Source:

Population of Kalimantan Barat, Serie: S Number 19, Results of the 1980 Population Census 1980  
 Population of Kalimantan Tengah, Serie: S Number 20, Results of the 1980 Population Census 1980  
 Population of Indonesia Results of the 1990 Population Census  
 Population of Kalimantan Barat, Results of the 1995 Intercensal Population Survey, Series: S2.18  
 Population of Kalimantan Tengah, Results of the 1995 Intercensal Population Survey, Series: S2.19

**Table 13.4.6 The Land Use Pattern of Protected Areas and Cultivation Areas in West Kalimantan 2008**

Land Use Pattern	The Criteria of Land Use Pattern		Area (ha) (% of Total Area)	
Protected Area	Protection Forest Area		1,705,800	(11.6%)
	Peat Area		199,500	(1.4%)
	Water Recharge Area		174,500	(1.2%)
	Coastal Areas with Mangrove Forest		175,500	(1.2%)
	Sanctuary Reserves Forest		940,450	(6.4%)
	Marine Sanctuary Reserves		29,300	(0.2%)
	National Park		526,743	(3.6%)
Cultivation Area	Production Forest	Limited Production Forest (HPT)	2,950,000	(20.1%)
		Ordinary/ Fixed Production Forest (HPB)	1,950,000	(13.3%)
		Conversion Production Forest (HPK)	720,000	(4.9%)
	Agricultural Cultivation Area	Wetland Food Crop Agricultural Area	780,000	(5.3%)
		Dryland Food Crop Agricultural Area	2,500,000	(17.0%)
	Mines Area		113,500	(0.8%)
	Industrial Area		250,000	(1.7%)
	Tourism Area		50,000	(0.3%)
	Settlement Area		1,615,407	(11.0%)
Total			14,500,700	(100.0%)

Source: West Kalimantan Spatial Structure Plan 1995

The RTRWP in West Kalimantan has planned the new urban hierarchy for 2008 (see Table 13.4.7). The urban centers, planned with higher ranks in hierarchy than present, are mainly located in the Sanggau area in the middle stream area of the Kapuas river. This is the reason why large scale plantations and construction of the Trans-Kalimantan Highway are planned in the Sanggau area as well as the KAPET (Integrated Development Zone). The hierarchy of other centers which will be connected by the road construction will also change their rank of hierarchy. The urban hierarchy of the RTRWP in West Kalimantan is based on the future development trends and is quite reasonable. The urban hierarchy at present and in future are shown on Figure 13.4.11 and Figure 13.4.12.



**Table 13.4.7 Hierarchy of Settlement Centers in West Kalimantan**

No.	Development Area	Town	Development Center	Service Scale	Hierarchy*	
					Present	Plan
I	Northern Coast	Sambas	○	Local	III	III
		Pemangkat	○	Local	III	III
		Singkawang	●	Sub-regional	II	II
		Bengkayang	○	Local	IV	III
II	Kapuas Estuary	Pontianak	●	Regional	I	I
		<u>Rasau Jaya</u>	○	Local	IV	III
		Mempawah	○	Local	III	III
		<u>Ngabang</u>	○	Local	IV	III
		Batu Ampar	○	Local		
III	Central Kapuas	<u>Balai Karangan</u>	○	Local	IV	III
		<u>Tayan</u>	○	Local	IV	III
		<u>Sanggau</u>	●	Sub-regional	III	II
		<u>Sekadau</u>	○	Local	IV	III
IV	Southern Coast	<u>Teluk Melano</u>	○	Local	V	III
		<u>Ketapang</u>	●	Sub-region	II	II
		<u>Kendawangan</u>	○	Local	IV	III
		<u>Tumbang Titi</u>	○	Local	V	III
		<u>Aur Kuning</u>	○	Local		
V	Upstream Kapuas	Nanga Pinoh	○	Local	III	III
		Sintang	●	Sub-regional	II	II
		Putussibau	○	Local	III	III
		Semitau	○	Local	IV	III

\*Hierarchy: Order I: regional service scale Order II: sub-regional service scale Order III: local service scale

● : Development Center ○: Sub-development Center, Note: Underline denotes change in hierarchy

Source: West Kalimantan Spatial Structure Plan 1995

## 2) Central Kalimantan Spatial Structure Plan

The Central Kalimantan Spatial Structure Plan was approved in 1992 and is in effect until 2005. The RTRWP of Central Kalimantan provides the land use pattern for protected areas and cultivation areas, basic structure of settlement systems including urban hierarchy and function and infrastructure such as transportation, power supply, telecommunication, water supply, irrigation and market facilities, as well as priority development areas, such as industrial zone and transmigration area. The land use patterns of protected areas and cultivation areas are mentioned in Table 13.4.8.

