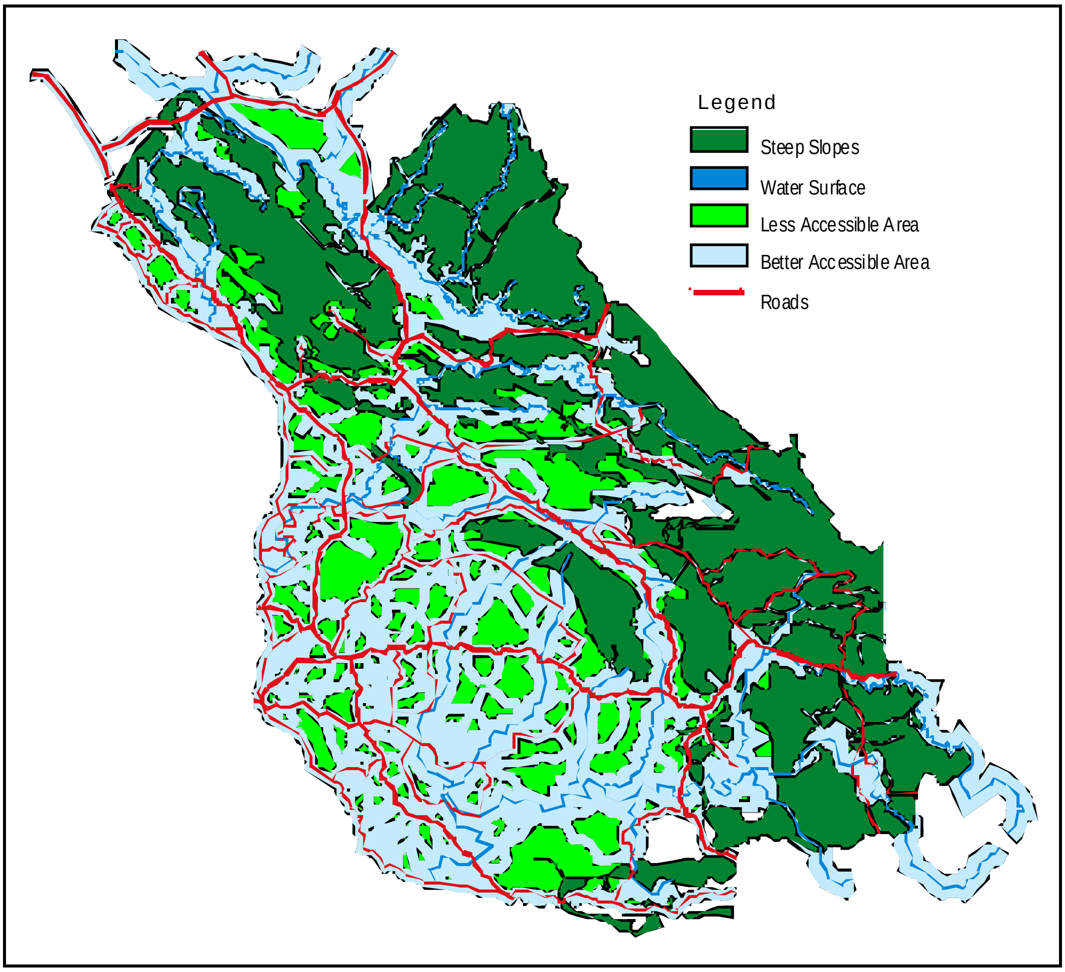
2.3.2 Settlement Pattern and Local Activities

1) Settlement Distribution Pattern

District centers generally have public facilities and major markets. These towns are usually located at traffic node points such as junctions of national roads or river-crossing points by national roads. Rural villages are distributed along the rivers that accommodate rice cultivation and link to roads. A conceptual pattern of settlement distribution is illustrated below, showing a formation based on major rivers and the existing road network. The figure suggests that the southwestern segment of SKR has a gravity center in terms of rice farming villages.



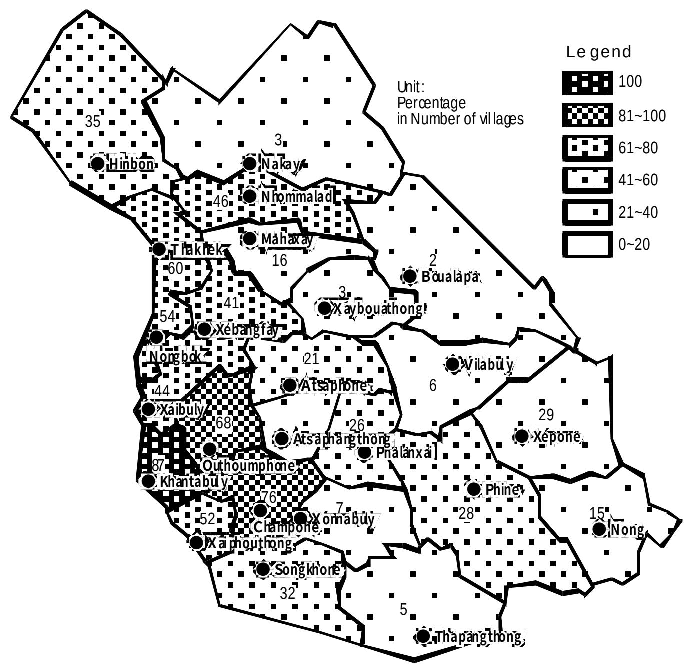
Source: JICA Study Team

Figure 2-13 Existing Settlement Pattern in SKR

Under the Lao regulations, a household is not allowed to move from one place to another without permission of the authority concerned, though a household member is allowed to travel or change the living place without permission. Consequently, an explosive increase in the urban households is not expected, though the urban population may gradually increase.

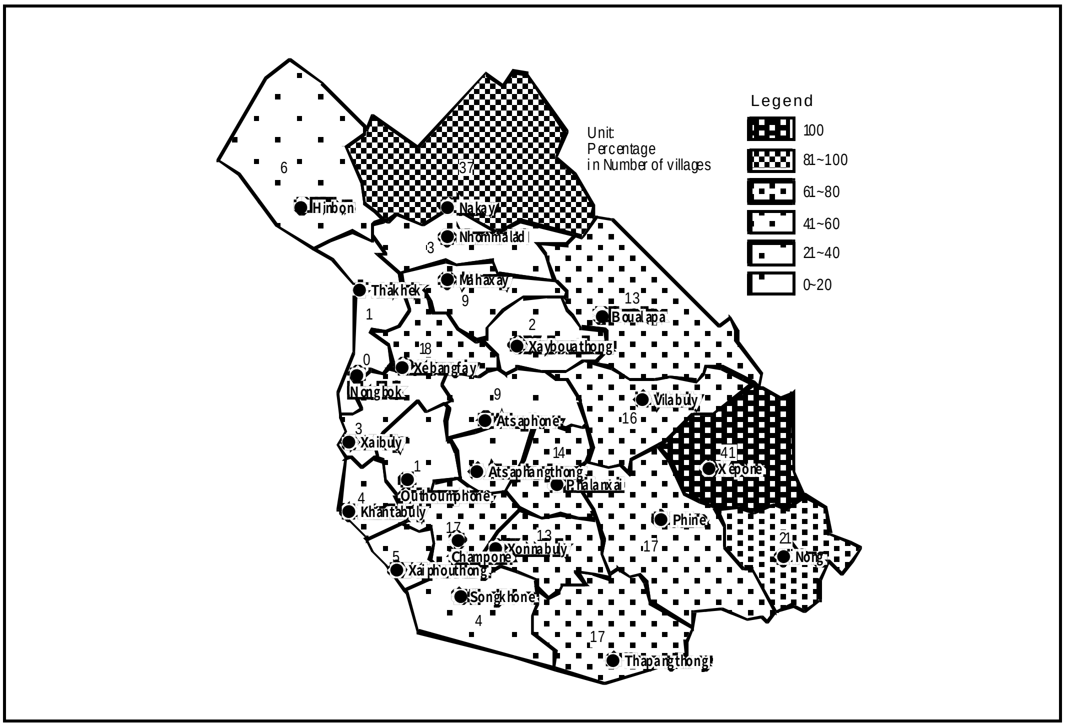
2) Accessibility

Road conditions are generally poor and a large portion of villages are not accessible by all weather roads. Even in Khantabuly, villages that are accessible year round are limited to 87% of the total village numbers. At the same time, there are many villages that have no road access.



