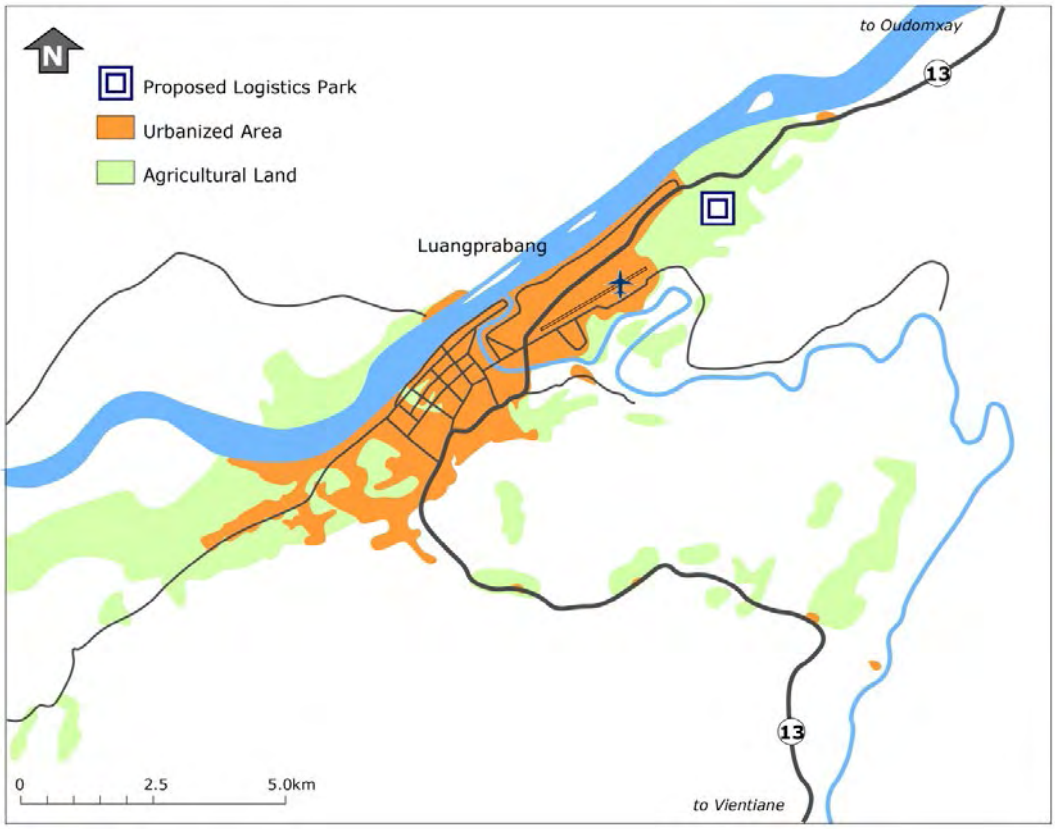
7.6.5 Luangprabang Logistics Park

(1) Location

Luangprabang Logistics Park (LPLP) is expected to function as a regional core of the logistics system in northern Lao PDR along NR-13N. The city of Luangprabang is specialized as tourism and administration centre, such that LPLP needs to be located in a place that fulfills the criteria below:

- Outside the central town of the World Heritage
- Minimum disturbance to urban activities in Luangprabang
- Good accessibility to NR-13,
- Good accessibility to the Mekong River,
- Good accessibility to Luangprabang city

In consideration of the above, the south-eastern area along NR-13 was selected as a potential site of the LPLP, as indicated in Figure 7.6.7.



Source: JICA Study Team

Figure 7.6.7 Location of the Logistics Park in Luangprabang

(2) Functions and Service Provided

Through the comprehensive freight demand forecast, it was found that the Luangprabang Logistics Park (LPLP) is expected to handle mainly import cargo from Thailand and China. Also,

using the trunk road network connecting with Luangprabang, the LPLP is expected to function as the distribution centre in northern Lao PDR. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the LPLP is expected to provide the following functions and services.