Protected areas are designated in the northern part of the mountainous areas and in peat swamp areas. Cultivation areas are situated in the middle stream areas between mountainous areas and peat swamp areas and along rivers. The land use plan of RTRWP in Central Kalimantan is based on the Repprot 1985 and is more detailed than the RTRWP of West Kalimantan. The protected area has especially divided subareas which include protection areas, local protection

areas, nature reserves and cultural reserve areas, areas susceptible to natural disasters and special areas and it clearly states that a buffer zone should be located in the coastal area, along river bank and around lakes. Most of the areas in Central Kalimantan are peat swamp and land use is limited by geological conditions. The land use plan of RTRWP Central Kalimantan is based on natural and environmental conditions.

## 13.5 PRESENT CONDITION OF HUMAN SETTLEMENT IN WEST AND CENTRAL KALIMANTAN

### 13.5.1 Socio-Economic Condition of Human Settlement in the Study Area

#### (1) The Urban and Rural Population Growth in the West and Central Kalimantan

The most of people in West and Central Kalimantan lives in rural area. The urban populations of West Kalimantan and Central Kalimantan in 1995 are 787,671 and 365,770 (See Table 13.5.1 ) The percentages of urban population are 21.7% and 22.5% and are lower than the percentage of South Kalimantan, East Kalimantan and Indonesia, which are 30.0%, 50.2% and 35.9%<sup>3</sup>. The average annual growth rate of the urban population in Central Kalimantan is remarkable. The urban population in Central Kalimantan has rapidly increased on at an annual growth rate 8.3% from 1990 to 1995, though the number of urban population is still small. The average annual urban population growth rate of West Kalimantan in 1995 is 4.1% and lower than 4.9% average of Kalimantan. It is expected that the urban population ratio of West and Central Kalimantan will be stayed in low level.

The urban populations of Pontianak, Kapuas Hulu and Sanggau Districts in West Kalimantan have grown at the high growth rate from 1990 to 1995, which are 17.4%, 10.0% and 6.8% respectively. In Central Kalimantan, the annual growth rates of Kotawaringin Barat and Kotawaringin Timur from 1990 to 1995, are very high, 17.1% and 11.3% respectively as shown in Table 13.5.2. In those districts, many oil palm plantation developments are planted and under going.

The urban populations of both provinces concentrate in the capital cities of provinces and the capital cities in districts. The capital city of West Kalimantan, Pontianak Municipality accounts for more than 50 % of all urban population in West Kalimantan, while the share of urban population of Palangkaraya Municipality, the capital city of Central Kalimantan, is 36%. The urban populations ratio of the capital cities of districts are more than 50 % except Pontianak Districts.

<sup>3</sup> Population of Kalimantan Selatan, Results of the 1995 Population Census, Series: S2.20, Population of Kalimantan Timur, Results of the 1995 Population Census, Series: S2.21, Population of Indonesia Results of the 1995 Intercensal Population Survey Series S2.

**Table 13.5.1 Urban Population of the Capital City of District**

	Urban Population	Urban Population of the Capital City		
		Population 1991	Ratio (%)	
<b>West Kalimantan</b>				
Kab. Sambas	117,441	79,260	67.5%	
Kab. Pontianak	69,450	12,517	18.0%	
Kab. Sanggau	21,640	11,797	54.5%	
Kab. Ketapang	22,092	18,540	83.9%	
Kab. Sintang	20,837	17,179	82.4%	
Kab. Kapuas Hulu	6,647	6,642	99.9%	
Kod. Pontianak	386,427	386,427	100.0%	
<b>Sub-Total</b>	<b>West Kalimantan</b>	<b>644,534</b>	<b>532,362</b>	<b>82.6%</b>
<b>Central Kalimantan</b>				
Kab. Kotawaringin Bar	27,377	24,527	89.6%	
Kab. Kotawaringin Tin	49,868	34,327	68.8%	
Kab. Kapuas	24,850	22,964	92.4%	
Kab. Barito Selatan	19,283	16,485	85.5%	
Kab. Barito Utara	24,178	16,492	68.2%	
Kod. Palangka Raya	99,693	99,693	100.0%	
<b>Sub-Total</b>	<b>Central Kalimantan</b>	<b>245,249</b>	<b>214,488</b>	<b>87.5%</b>
<b>Total</b>		<b>889,783</b>	<b>746,850</b>	<b>83.9%</b>

Source: Kotamadya Pontianak Dalam Angka 1995, Kod. Palangka Raya Dalam Angka 1994, Kabupaten Sambas Dalam Angka 1995, Barito Utara Dalam Angka 1994, Kabupaten Pontianak Dalam Angka 1995, Kapuas Dalam Angka 1994, Kabupaten Sanggau Dalam Angka 1995, Barito Selatan Dalam Angka 1995, Kabupaten Sintang Dalam Angka 1995, Kowataringin Barat Dalam Angka 1995, Kabupaten Ketapang Dalam Angka 1995, Kowataringin Timur Dalam Angka 1995, Kabupaten Kapuas Hulu Dalam Angka 1996

## (2) Industry Activities and Employment Condition in the Study Area

### 1) Economic Condition

Economic condition of both West and Central Kalimantan are shown in Table 13.4.4 from 1993 to 1995. The gross regional domestic product (GRDP) of West Kalimantan in 1995 is 6,235,796 million rupiah at 1993 constant price and of Central Kalimantan is 3,617,390 million rupiah. Agricultural Sector is dominant in both province, which share are West Kalimantan (24.7%) and Central Kalimantan (37.8%) in 1994, wholesale, retail trade sector is in second place, 21.9% and 17.4% respectively, and after that restaurant and manufacturing industry sector follows. The share of sub sector is not much difference from 1993 to 1995.