Source: IRAP

Figure 2-14 Villages with All Year Round Road Access

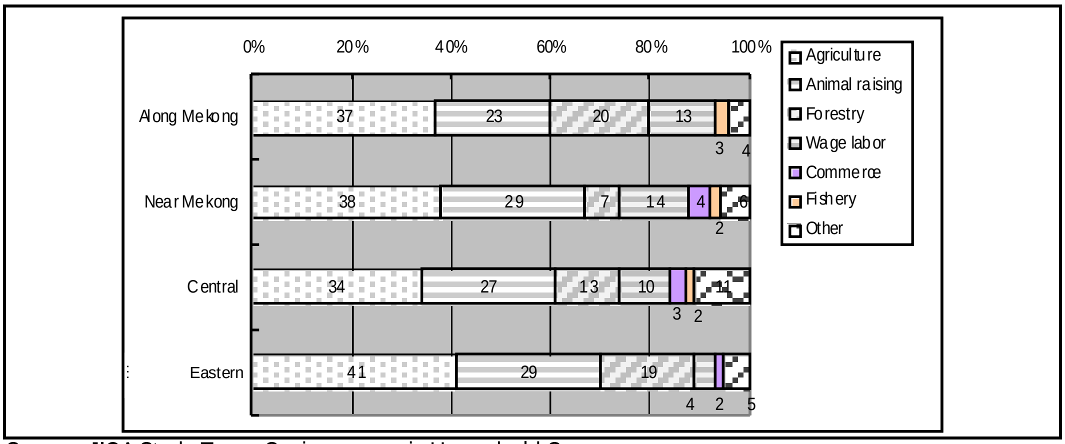


Source: IRAP

Figure 2-15 Villages with No Road Access

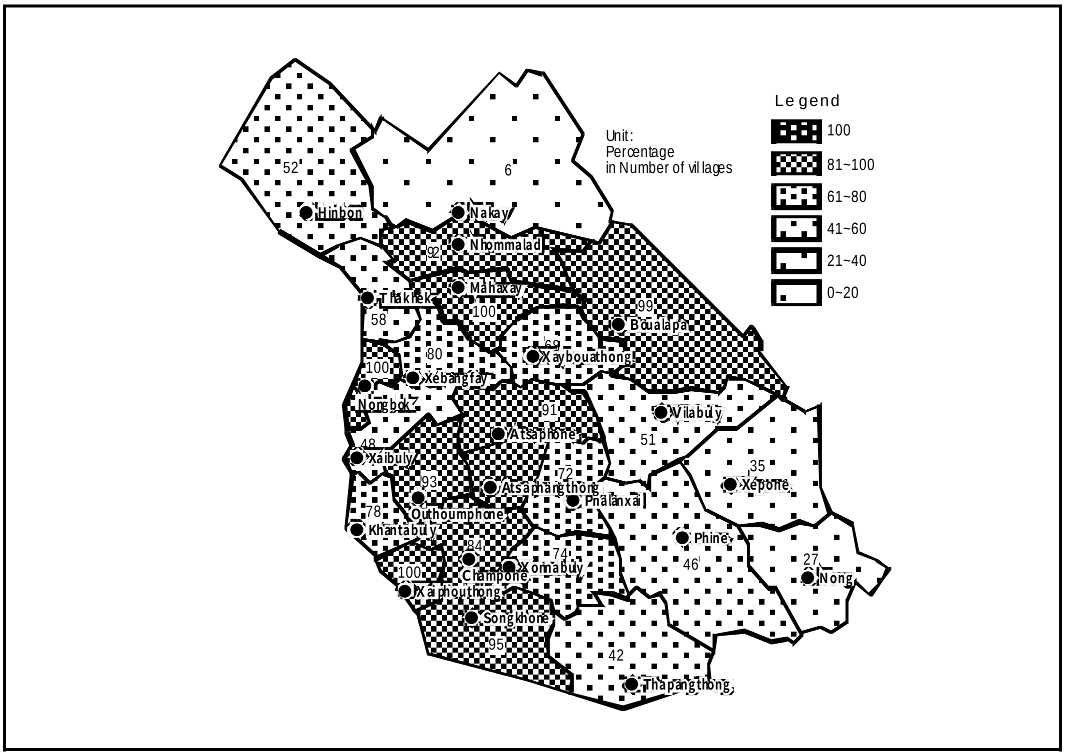
3) Local Activities

The major economic activities are rice farming and animal husbandry, mostly engaged in a subsistence economy. The average villager earns more than 60% of the main household income from rice and animal raising. Shipping of crops is quite limited, while there are many villages where rice is not always sufficient. Animals are mostly kept for cash required for emergencies, such as purchasing medicine.



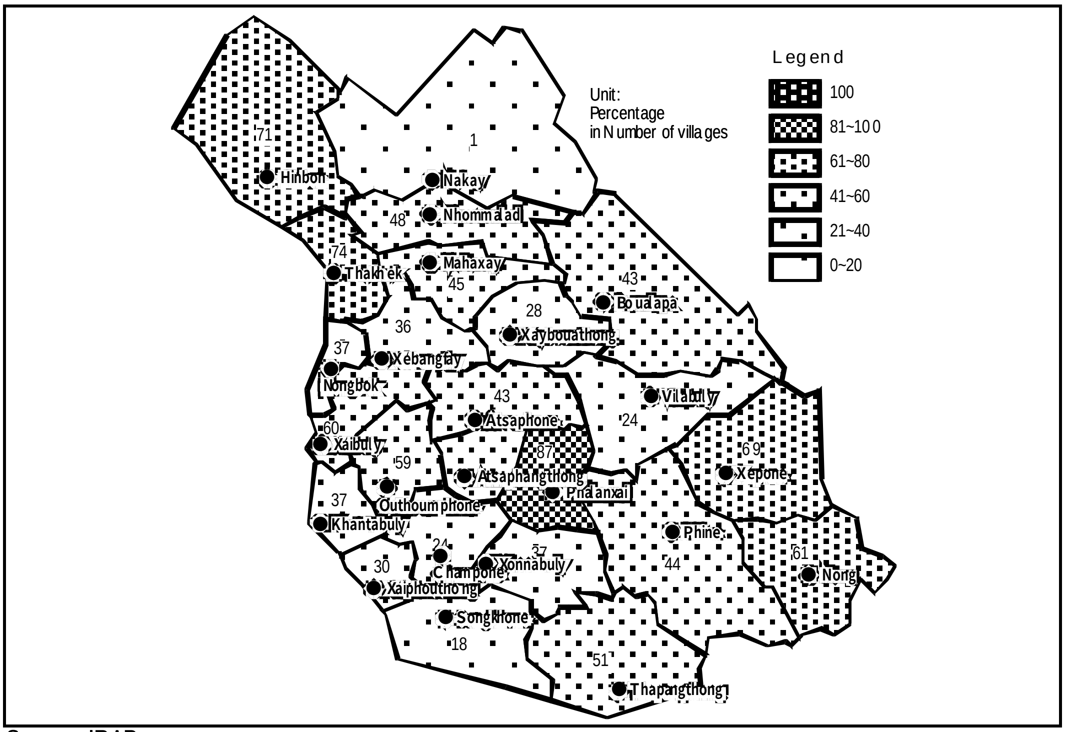
Source: JICA Study Team, Socio-economic Household Survey