- Integration of cargo to and from the surrounding provinces
- Support integration of cargo flow to reduce empty return haulage
- Trans-shipment and Consolidation

(3) Capacity

In the course of the study, the comprehensive freight demand forecast model was developed to foresee the province/commodity-wise freight demand (detailed in Chapter 5 of this report). Based on this future freight demand, the volume of cargo to be handled at the LPLP was estimated for the target year of 2025 and summarized in Table 7.6.1.

Table 7.6.1 Annual Handling Volume in 2025

Unit: 000 tons

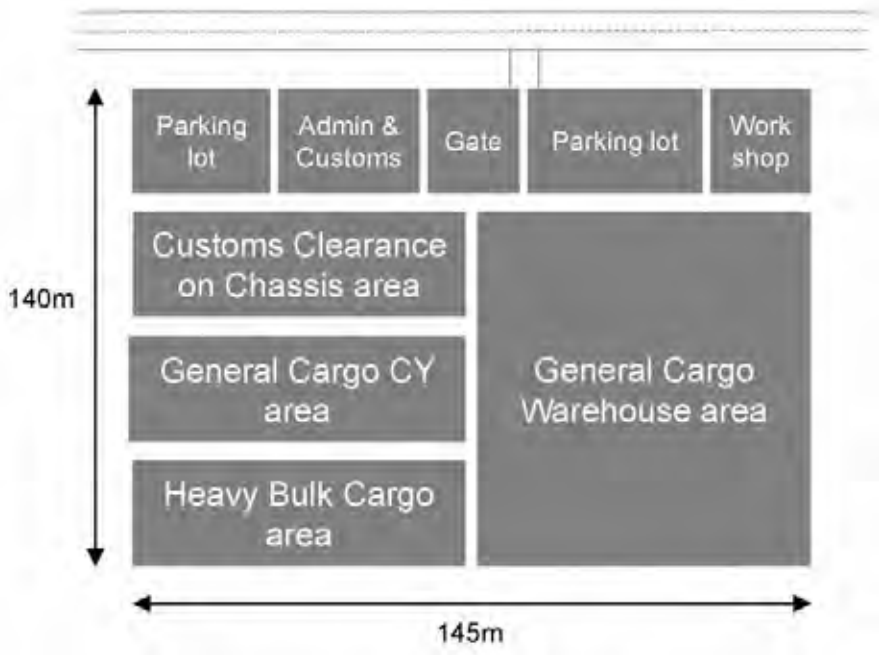
Package Type	2025
Container	21.2
General Cargo	44.9
Heavy Bulk	1.8
Liquid Cargo	0.0
Total	68.0

Source: JICA Study Team

(4) Facility Plan

As discussed above, the functions and serviced provided at the LPLP include (i) Integration of cargo to and from the surrounding provinces, (ii) Support integration of cargo flow to reduce empty return haulage and (iii) Trans-shipment and Consolidation. In consideration of these functions and services, the type and size of logistic facilities at the LPLP were planned taking into account the future freight volume. The layout plan of these facilities was prepared considering operational efficiency and security.

The facilities proposed at the LPLP include (i) Customs clearance area, (ii) Heavy bulk cargo area, (iii) General cargo CY area, (iv) General cargo warehouse area, (v) Parking lots, (vi) Administration and customs office, (vii) Operator office, (viii) Maintenance workshop. Assuming the same occupancy rate as the CLP, the area required for the LPLP was estimated at 2.1 ha.



Source: JICA Study Team

Figure 7.6.8 Layout Plan of LPLP

Table 7.6.2 Summary of Total Area required for LPLP

Facilities	Area (m^2)
Customs Clearance on chassis	200
Heavy bulk Cargo area	300
General Cargo CY area	500
General Cargo FS area	2,200
Parking Lots	1,000
Administration and Customs office	400
Operator Office	300
Maintenance shop	200
Gate and Weight Station	600
Buffer area	-
Load in SLP	-
Others	-
Total Floor area	5,700
Total Floor area, excluding parking lots	4,700
Occupancy rate at CLP	23%
Total area of LP	20,600

Source: JICA Study Team

(5) Anticipated Project Cost

Project cost of the LPLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at 3.4 million USD (as of November 2009).