Pontianak District and Municipality are economic center of West Kalimantan and amount to more than 50% of GRDP of the province, while the total GRDP of Kotawaringin Timur and Kotawaringin Barat is nearly 50% of the province and the capital city of Central Kalimantan, Palangkaraya Municipality does not contribute the provincial economy very much.

**Table 13.5.2 Gross Regional Domestic Product (1993 Constant Price)**

		(Million Rupiah)					
		West Kalimantan					
		1,993		1,994		1,995	
Agriculture		1,339,817	(25.5%)	1,412,104	(24.8%)	1,538,739	(24.7%)
Mining and Quarrying		54,602	(1.0%)	66,868	(1.2%)	80,310	(1.3%)
Manufacturing Industry		1,035,674	(19.7%)	1,133,198	(19.9%)	1,234,437	(19.8%)
Electricity, Gas and Water		32,761	(0.6%)	40,415	(0.7%)	46,451	(0.7%)
Construction		290,272	(5.5%)	330,757	(5.8%)	378,115	(6.1%)
Wholesale, Retail Trade and Restaurant		1,146,872	(21.8%)	1,241,236	(21.8%)	1,363,021	(21.9%)
Transportation and Communication		508,009	(9.7%)	547,131	(9.6%)	577,237	(9.3%)
Finance, Insurance, Real Estate and Business Service		385,819	(7.3%)	376,964	(6.6%)	409,766	(6.6%)
Others		464,418	(8.8%)	539,794	(9.5%)	607,722	(9.7%)
<b>Total</b>		<b>5,258,244</b>	<b>(100.0%)</b>	<b>5,688,466</b>	<b>(100.0%)</b>	<b>6,235,796</b>	<b>(100.0%)</b>
		Central Kalimantan					
		1,993		1,994		1,995	
Agriculture		1,117,454	(36.7%)	1,264,601	(38.5%)	1,365,991	(37.8%)
Mining and Quarrying		17,074	(0.6%)	18,592	(0.6%)	75,533	(2.1%)
Manufacturing Industry		396,885	(13.0%)	405,657	(12.4%)	451,505	(12.5%)
Electricity, Gas and Water		7,236	(0.2%)	8,528	(0.3%)	42,815	(1.2%)
Construction		210,312	(6.9%)	221,981	(6.8%)	246,878	(6.8%)
Wholesale, Retail Trade and Restaurant		538,220	(17.7%)	574,510	(17.5%)	629,649	(17.4%)
Transportation and Communication		338,975	(11.1%)	357,767	(10.9%)	384,478	(10.6%)
Finance, Insurance, Real Estate and Business Service		94,723	(3.1%)	99,152	(3.0%)	109,685	(3.0%)
Others		322,994	(10.6%)	332,489	(10.1%)	310,855	(8.6%)
<b>Total</b>		<b>3,043,872</b>	<b>(100.0%)</b>	<b>3,283,277</b>	<b>(100.0%)</b>	<b>3,617,390</b>	<b>(100.0%)</b>

Source: Gross Regional Domestic Product of Regencies/Municipalities in Indonesia 1993-1995