Figure 2-16 Economic Activities Ranking by Zone



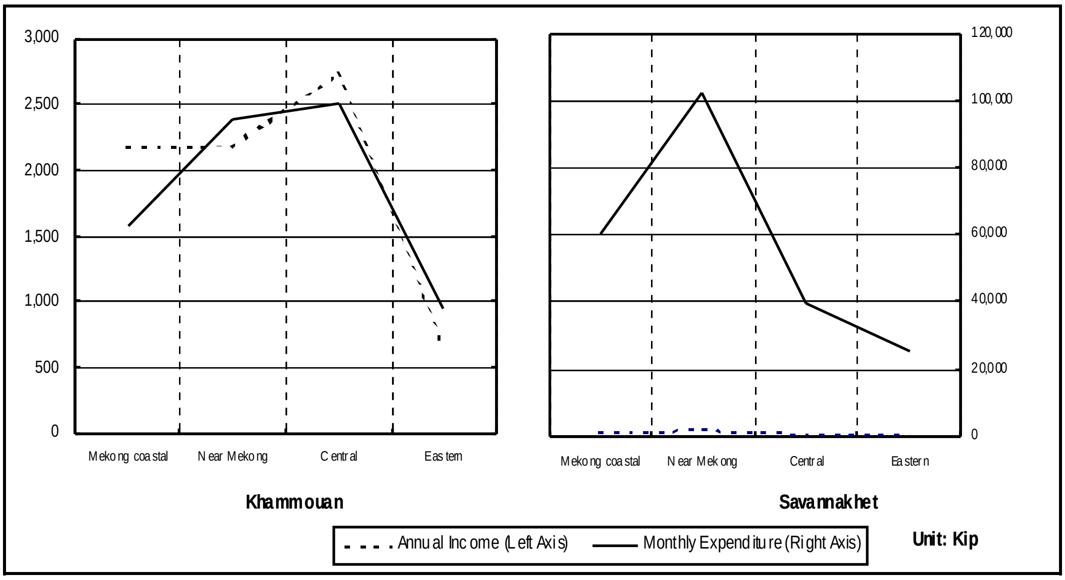
Source: IRAP

Figure 2-17 Villages Marketing at least One Crop



Source: IRAP

Figure 2-18 Villages Never Self Sufficient in Rice



Source: JICA Study Team, Socio-economic Household Survey

Figure 2-19 Income and Expenditure Level by Zone

The eastern mountainous area is the most cash-scarce area, showing both income and expenditure at the lowest level in the region. This indicates that people are leading a more subsistence way of life than the western parts of the region.

4) Poverty Level

Approximately 40% people in Khammouan and 37% in Savannakhet are reported to be below the poverty line in a 1997-98 survey as shown on the following table. These ratios slightly declined from a 1992-93 survey. At the national level, both provinces are ranked at the middle (7 and 10 respectively among 18 provinces in 1997-98) from the view point of poverty incidence. Food Poverty Line, or Low Poverty Line, is defined by the total monthly per capita consumption expenditure (in Kip) required to buy food in a food bundle providing 2,100 calories per capita a day for one adult. Poverty Line, or High Poverty Line, includes non-food allowance estimated as the mean amount spend on non-food for households close to the food poverty line.

Table 2-4 Poverty Lines and Incidence of Poverty in SKR

	Poverty Line in 1997/98		Incidence of Poverty 1997/98		Poverty Gap 1997/98	
	Food Poverty Line (Low Poverty Line)	Poverty Line (High Poverty Line)	Low Poverty Line	High Poverty Line	Low Poverty Line	High Poverty Line
Khammouan	17,057	18,685	32.0	39.7	7.2	9.7
Savannakhet	16,300	18,518	25.9	36.9	6.0	9.0
National	16,749	18,764	30.6	39.0	7.8	10.8

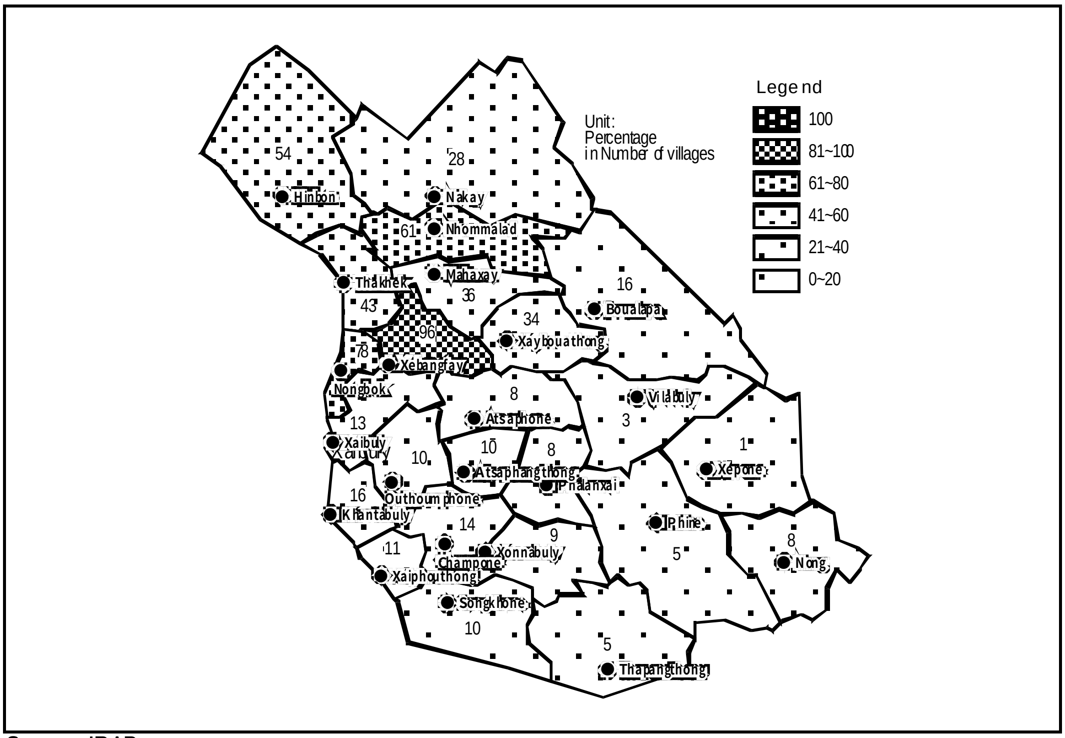
Source: National Statistical Center (Dec. 1999), The Households of Lao PDR (LECS2) 1997/98, and Statistics Sweden (1999), Poverty Profile of Lao PDR, Report from missions to NSC

2.3.3 Social Services

The percentage of villages with a health center is 9% in Savannakhet and 48% in Khammouan. Without a health post, people go to a pharmacy to buy medicine. The average travel time to the pharmacy is 2.5 hours in Savannakhet while it is 3.4 hours in Khammouan. The infant mortality rate was 80/1,000 in Savannakhet and 83/1,000 in Khammouan in 1995.