Table 7.6.3 Summary Project Cost of LNLP

Items		Total Cost (USD)	Remarks
1	Land Preparation Works	929,171	
2	Building Works	1,259,269	
3	Access Road Works	643,506	
4	Total Construction Cost	2,831,946	1+2+3
5	Administration Cost	84,958	3% of 4
6	Consultant Cost	198,236	7% of 4
7	Contingency	303,018	10% of 4+6
8	Total Project Cost	3,418,158	4+5+6+7

Source: JICA Study Team

(6) Implementation Plan

The implementation process was divided into the following 4 stages: preparatory stage, design stage, construction stage and operation stage. Considering the size and facilities of the project, it would take 35-40 months to complete this project.

7.7 Thakhek

7.7.1 Current Economy and Future Development Plan

(1) Current Economic Conditions

Khammuane Province is located in the central part of Lao PDR, sharing national borders with Thailand and Vietnam. The province is surrounded by Borikhamxay Province (north), Ha Tinh and Quang Binh Provinces of Vietnam (east), Savannakhet (south), and Nakhom Panom Province of Thailand (west). Area is 16,000ha and population was 337,000 persons in 2005. Most of the area is mountainous, with plains confined to the western part along Mekong River.

Thakhek, provincial city is located in the western end of the province and it borders Nakhom Panom. The city, with a population of 84,000 is graded as a 2nd tier city together with Luangprabang, Khantabouly and Pakse. NR-13 runs though it from the north to south along the Mekong River, while two National Roads NR-8 and NR-12 diverge from NR-13. Thakhek is connected with Dong Ha of Ha Tinh Province and Don Hoi of Quang Binh Province by these routes.

Wood industry, mostly logging is a major industry in Khammuane Province. Timber is exported to Vietnam though NR-8 and NR-12. Since the primary forestry is rapidly degraded, the Central Government set a quota for logging. As a result, production of timber is decreasing. Some foreign investors have started plantation projects at logging sites of the primary forest. Most of projects are for pulp production.

Construction of the Nam Then 2 Hydropower Plant which is located in the eastern part of the province started in 2005. It started full operations in December 2009. Installed capacity is 1,088 MW, and annual electricity generation will amount to 5,936 GWh. These figures are bigger than total of existing power plants in Lao PDR. The Nam Then 2 Hydropower Plant will generate 7% of GDP in 2008 annually, and foreign currency earnings from electricity exported to Thailand will

amount to 2 billion US dollar per year.

Construction of the 3rd Friendship Bridge connecting Thakhek and Nakhom Panom started in March 2009. It is expected to open

(2) Transport Network

Thakhek developed as a river crossing town of Mekong River. On the other side of the river is Nakhon Phanom in Thailand. Transport network here is traditionally advanced with river transport and national (NR) 13S connecting Vientiane and Savannakhet. Thakhek also has NR-12 connecting it to Vinh in Vietnam. The 3rd Mekong Bridge project is ongoing, and it is expected to drastically improve convenience and connectivity to Thailand and Vietnam via NR-12.

(3) Development Plan

1) Socio-economic Development

According to "Khammuane Socio-economic Plan 2006-2015", the following economic development targets were set.

- GRDP growth rate will be 12% per annum until 2015, based on the full use of rich natural resources in the province.
- Composition of industrial sectors in 2015 will be 40.0% for agricultural sector, 38.0% for industrial sector and 22.0% for service sector.
- In order to achieve such high economic growth, it is necessary to improve the following fields: government administration and infrastructure, and human resources. It is also important to utilize benefits from economic integration by AFTA and GMS in the future.