**Table 13.5.3 Gross Regional Domestic Product in 1994 by District**

		(Million Rupiah)										
		Agriculture	Mining and Quarrying	Manufacturing Industry	Electricity, Gas and Water	Construction	Wholesale, Retail Trade and Restaurant	Transportation and Communication	Finance, Insurance, Real Estate and Business	Others	Total	
<b>West Kalimantan</b>												
Sambas		319,780 (38%)	6,676 (1%)	75,858 (9%)	5,776 (1%)	31,932 (4%)	239,694 (28%)	56,803 (7%)	50,587 (6%)	64,569 (8%)	851,673 (100%)	
Pontianak		444,738 (27%)	5,359 (0%)	685,968 (41%)	2,126 (0%)	25,364 (2%)	335,092 (20%)	73,661 (4%)	46,170 (3%)	51,449 (3%)	1,669,927 (100%)	
Sanggau		192,637 (36%)	10,019 (2%)	150,532 (28%)	1,100 (0%)	26,097 (5%)	104,095 (19%)	12,943 (2%)	21,433 (4%)	20,769 (4%)	539,626 (100%)	
Ketapang		138,965 (26%)	25,010 (5%)	116,065 (22%)	1,045 (0%)	15,758 (3%)	113,663 (22%)	73,662 (14%)	22,185 (4%)	21,324 (4%)	527,677 (100%)	
Sintang		161,460 (44%)	16,039 (4%)	18,984 (5%)	1,133 (0%)	16,930 (5%)	100,129 (27%)	10,691 (3%)	16,984 (5%)	25,531 (7%)	367,881 (100%)	
Kapuas Hulu		119,601 (55%)	3,764 (2%)	5,040 (2%)	353 (0%)	11,031 (5%)	44,948 (21%)	5,089 (2%)	10,729 (5%)	15,383 (7%)	215,939 (100%)	
Pontianak Municipality		34,924 (2%)	0 (0%)	80,751 (5%)	28,881 (2%)	203,646 (13%)	303,615 (20%)	314,282 (21%)	208,876 (14%)	340,769 (22%)	1,515,743 (100%)	
<b>Total</b>		<b>1,412,104 (25%)</b>	<b>66,868 (1%)</b>	<b>1,133,198 (20%)</b>	<b>40,415 (1%)</b>	<b>330,757 (6%)</b>	<b>1,241,236 (22%)</b>	<b>547,131 (10%)</b>	<b>376,964 (7%)</b>	<b>539,794 (9%)</b>	<b>5,688,466 (100%)</b>	
<b>Central Kalimantan</b>												
Kotawaringin Barat		184,004 (30%)	2,561 (0%)	153,932 (25%)	907 (0%)	40,776 (7%)	119,839 (20%)	48,026 (8%)	16,054 (3%)	39,434 (7%)	605,533 (100%)	
Kotawaringin Timur		409,954 (44%)	3,381 (0%)	112,841 (12%)	2,100 (0%)	50,747 (5%)	186,869 (20%)	72,339 (8%)	23,896 (3%)	66,664 (7%)	928,790 (100%)	
Kapuas		300,760 (43%)	1,274 (0%)	93,063 (13%)	1,284 (0%)	45,835 (7%)	112,890 (16%)	47,375 (7%)	21,358 (3%)	68,612 (10%)	692,450 (100%)	
Barito Selatan		135,117 (42%)	994 (0%)	19,173 (6%)	559 (0%)	34,305 (11%)	41,735 (13%)	41,447 (13%)	10,232 (3%)	36,874 (12%)	320,435 (100%)	
Barito Utara		212,160 (51%)	6,199 (1%)	12,055 (3%)	554 (0%)	22,201 (5%)	75,079 (18%)	50,077 (12%)	9,899 (2%)	29,767 (7%)	417,990 (100%)	
Palangka Raya Munic		22,605 (7%)	4,184 (1%)	14,593 (5%)	3,125 (1%)	28,117 (9%)	38,099 (12%)	98,503 (31%)	17,713 (6%)	91,139 (29%)	318,077 (100%)	
<b>Total</b>		<b>1,264,601 (39%)</b>	<b>18,592 (1%)</b>	<b>405,657 (12%)</b>	<b>8,528 (0%)</b>	<b>221,981 (7%)</b>	<b>574,510 (17%)</b>	<b>357,767 (11%)</b>	<b>99,152 (3%)</b>	<b>332,489 (10%)</b>	<b>3,283,277 (100%)</b>	

Source: Gross Regional Domestic Product of Regencies/Municipalities in Indonesia 1993-1995

Although the agricultural sector is dominant in most districts, manufacturing industry, wholesale, retail trade and restaurant and the other service sectors play more important roles in Pontianak, Sanggau, Ketapang and Sintang districts and Pontianak municipality in West Kalimantan, Kotawaringin Barat and Kotawaringin Timur districts and Palangka raya municipality. The manufacturing industry sector accounts for 41.1% in Pontianak and 27.9 % in Sanggau, and more than 20% in Ketapang and Kotawaringin Barat. The share of wholesale, retail trade and restaurant sector is nearly 30 % in Sambas and Sintang.

## 2) Employment Condition in Urban and Rural Area

The total employees of West Kalimantan in 1995 is 1,086,769 persons, which account for 44% of population, and Central Kalimantan is 697,477 persons, which account for 43%. More than 60% of employees in each province is occupied in the agricultural sector, West Kalimantan (67.8%) and Central Kalimantan (64.1%), the share of the other sectors is nearly 10% or less. The public sector is second to absorb employees in 10.2% and 12.8% respectively. The percentage of employees in the manufacturing industry sector is still at low level 5.4% and 6.1% respectively. The existing conditions of employees in West and Central Kalimantan are similar.