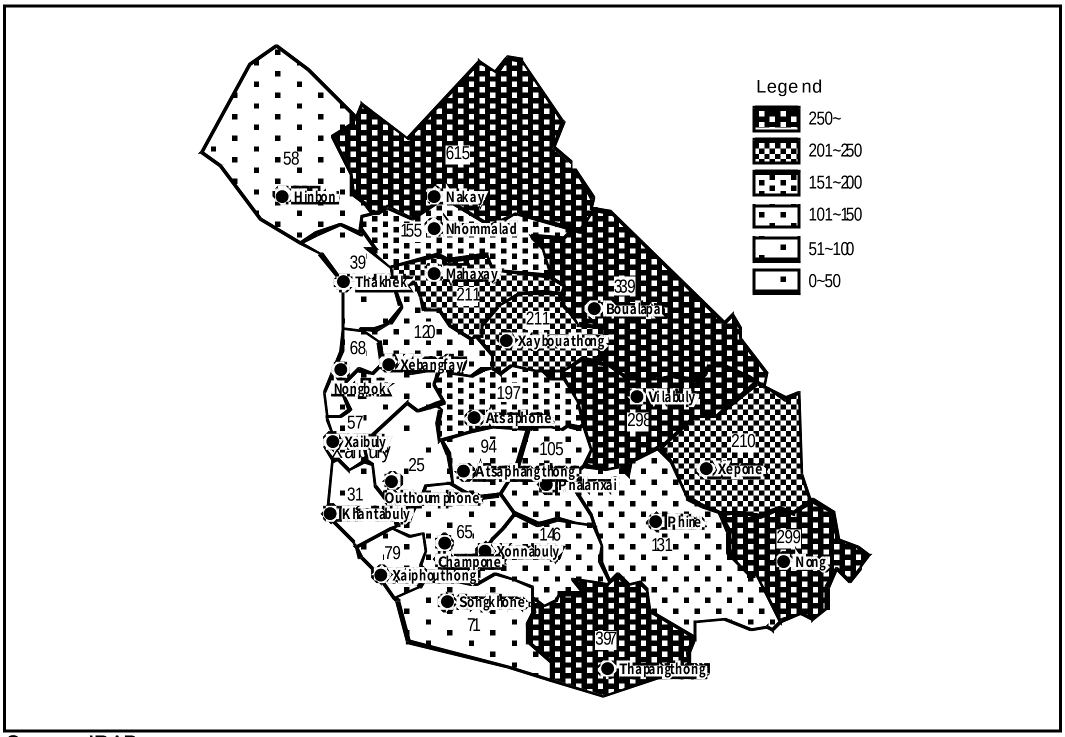
About 25% of the villages in Savannakhet and 22% in Khammouan have "complete" [3] primary schools. 31% of villages in Savannakhet and 35% in Khammouan are without schools. The primary education enrollment ratio was 55% in Savannakhet and 51% in Khammouan in 1995.

[3] "Complete" primary schools offer 5-year education, while "incomplete" schools cannot offer 5-year education, usually providing 1- or 2-year study.