2) Urban Development

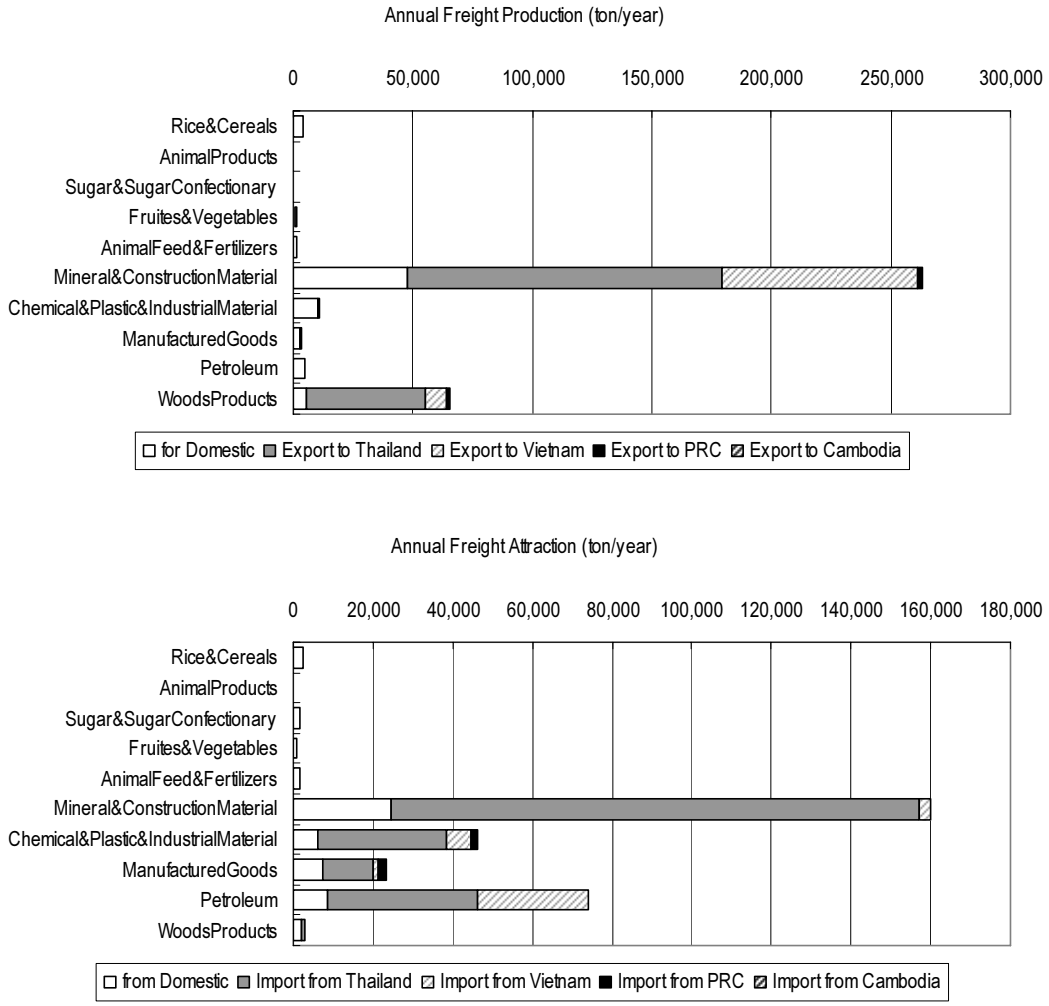
Existing urban area in Khammuane province is very limited. Thakhek, the provincial center of Khammuane province, is almost the only urbanized area in the province. Thakhek is located and developed along Mekong River. The city is an inter-modal point between river transport along Mekong River and land transport on NR-13S and NR-12.

The Urbanized area is spread along the Mekong River centering river port and is currently expanding in a north-south direction along the NR-13S.

The urban master Plan of Thakhek accords with the current urbanization trend by designating new urban areas in the northwestern and southeastern areas of the existing town along the NR-13S.