**Table 13.5.4 Employment 1995 in West and Central Kalimantan**

	West Kalimantan		Central Kalimantan	
Agriculture, Forestry, Hunting, Fishery	1,086,769	(67.8%)	447,121	(64.1%)
Mining and Quarrying	24,230	(1.5%)	9,166	(1.3%)
Manufacturing Industry	86,239	(5.4%)	42,653	(6.1%)
Electricity, Gas and Water	3,500	(0.2%)	131	(0.0%)
Construction	42,899	(2.7%)	17,299	(2.5%)
Wholesale and Retail Trade, Restaurant	153,210	(9.6%)	70,343	(10.1%)
Transportation, Storage, Communication	36,584	(2.3%)	22,024	(3.2%)
Finance, Insurance, Real Estate and Business Services	5,354	(0.3%)	207	(0.0%)
Public Services	162,813	(10.2%)	89,000	(12.8%)
Others	173	(0.0%)	-	(0.0%)
Not Stated	-	(0.0%)	-	(0.0%)
Total	1,601,771	(100.0%)	697,944	(100.0%)

Source: Population of Kalimantan Barat, Results of the 1995 Intercensal Population Survey, Series: S2.18 Population of Kalimantan Tengah, Results of the 1995 Intercensal Population Survey, Series: S2.19

The number of employees in urban areas is 202,169 persons in West Kalimantan and 82,443 persons in Central Kalimantan in 1990, and occupies only 14.6% and 14.3% of total employees in each province. The largest sector to absorb employment in urban area is the public sector, after that the wholesale, retail trade and restaurants follow with the total number of those two sectors reaching nearly 65% of the employment in urban areas. The employees of the

manufacturing industry is only one tenth in both provinces and the manufacturing does not contribute to absorb labor force.

**Table 13.5.5 Number of Employment 1990 in Urban and Rural Area**

	West Kalimantan				Central Kalimantan			
	Urban		Rural		Urban		Rural	
	(persons)	Ratio(%)	(persons)	Ratio(%)	(persons)	Ratio(%)	(persons)	Ratio(%)
Agriculture, Forestry, Hunting, Fishery	18,113	(9.0%)	985,437	(83.4%)	9,529	(11.6%)	346,599	(70.4%)
Mining and Quarrying	1,635	(0.8%)	14,660	(1.2%)	1,122	(1.4%)	17,570	(3.6%)
Manufacturing Industry	20,209	(10.0%)	41,781	(3.5%)	7,557	(9.2%)	46,984	(9.5%)
Electricity, Gas and Water	1,367	(0.7%)	477	(0.0%)	184	(0.2%)	285	(0.1%)
Construction	17,670	(8.7%)	13,921	(1.2%)	5,374	(6.5%)	8,193	(1.7%)
Wholesale and Retail Trade, Restaurant	48,775	(24.1%)	45,829	(3.9%)	19,540	(23.7%)	30,152	(6.1%)
Transportation, Storage, Communication	16,034	(7.9%)	11,492	(1.0%)	5,242	(6.4%)	7,068	(1.4%)
Finance, Insurance, Real Estate and Business Services	5,460	(2.7%)	2,707	(0.2%)	1,475	(1.8%)	1,305	(0.3%)
Public Services	70,192	(34.7%)	59,451	(5.0%)	31,348	(38.0%)	30,687	(6.2%)
Others	110	(0.1%)	31	(0.0%)	11	(0.0%)	-	(0.0%)
Not Stated	2,604	(1.3%)	6,437	(0.5%)	1,061	(1.3%)	3,802	(0.8%)
<b>Total</b>	<b>202,169</b>	<b>(100.0%)</b>	<b>1,182,223</b>	<b>(100.0%)</b>	<b>82,443</b>	<b>(100.0%)</b>	<b>492,645</b>	<b>(100.0%)</b>

Source: Population of Kalimantan Barat, Results of the 1990 Population Census, Series: S2.18 Population of Kalimantan Tengah, Results of the 1990 Population Census, Series: S2.19

Concerning existing conditions of employment in districts, the agricultural sector absorbs most of the employees in all districts, except the two municipalities. Especially in West Kalimantan, more than 70% of employees work in the agricultural sector in all kabupatens. The share of agricultural sector in Sanggau, Sintang and Kapuas Hulu which are located in form middle reaches to upstream of Kapuas River, reaches more than 80%. Nearly 70% of the employees of Barito Selatan, Barito Utara and Kapuas in Central Kalimantan are occupied in the agricultural sector, however the share of agricultural sector in Kotawaringin Barat and Kotawaringin Timur is less than 60%, which is 58.4% and 57.2% respectively. The manufacturing industry sector absorbs more than 10% of employees in those two districts. Concerning the two municipalities, Pontianak and Palangkaraya, the public sector absorbs a large part of employees, the share of the public sector is 32.0% in Pontianak and 42.8% in Palangkaraya. Secondary, the wholesale, retail trade and restaurant sector has the second largest share, which are 23.0% in Pontianak and 21.1% in Palangkaraya. The share of the manufacturing industry of Pontianak, 10.9% is higher than Palangkaraya 4.3%.