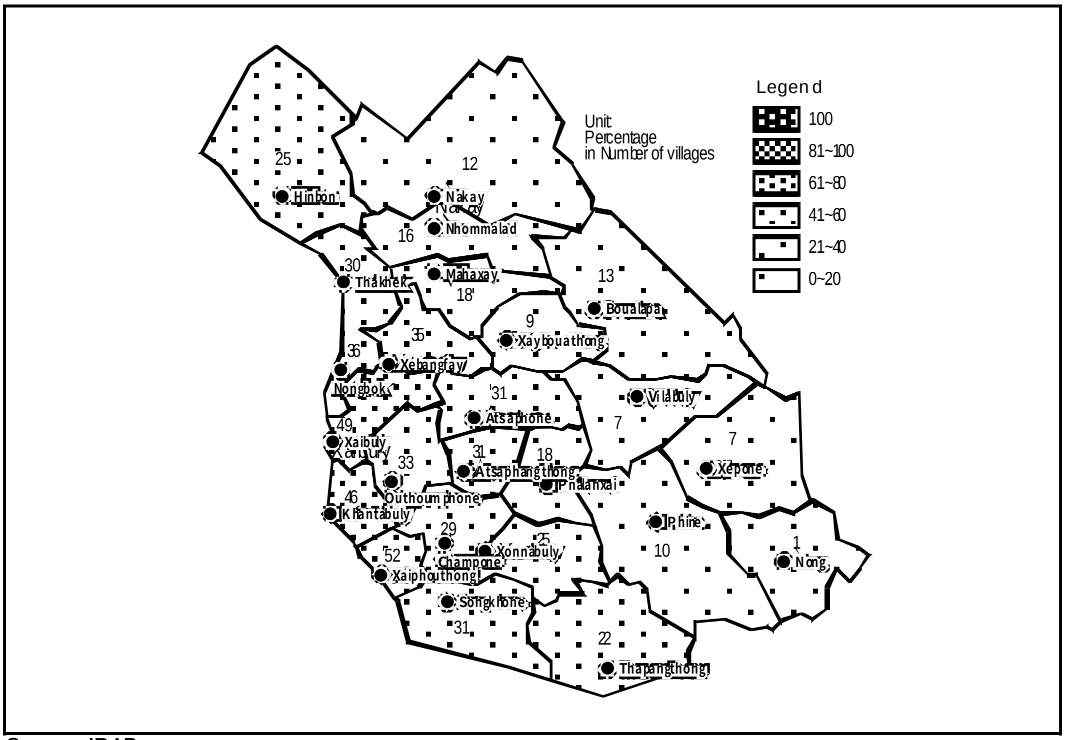
Source: IRAP

Figure 2-20 Percentage of Villages with a Health Center



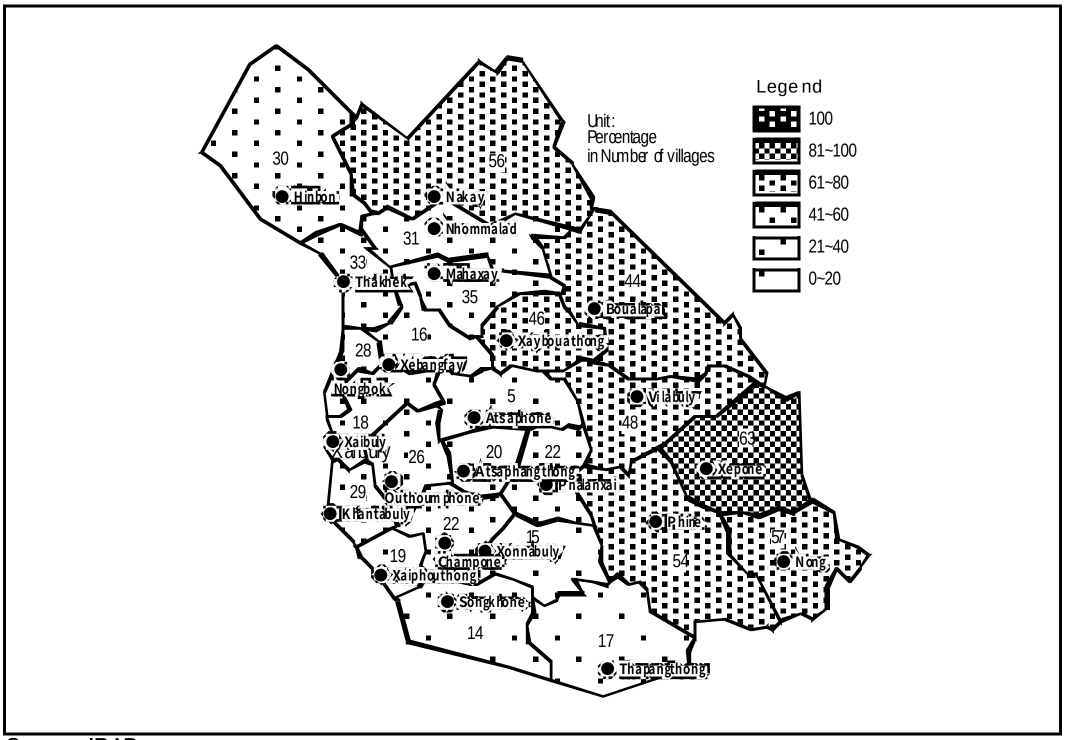
Source: IRAP

Figure 2-21 Average Travel Time to a Pharmacy



Source: IRAP

Figure 2-22 Percentage of Villages with Complete School



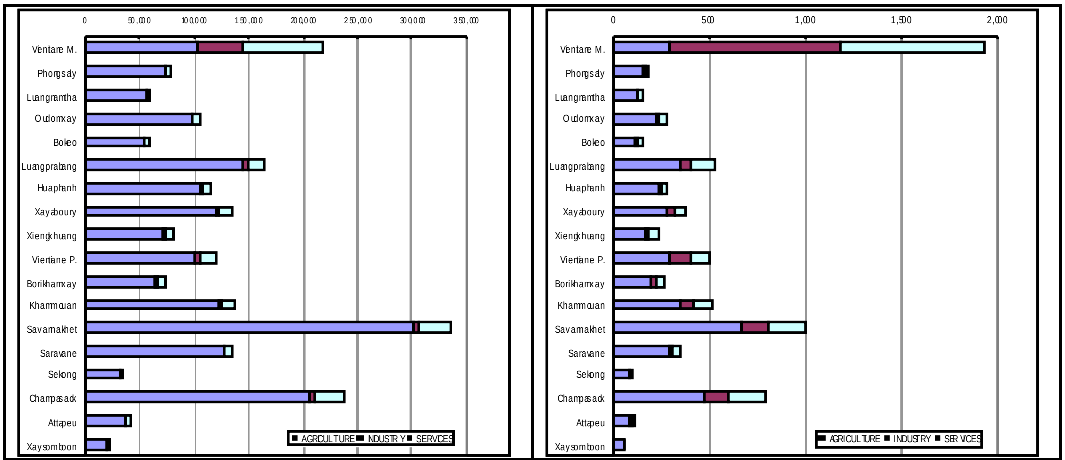
Source: IRAP

Figure 2-23 Percentage of Villages with No School

2.4 Macroeconomic Characteristics

1) Economy

The Gross Provincial Product (GPP) and employment by province is illustrated below. The share of SKR in GPP is relatively small compared to a larger share in employment. The macroeconomic indicators of SKR are also tabulated as follows:



Employment by Sector (1995) | GPP by Sector (1995)

Source: Basic Statistics, Lao PDR, 1998

Figure 2-24 Employment and Production by Province

Table 2-5 GPP by Sector

(Billion Kip, 1998, at 1999 price)

	Lao PDR	Savannakhet	Khammouan
GDP·GPP (Billion Kip)	**9,550**	**1,107**	**797**
AGRICULTURE	5,122	665	547
INDUSTRY	2,163	117	175
SERVICES	2,265	324	75
% Share in GDP, GPP	**100%**	**12%**	**8%**
AGRICULTURE	54%	60%	68%
INDUSTRY	22%	11%	22%
SERVICES	24%	29%	9%
Population (persons)	**4,970,000**	**730,000**	**290,000**
Share of Province	100%	15%	6%

Source: Study team estimate based on Basic Statistics (Savannakhet Province, Khammouan Province, and Lao PDR) 1998

The major characteristics of the SKR economy are outlined as follows:

Agricultural Sector

Savannakhet is the largest rice-producing province in Lao PDR, followed by Champasack. In Savannakhet, the agricultural sector accounts for 60% of GPP. Agricultural production is large, but has a low value-added due to low value-added in rice production; therefore a lower household income level than in the south where crops are more diversified. In Khammouan, the agricultural sector represents a larger share with a high forestry contribution (68% of GPP). The rice balance (provincial demand vs. production) is surplus in both provinces (about 55,000 tons of milled rice in Savannakhet and 38,000 tons in Khammouan). Dry season irrigation covers 22,000 ha in Savannakhet and 6,700 ha in Khammouan.

Table 2-6 Cropped Area and Production in 1999

	Lao PDR		Savannakhet		Khammouan	
	Area (ha)	Production (ton)	Area (ha)	Production (ton)	Area (ha)	Production (ton)
(1) Rice (Paddy)	718,100	2,094,00	127,800	420,200	50,800	162,600
Season rice	477,500	--	103,400	--	42,800	--
Irrigated rice	87,000	--	20,200	--	6,700	--
Upland rice	153,600	--	4,200	--	1,300	--
(2) Maize	40,730	96,110	2,985	6,120	690	1,720
(3) Starchy roots	13,050	80,600	1,500	8,800	300	1,800
(4) Peanuts	13,110	13,130	920	900	30	28
(5) Tobacco	4,295	23,350	570	2,815	790	4,470
(6) Sugar cane	4,730	173,600	60	1,500	150	3,750

Source: Basic Statistics of Lao PDR 1975-2000

Livestock is an important agricultural activity in SKR. The population of cattle was 217,000 heads in Savannakhet and 52,000 in Khammouan in 1999. The livestock population and fish capture in SKR are tabulated below.

Table 2-7 Livestock Population and Fish Capture

(Unit: 1,000 heads)

	Lao PDR	Savannakhet	Khammouan
Buffalo	1,008 (100%)	186 (18%)	85 (8%)
Cattle	1,080 (100%)	217(20%)	52 (5%)
Pig	1,320 (100%)	118 (9%)	48 (4%)
Poultry	12,353 (100%)	1,389 (11%)	419 (3%)
Goat	112 (100%)	25 (21%)	3 (3%)
Fish Capture (1996)	--	4,882 tons	2,004 tons
Per capita consumption of fish (kg/year)	7.7	6.7	6.8

Source: Basic Statistics of Lao PDR, 1975-2000

Industrial Sector

Although Savannakhet has the largest number of industry-handicraft establishments in the country, they are mostly "small" establishments. The industrial sector accounts for 11% of GPP in Savannakhet, while it represents 22% in Khammouan. Many of industry-handicraft establishments are wood related that have long been a major export-oriented segment of the Lao economy, followed by garment products and food processing.

Table 2-8 Number of Industry-Handicraft Establishments by Province

Province	Establishment Size						Total	
	Large		Middle		Small			
Lao PDR	99	100%	462	100%	15,953	100%	16,514	100%
Vientiane Municipality	60	61%	134	29%	961	6%	1,155	7%
Khammouan	18	18%	8	2%	1,009	6%	1,035	6%
Savannakhet	10	10%	41	9%	1,760	11%	1,811	11%
Champasack	6	6%	53	11%	1,214	8%	1,273	8%

Note: Small (number of employees less than 9), Middle (10 to 99), and Large (100 or more)
Source: Basic Statistics 1998

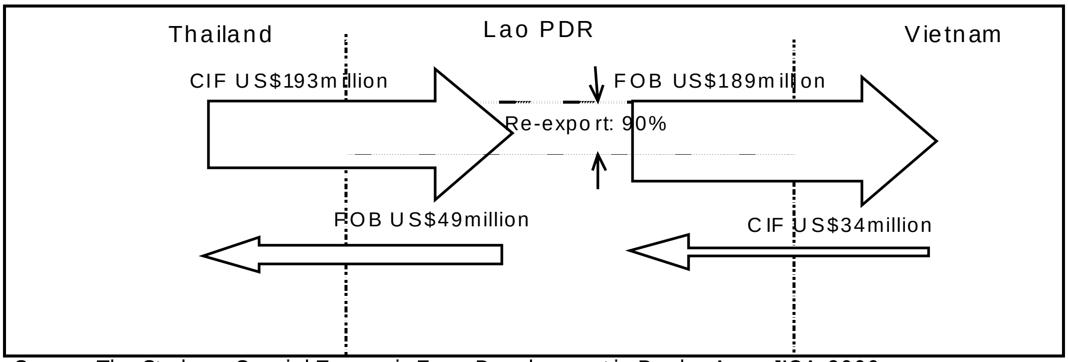
The major industries in Savannakhet are garment industries (five out of 10 large-scale industrial establishments are in this sub-sector), food, beverages and tobacco industries, wood processing industries, and gypsum mining. The gross value added (GVA) in the industrial sector in Savannakhet is estimated to be around 560 billion Kip in 2000. In Khammouan, on the other hand, the major industries are wood processing industries and food, beverages and tobacco industries. The industrial GVA in Khammouan is estimated to be 408 billion Kip in 2000.

Service Sector

Savannakhet has a larger share of GPP in the service sector (29%) than the national average (24%), due to higher content of commercial activities in the area. The major commercial activities in Savannakhet are retail dealers and wholesalers, reflecting the commodity flows crossing the Mekong river and along Route 9. There are small-scale hotels and restaurants concentrated in the urban areas. Major state-owned banks have branch office in Savannakhet. On the hand, Khammouan has a smaller service sector share in GPP (9%), since the service sector in Khammouan is still in the early stage, reflecting a lower concentration of urban activities. The major commercial activities in Khammouan are retail and wholesale shops, hotels and restaurants.

Trade

The trade activities between Lao PDR and Thailand are heavily dependent on the trade along the border. The regional economy can be measured by the export and import volume of domestic origin and destination (excluding transit goods). The trade structure in Savannakhet, as shown below, indicates that nearly 90% are transit commodity flow.



Source: The Study on Special Economic Zone Development in Border Area, JICA, 2000

Figure 2-25 Trade Structure in Savannakhet Province

2) Public Revenue and Expenditure

After introducting the "Provincial Tax Sharing Arrangement" in 1999, both SKR provinces have been categorized as "provinces in budget surplus", and are being allowed to retain 50% of any tax collection above the revenue target for investments in projects approved by the central government.

The revenues of Savannakhet and Khammouan provinces in 1998/99 were 153 billion and 106 billion Kip, respectively. The main revenue source in Khammouan was timber royalty (63% of the total revenue), while in Savannakhet, it was excise tax (34%), and timber royalty (22%). The portion of revenue from the timber royalty in 1998/99 was much larger in the two provinces because they inceased the sale of timber to cover the deficit caused by the Asian economic crisis since 1997.

SKR provinces remitted these revenues to the Ministry of Finance and received the allocated budget for expenditures, i. e.; Savannakhet 38 billion Kip and Khammouan 37 billion Kip. The ratio of expenditure divided by revenue in 1998/99 was 24% in Savannakhet and 36% in Khammouan.

Table 2-9 Revenue and Expenditure in SKR

	Savannakhet		Khammouan	
Revenue	**155**	**100%**	**106**	**100%**
Profit tax / income tax	8	5%	13	12%
Agricultural land tax	0	0%	0	0%
Business licenses	0	0%	0	0%
Turnover Tax	21	13%	13	13%
Tax on foreign trade	28	18%	5	5%
Excise tax	53	34%	4	4%
Timber royalty	34	22%	67	63%
Other	11	7%	3	3%
Expenditure	**37**		**38**	
Current expenditure	20		10	
Capital expenditure	17		29	
Expenditure/ Revenue	**24%**		**36%**	

Source: Provincial Department of Finance, Budget Department, MOF.

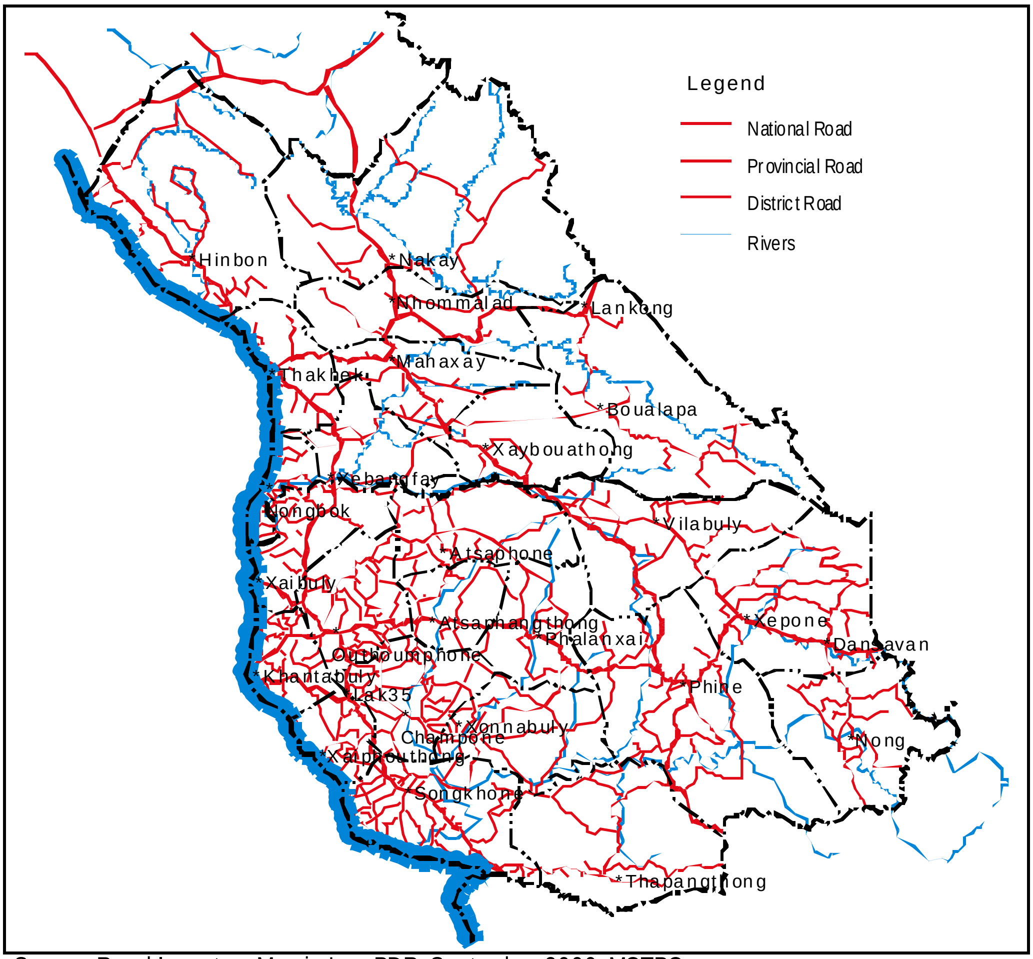
2.5 Infrastructure

2.5.1 Transportation

Although all the existing transportation facilities are not modernized yet, the transport means by land, water, and air transportation in SKR are useable. The current situation is summarized below.

Road Transport

There is no railroad facility in SKR. All land transportation, therefore, relies on road transport. The current road network is illustrated in the following page. The trunk roads are NR13 running along the Mekong river and NR9 that traverses horizontally and is improved as the East-West Corridor. Most of other roads are in poor condition: unpaved earth-roads are common, and bridges are small and below the high water level of rivers. There are four national roads in the region with a ladder pattern of north-south and east-west alignments: NR9 and NR12 extend eastward to the Vietnamese border from the ferry wharves at Savannakhet and Thakhek, while NR13 and NR1 accommodate north-south traffic movements. Additionally, NR8 extends eastward into Bolykhamsay province in the north, and NR18 connects Pakse to some closer points on the Vietnamese border. These roads supplement the ladder-patterned network further to the north and south beyond the SKR boundary.