**Table 13.5.6 Dominant Sector in Urban Area by District**

	Agriculture, Forestry, Hunting, Fishery	Mining and Quarrying	Manufacturi ng Industry	Electricity, Gas and Water	Constructio n	Wholesale and Retail Trade, Restaurant	Transportatio n, Storage, Communicati on	Finance, Insurance, Real Estate and Business Services	Public Services	Others	Not Stated	Total
<b>West Kalimantan</b>												
Kab. Sambas	262,713	2,591	9,725	236	4,208	23,524	5,548	946	29,131	0	2,011	340,633
Kab. Pontianak	251,514	1,308	23,033	154	5,243	18,569	4,352	761	23,678	16	3,076	331,704
Kab. Sanggau	164,507	3,376	2,231	104	2,511	6,139	2,061	163	11,318	0	548	192,958
Kab. Ketapang	102,366	288	9,486	204	2,612	7,995	2,321	1,226	11,661	0	819	138,978
Kab. Sintang	143,591	6,703	2,661	0	1,904	6,662	961	308	9,332	15	1,080	173,217
Kab. Kapuas Hulu	69,169	1,789	1,078	18	1,164	2,686	295	119	4,183	0	350	80,851
Kod. Pontianak	9,690	240	13,776	1,128	13,949	29,029	11,988	4,644	40,340	110	1,157	126,051
<b>Total</b>	<b>1,003,550</b>	<b>16,295</b>	<b>61,990</b>	<b>1,844</b>	<b>31,591</b>	<b>94,604</b>	<b>27,526</b>	<b>8,167</b>	<b>129,643</b>	<b>141</b>	<b>9,041</b>	<b>1,384,392</b>
<b>Central Kalimantan</b>												
Kab. Kotawaringin Barat	40,854	2,886	10,274	34	1,401	5,866	1,865	180	5,958	0	632	69,950
Kab. Kotawaringin Timur	85,539	6,988	19,641	153	5,356	13,547	4,062	878	11,823	0	1,625	149,612
Kab. Kapuas	128,205	4,637	17,366	84	2,008	13,529	3,069	697	15,196	0	1,561	186,352
Kab. Barito Selatan	49,533	118	3,564	63	1,529	4,494	449	174	6,977	0	443	67,344
Kab. Barito Utara	46,223	3,036	2,056	38	594	4,194	1,251	195	5,733	0	274	63,594
Kod. Palangka Raya	5,774	1,027	1,640	97	2,679	8,062	1,614	656	16,348	11	328	38,236
<b>Total</b>	<b>356,128</b>	<b>18,692</b>	<b>54,541</b>	<b>469</b>	<b>13,567</b>	<b>49,692</b>	<b>12,310</b>	<b>2,780</b>	<b>62,035</b>	<b>11</b>	<b>4,863</b>	<b>575,088</b>

Source: Population of Kalimantan Barat, Results of the 1990 Population Census, Series: S2.18 Population of Kalimantan Tengah, Results of the 1990 Population Census, Series: S2.19

The dominant sectors in the urban area of each district are the public service, the wholesale, retail trade and restaurant, and the manufacturing or the agriculture sector. The percentage of public service sector is especially high in Sanggau (60.1%), Ketapang (53.7%), Kapuas Hulu (53.1%) in West Kalimantan and Palangkaraya (47.9%) and Kapuas (40.0%) in Central Kalimantan. The manufacturing sector is prominent in Kotawaringin Barat at 30.6%, and is more than 10% in Pontianak (13.4%), Ketapang (10.4%) and Pontianak Municipality (11.1%) in West Kalimantan, and Kotawaringin Timur (12.8%) in Central Kalimantan. The share of wholesale, retail trade and restaurant sector is higher in Sintang (37.6%), Sambas (29.6%) and Pontianak in West Kalimantan, and Kapuas (30.3%) and lower in Sanggau (14.1%), Ketapang (14.8%), and Kapuas Hulu (15.5%).

In rural area, the agricultural sector is the main sector occupied from 70 to 80% of employment and the percentage of all the other sectors does not reach 10%, except Kotawaringin Barat, Kotawaringin Timur and the two municipalities. Only in Kotawaringin Barat and Kotawaringin Timur, the shares of the manufacturing industry marks 11.9% and 13.2%.