Source: Road Inventory Map in Lao PDR, September 2000, MCTPC

Figure 2-26 Existing Transport Infrastructure in SKR

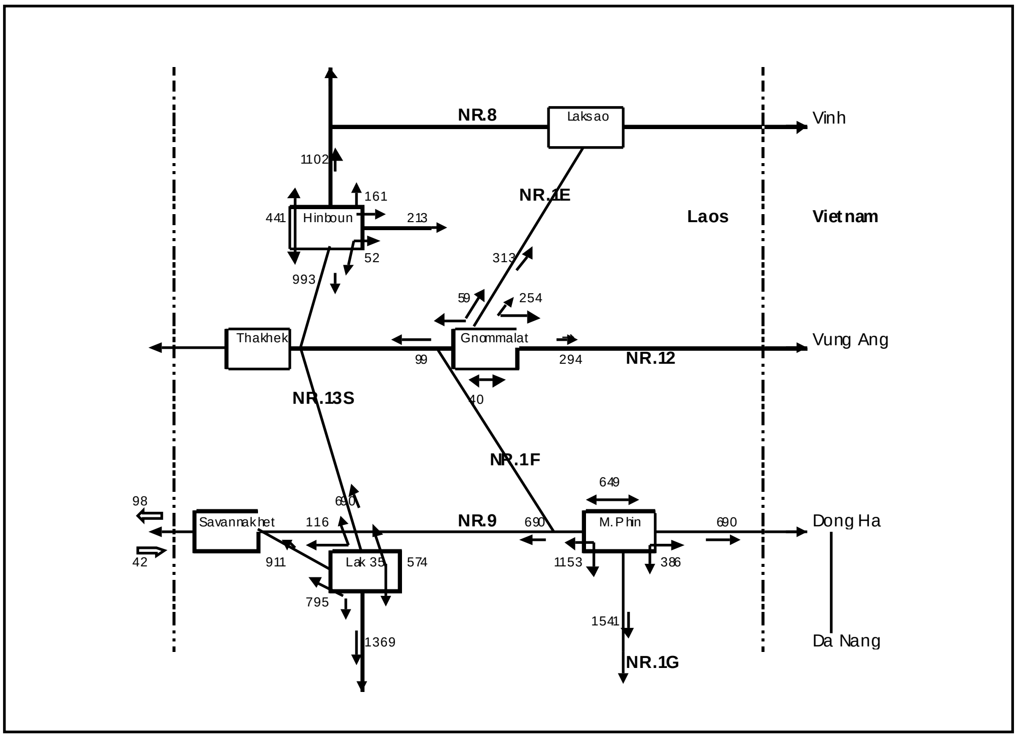
Table 2-10 Road Length

(Unit: km)

	Lao PDR	**Savannakhet**	**Khammouan**
National Roads	6,915	597	298
Provincial Roads	7,432	1,160	464
District Roads	8,860	79	607
Total	**23,207**	**1,836**	**1,369**
(paved)	(3,694)	(448)	(179)
(gravel)	(6,738)	(638)	(395)
(earth)	(12,775)	(750)	(795)

Source: MCTPC

The current road traffic is shown below. Since paved roads are limited to NR9 and NR13 at the moment, they are dominantly for current traffic demands of long distant inland trips as well as international trips to/from Thailand and Vietnam. Traffic on NR8 is also active, preferred by Lao-Vietnam cross border forwarders who tend to avoid steep segments of NR12. These trends, however, may not remain unchanged in the future, because the nature of traffic may be easily changed by major construction and improvement works such as the New Mekong Bridge and the completion of the ladder-patterned arterial road networks.



Source: Traffic Survey Lao PDR April 2000, MCTPC

Figure 2-27 Current Road Traffic

Water Transport

There is vital trade traffic across the Mekong river at both of the capital towns in Khammouan and Savannakhet. The traffic along the river, on the other hand, has almost been converted to land transportation. In the inner land, water transport still plays a significant role in the villagers' lives. In the rainy season, it often is the only means of access for a large number of villagers.

Air Transport

Savannakhet Airport is used for short-haul domestic air flights. It has a short single runway (1,633m), allowing limited types of aircraft to operate. The airport has been recently improved, including new terminal building construction, pavement repair works, and fire fighting and powerhouse facilities upgrading.

2.5.2 Telecommunications

Savannakhet and Khammouan are networked into the 34Mbps microwave transmission system which works as a backbone of the Lao telecommunications system (a gateway for international telecommunications is only in Vientiane). However, this microwave capacity is insufficient to meet the expanding demand and it is often interrupted as microwave repeaters are powered by solar batteries. A mobile phone service is only available within the city areas of Savannakhet and Thakhek (the Global System for Mobile communications – 900MHz is available in six cities over the country only with 11,000 mobile unit capacity). The existing Public Switching Telephone Network (PSTN) lines in SKR are limited to about 5,600 lines as shown below. The PSTN service area is limited to the urban area.

Table 2-11 Public Switching Telephone Network Lines

Province	Fixed Line	Population (1999)	Population / Line
Lao PDR	34,836	5,146,167	148
Vientiane Municipality	23,629	569,000	24
Savannakhet	3,482	761,924	219
Khammouan	2,100	309,041	147
Other Provinces	5,625	3,506,202	627

Source: LTC

2.5.3 Electric Power

Power consumption in Lao PDR has been growing rapidly (12.4% per annum in 1992-1999). Savannakhet is the second largest province in terms of power consumption, and Khammouan is the third largest. Savannakhet and Khammouan are not interconnected to the national grid, and their power demand is met by imports from Thailand. Major parameters of 1999 power demand in SKR are tabulated on the following page.

Table 2-12 Major Parameters of Power Demand in 1999

Item	Lao PDR	Savannakhet	Khammouan
Installed capacity, (MW)	625.4	0.5	0.2
Peak generation, (MW) *	150.3	13.4	12.1
Annual generation, (GWh) *	1,168.8	62.4	53.7
Annual consumption, (GWh)	565.5	52.2	50.0
7 year average growth rate, (%)	12.4	12.9	24.5
Consumption per capita, (kWh/yr)	111	70	166
Annual load factor, (%)	43.0	44.5	47.0
Loss factor, (%)	13.3	16.3	6.8

Note: * Received power is shown for Savannakhet and Khammouan.
Source: EdL

The household electrification ratio in 1999 was 36% in Savannakhet and 43% in Khammouan as shown below. Although much improvement has been made in the last five years (overall electrification ratio was 15% in 1995), a large number of villages remain to be electrified.

Table 2-13 Electrification Ratio in 1999

(Unit: %)

Item	Lao PDR	Savannakhet	Khammouan
District	77.3	80.0	88.9
Village	22.3	21.6	42.0
Household	34.8	36.0	43.3

Source: EdL

2.6 SKR Position in Wider Context

Through an overview of the natural, social and economic situation of SKR in the foregoing sections, the following important points are noted:

(i) SKR is a region that contains 21% of the national population, encompassing a variety of ethnic groups.

(ii) SKR is a supplier of surplus staple foods to the rest of the country.

(iii) The market economy has been introduced in the lowland areas, but subsistence (non-market based) livelihood is still widely prevalent in the eastern mountainous zone.

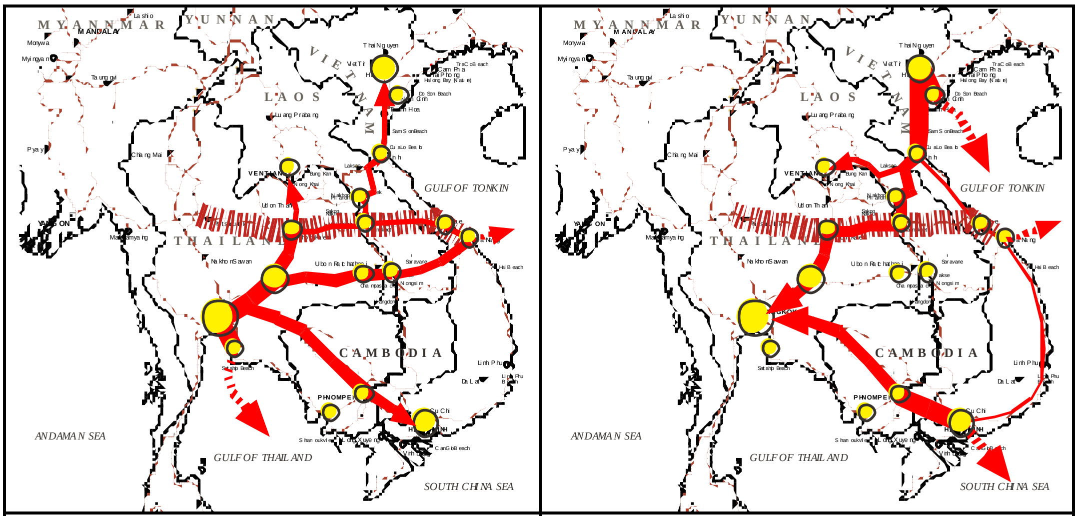
(iv) The poverty gap in SKR is lower than the national average. Still, rural poverty is the main issue to be addressed in SKR development.