**Table 13.5.7 Dominant Sector in Urban Area by District**

	1st		2nd		3rd	
<b>West Kalimantan</b>						
Sambas	Wholesale and Retail Trade, Restaurant	29.6%	Public Services	29.5%	Agriculture, Forestry, Hunting, Fishery	15.8%
Pontianak	Public Services	39.1%	Wholesale and Retail Trade, Restaurant	21.0%	Manufacturing Industry	13.4%
Sanggau	Public Services	60.1%	Wholesale and Retail Trade, Restaurant	14.1%	Agriculture, Forestry, Hunting, Fishery	11.3%
Ketapang	Public Services	53.7%	Wholesale and Retail Trade, Restaurant	14.8%	Manufacturing Industry	10.4%
Sintang	Public Services	46.3%	Wholesale and Retail Trade, Restaurant	37.6%	Transportation, Storage, Communication	3.8%
Kapuas Hulu	Public Services	53.1%	Agriculture, Forestry, Hunting, Fishery	16.4%	Wholesale and Retail Trade, Restaurant	15.1%
Pontianak Municipality	Public Services	32.2%	Wholesale and Retail Trade, Restaurant	23.5%	Manufacturing Industry	11.1%
<b>Total</b>	Public Services	34.7%	Wholesale and Retail Trade, Restaurant	24.1%	Manufacturing Industry	10.0%
<b>Central Kalimantan</b>						
Kotawaringin Barat	Manufacturing Industry	30.6%	Public Services	24.0%	Wholesale and Retail Trade, Restaurant	22.8%
Kotawaringin Timur	Public Services	27.5%	Wholesale and Retail Trade, Restaurant	23.2%	Manufacturing Industry	12.8%
Kapuas	Public Services	40.0%	Wholesale and Retail Trade, Restaurant	30.3%	Transportation, Storage, Communication	9.2%
Barito Selatan	Public Services	39.1%	Agriculture, Forestry, Hunting, Fishery	19.9%	Wholesale and Retail Trade, Restaurant	19.7%
Barito Utara	Public Services	35.1%	Agriculture, Forestry, Hunting, Fishery	26.7%	Wholesale and Retail Trade, Restaurant	22.7%
Palangkaraya Municipality	Public Services	47.9%	Wholesale and Retail Trade, Restaurant	23.5%	Construction	7.7%
<b>Total</b>	Public Services	38.0%	Wholesale and Retail Trade, Restaurant	23.7%	Agriculture, Forestry, Hunting, Fishery	11.6%

Source: Population of Kalimantan Barat, Results of the 1990 Population Census, Series: S2.18 Population of Kalimantan Tengah, Results of the 1990 Population Census, Series: S2.19

The priority areas such as agricultural production centers, estates crop production centers, fishery production centers, industrial areas and tourism areas are proposed, however the priority areas are separated by sector with no center in the priority areas.

**Table 13.5.8 The Land Use Pattern of Protected Area and Cultivation Area in Central Kalimantan 2005**

Land Use Pattern	The Criteria of Land Use Pattern		Area (ha) (% of Total Area)		
Protected Area	Slope and Elevation Divider		30,39,715	(19.76%)	
	Sanctuary Reserves		659,634	(4.29%)	
	Additional Plan of Sanctuary Reserves		23,100	(0.15%)	
	Protected Areas		261,100	(1.7%)	
	Physical Divider (Sand and Peat)		1,203,250	(7.82%)	
	Coastal Protected Stripe		13,900	(0.09%)	
	In the Interest of Defense		6,000	(0.39%)	
Cultivation Area	Production Forest	Limited Production Forest (HPT)	3,400,000	(22.1%)	
		Permanent Production Forest (HPB)	6,068,000	(39.4%)	
		Conversion Production Forest (HPK)	4,302,582	(27.9%)	
	Agricultural Cultivation Area	Wetland Food Crop Agricultural Area		5,944,849	(38.6%)
		Dryland Food Crop Agricultural Area			
		Estate/Perennial Crop Areas		6,084,425	(39.5%)
		Livestock Areas		1,158,500	(7.5%)
	Fishery Areas		2,293,633	(14.9%)	
	Mines Area				
	Industrial Area				
	Tourism Area				
	Settlement Area	Urban Settlement			
		Rural Settlement			
Area of Central Kalimantan			15,410,700	(100.0%)	

Source: Central Kalimantan Spatial Structure Plan 1992

Note: The areas of land use patterns are overlapping, so that the sum of land use area is not equal to the area of Central Kalimantan

There is no district in the middle and upper stream areas of Central Kalimantan except in the Barito River catchment area in which there is Barito Utara district in the middle and upper stream areas. District capital towns are primarily located in the lower stream areas. The urban hierarchy of Central Kalimantan in 2005, proposed by the RTRWP continues with the present urban system development in which the district capital cities in the lower stream areas are dominant with service coverage of the middle and upper stream areas, has not considered developing centers in the middle and upper stream areas. With the construction of roads such as the Trans-Kalimantan Highway in the middle and upper stream areas, the function and potential of each town will change. However, the RTRWP of Central Kalimantan will not be able to cope with the changing situation due to road construction and the large scale plantation in the middle and upper stream areas, thus the spatial structure of Central Kalimantan will need to be consider developing the middle and upper stream areas.

Table 13.4.9 The Systems of Urban Centers in Central Kalimantan

Urban System	Cities covered in System	Hierarchy		Function
		Present*	Plan**	
Pangkalanbun System	<ul style="list-style-type: none"> <li>■ Pangkalanbun</li> <li>Nangabulik</li> <li>Kumai</li> </ul>	<ul style="list-style-type: none"> <li>III</li> <li>V</li> <li>IV</li> </ul>	<ul style="list-style-type: none"> <li>II</li> <li>III</li> <li>III</li> </ul>	Pangkalanbun: district administration center, seaport, and airport, industry(timber), trade and service, supporter of Sampit as a development center of the western area. Supported by river and land road transport
Sampit System	<ul style="list-style-type: none"> <li>■ Sampit,</li> <li>Kualakuayan</li> <li>Parenggean,</li> <li>Cempaka Mulia,</li> <li>Kota Besi,</li> <li>Baamang,</li> <li>Bapinang Hulu,</li> <li>Samuda</li> <li>Kualapembuang</li> </ul>	<ul style="list-style-type: none"> <li>II</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>IV</li> <li>IV</li> </ul>	<ul style="list-style-type: none"> <li>I</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> </ul>	Sampit: harbor, industry and trade town, center of Kotawaringin Barat and Kotawaringin districts, order I town for western development.
Palangkaraya System	<ul style="list-style-type: none"> <li>■ Palangkaraya</li> <li>Morang,</li> <li>Tangkiling,</li> <li>Tumbang Talaken</li> <li>Kasongan</li> </ul>	<ul style="list-style-type: none"> <li>I</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> </ul>	<ul style="list-style-type: none"> <li>I</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> </ul>	Palangkaraya: center of province administration, culture and education, trade and services Supported by river and land road transport
Kuala Kapuas System	<ul style="list-style-type: none"> <li>■ Kuala Kapuas</li> <li>Pulang Pisau,</li> <li>Basarang,</li> <li>Barimba,</li> <li>Mandomai,</li> <li>Anjir Serapat Barat</li> <li>Lupak Dalam</li> </ul>	<ul style="list-style-type: none"> <li>III</li> <li>III</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> </ul>	<ul style="list-style-type: none"> <li>I</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> </ul>	Kuala Kapuas: international seaport and industrial center, (forest products processing). Pulang Pisau: support center to Barito Selatan and Barito Utara districts Supported by river and canal transport of Kahayan River, Barito River and Kapuas River and land transport
Buntok System	<ul style="list-style-type: none"> <li>■ Buntok,</li> <li>Muarateweh,</li> <li>Tumpang Laung,</li> <li>Pencang,</li> <li>Bangbulung,</li> <li>Dayu,</li> <li>Ampah</li> <li>Tamianglayang</li> </ul>	<ul style="list-style-type: none"> <li>IV</li> <li>IV</li> <li>V</li> <li>V</li> <li>V</li> <li>V</li> <li>IV</li> <li>V</li> </ul>	<ul style="list-style-type: none"> <li>II</li> <li>II</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> <li>III</li> </ul>	Buntok : a service center for Barito Utara and Barito Selatan.districts Ampah: support center of communication center, trade and service activity for Barito Utara and Barito Selatan districts.

■ : The center of the each system |

\* : The present urban hierarchy by Study Team based on population 1990

Order I : More than 100,000 Order II: 50,000-100,000 Order III: 20,000-50,000 Order IV: 5,000-20,000  
Order V: Less than 5,000

\*\* : The future urban hierarchy is divided only three chatebories.

Source: Central Kalimantan Spatial Structure Plan 1992

### 3) Comparison between West and Central Kalimantan

The spatial structure plans of West and Central Kalimantan have different ideas for present and future urban development because of the differences in the urban system and town characteristics. The future structure plan in the middle and upper stream areas of the Kapuas river of West Kalimantan, divides those areas into several regions of urban hierarchy. However, the structure plan for the Ketapang district and for Central Kalimantan except in the

Barito river basin will proceed to develop the middle and upper stream areas where they will receive services from the commercial cities in the lower stream areas. In spite of road construction and service provision to the middle and upper stream areas, no thought has been taken to develop new urban centers in the middle and upper stream areas or to change existing town structure to accommodate the changes derived from road construction. As large scale development of oil palm plantations and roads occurs, it is now important to consider the development of urban centers in middle and upper stream areas of short rivers.

The characteristics of development zone in West Kalimantan and the priority area in Central also differ. The development zones in West Kalimantan are selected based on the intersectoral aspect, so that the development zone has priority in West Kalimantan, while the priority areas in Central Kalimantan are divided by sector and have no priority in comprehensive meaning. Accordingly, the consideration for the priority in Central Kalimantan, not in sector of Central Kalimantan will be needed.

# **CHAPTER 14**

## **VILLAGE DEVELOPMENT**

Subject: [Illegible]

Date: [Illegible]

Time: [Illegible]

Location: [Illegible]

Personnel: [Illegible]

Equipment: [Illegible]

Weather: [Illegible]

Remarks: [Illegible]

Officer: [Illegible]

Supervisor: [Illegible]

Dispatcher: [Illegible]

Investigator: [Illegible]

Witness: [Illegible]

Notes: [Illegible]

Signature: [Illegible]