(v) SKR has the largest forest area in the country, and forest resources are the greatest assets of the region. However, the high-forest areas have been gradually decreased over the last two decades.

Although SKR is not a uniform region, socially and economically, it is expected that SKR will integrate and be a leader in social and economic development in Lao PDR.

In an inter-regional context, SKR is the region sandwiched between Thailand and Vietnam. From both countries, a wide variety of consumable goods are marketed into SKR. On the other hand, SKR is supplying raw materials to neighboring countries, particularly agro-based and forest-based products. Although SKR is land-locked, two corridors are available for transport of such materials and consumable goods. The northern East-West corridor runs along NR8 connecting Nakhon Phanom (Thailand), Thakhek in SKR and Vinh (Vietnam). Although this route is in poor physical conditions at the moment, it is mainly used for transportation of consumable goods from Vietnam and transportation of forest products from Lao PDR. The central East-West corridor runs along NR9, and it has been used mostly for transport of logs and gypsum produced in Savannakhet and exported to Vietnam. This corridor is under improvement to serve as the East-West Economic Corridor.

When the East-West Corridor via Savannakhet is improved, the spatial framework in SKR, and more widely in GMS, will change enormously. SKR will have two outlets to the port areas (i.e., Bangkok ports and Danang port) and SKR will turn to be a land-linked region. Although the extent of the transportation shift to the Danang area is yet uncertain, due mainly to the available shipping services in Danang, SKR will have choices at its discretion. Some of the agricultural products cultivated in the Boloven plateau and other southern regions may also find an outlet to the Danang area until the time when the southern corridor via Pakse and Attapu is opened. A possible inter-regional network of commodity flows is illustrated as follows:



Commodity flow from Thailand	Commodity flow from Vietnam

Figure 2-28 Prospect of Future International Commodity Flow

In the light of the current situation and future prospects, the position of SKR in a wider context is summarized as follows:

(i) SKR is expected to lead social and economic integration in Lao PDR, and simultaneously it is expected to promote external linkages, particularly with neighboring countries.

(ii) SKR is not expected to be a simple supplier of raw materials to other Lao regions and neighboring countries, but will be a processing base of materials and products available in SKR and the neighboring regions in Lao PDR.

(iii) SKR, however, is not expected to be a center of mass production based on economies of scale. It will be wiser for SKR to process and produce specialized niche products for niche international markets.

(iv) Promising products in SKR may be the resource-based products, both agricultural and forestry products that will be competitive even after free trade systems become effective (e.g., AFTA and WTO).

(v) Forestry resources in SKR are not only a regional asset but also a global asset. Likewise, water resources in SKR are vital assets for the riparian countries downstream. These resources should be properly protected and managed.

2.7 Major Constraints and Problem Structure

Through analysis of the current situation in the study area, as well as in the light of the SKR position in a wider context, it becomes clear that SKR has a variety of constraints on integrated social and economic development. The major social constraints include the following:

(i) The population growth rate is relatively high, while the social benchmarks (e.g., health and education) remain at a low level. The available social services in the region are quite limited.

(ii) Human resources are less developed and qualified manpower is in short supply.

(iii) Social integration is not well advanced because there are a variety of ethnic groups and transportation/communications facilities are less developed.

From the view point of the regional economy, SKR has a number of constraints at the moment. These include:

(i) SKR is an agricultural region, mostly dependent on a single crop of rice. Farming practices are traditional, and productivity still remains low.

(ii) The market economy is common in the lowland areas, but the non-market based (subsistence) economy still prevails in the mountainous zones.

(iii) Accumulation of capital and know-how is low, and there is a shortage of funds and technologies required for industrial development.

(iv) The low level of investment, both domestic and foreign, impedes increased productivity and valued added in the region.

(v) There has been a lack of entrepreneurship and motivation to develop new businesses.

(vi) Where the market economy prevails, market information is limited and outsiders have mostly controlled the marketing of local products.

Further, SKR has some environmental limitations or constraints for development. the major limitations are:

(i) Shifting cultivation still prevails in the mountainous zone, though its area has been reduced due to strenuous efforts by the government.

(ii) Large forest areas should be protected as a national and global asset.

(iii) The UXO impacted area extends widely in the eastern part of the region, and it limits the social and economic activities.

These social, economic and environmental constraints of SKR, when combined, implicitly indicate some fundamental problems when formulating an integrated regional development plan. Such problems include:

(i) A low level of regional integration for social and economic development,
(ii) A low level of motivation to change traditional pattern of living,
(iii) A low level of accumulated capital and technology,
(iv) A short supply of qualified human resources, and
(v) A restricted opportunity for information exchange with the outside world.

Most constraints and problems as noted above are inter-related. A structure of these problems can be summarized in a diagram shown below.

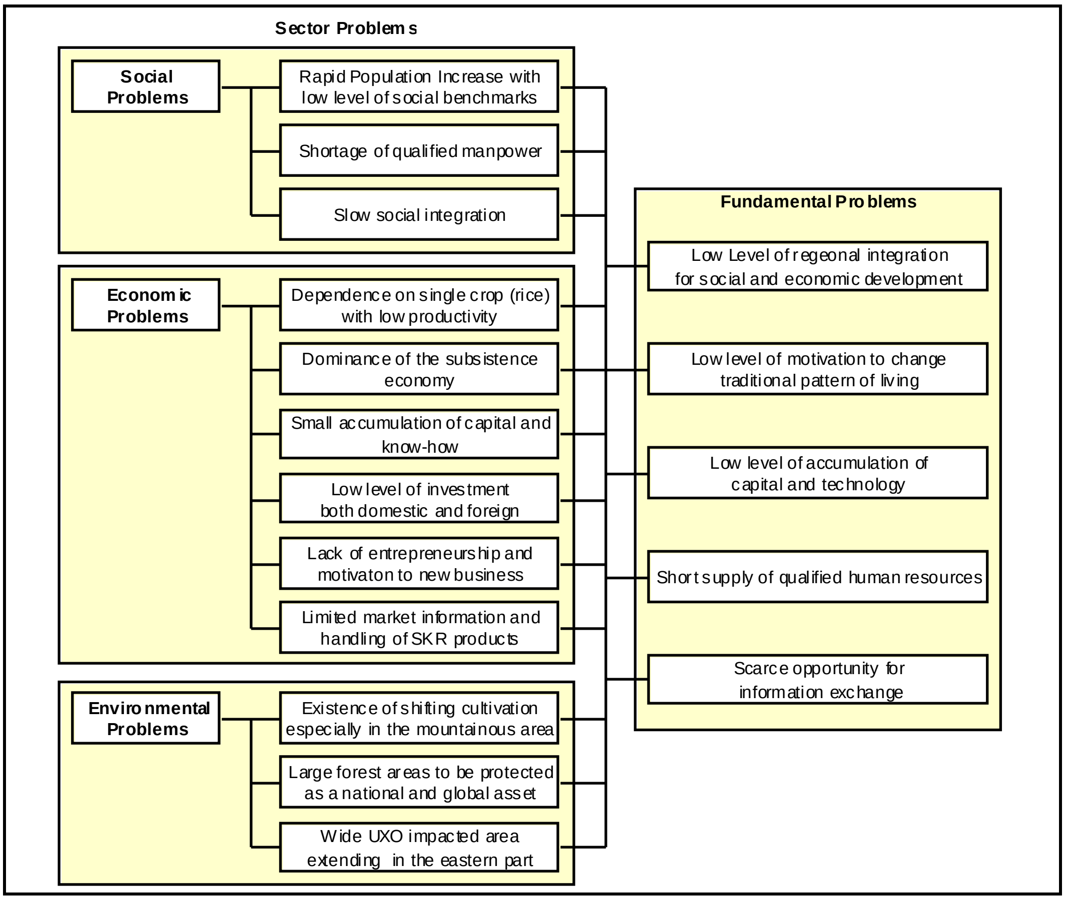


Figure 2-29 Problem Structure for SKR Development

Cotton Thread Making in Farm Household