7.7.2 Logistics in Khammuann

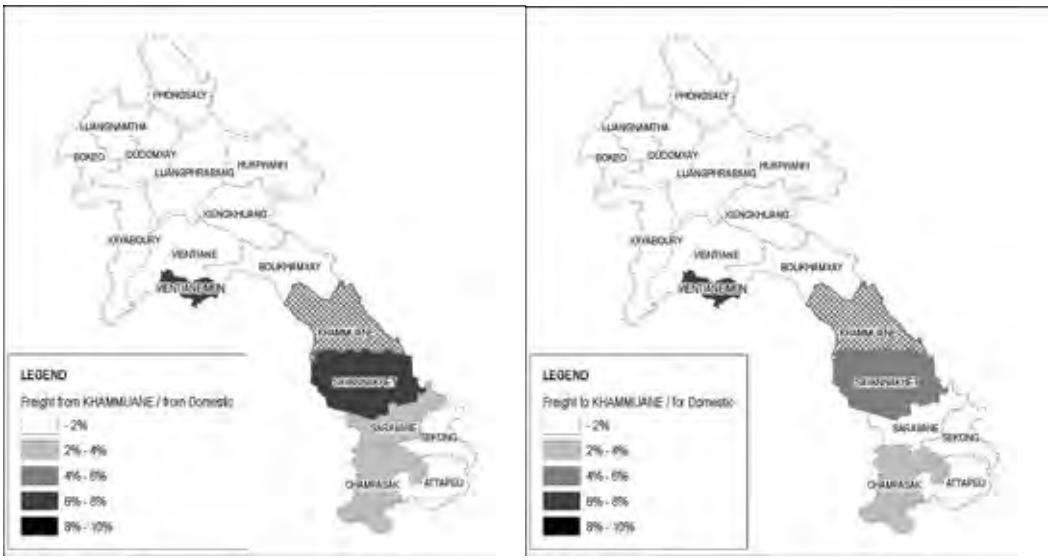
Freight production is about 356,000 tons per year in Khammuane. 37% of freight production is minerals and construction materials mainly gypsum and macadam for Thailand, with 23% headed to Vietnam. 14% of freight production is wood products for Thailand. 69% of current freight attraction in Khammuane is dominated by construction material from Thailand such as cement and articles of cement.



Source: JICA Study Team

Figure 7.7.1 Current Freight Generation Volume

The share of domestic freight attributable to Khammuane is only 22% for production and 18% for attraction. The domestic freight is transported to the southern region along NR-13S and Vientiane Capital.

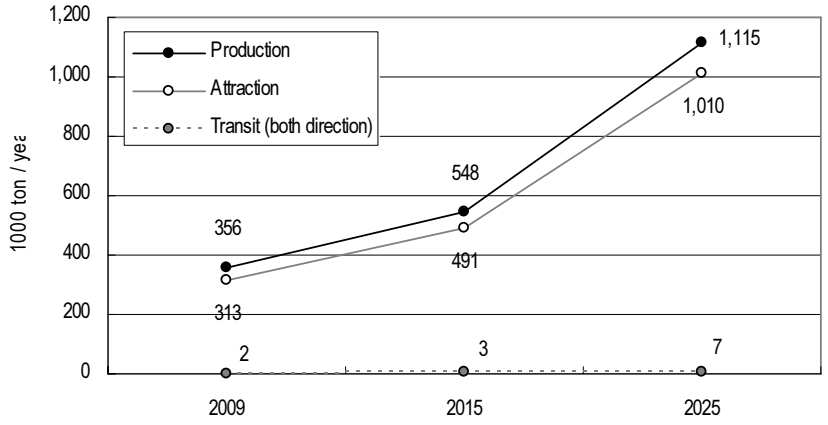


Source: JICA Study Team

Figure 7.7.2 Current Share of Freight from / to Khammuane in Domestic Generation

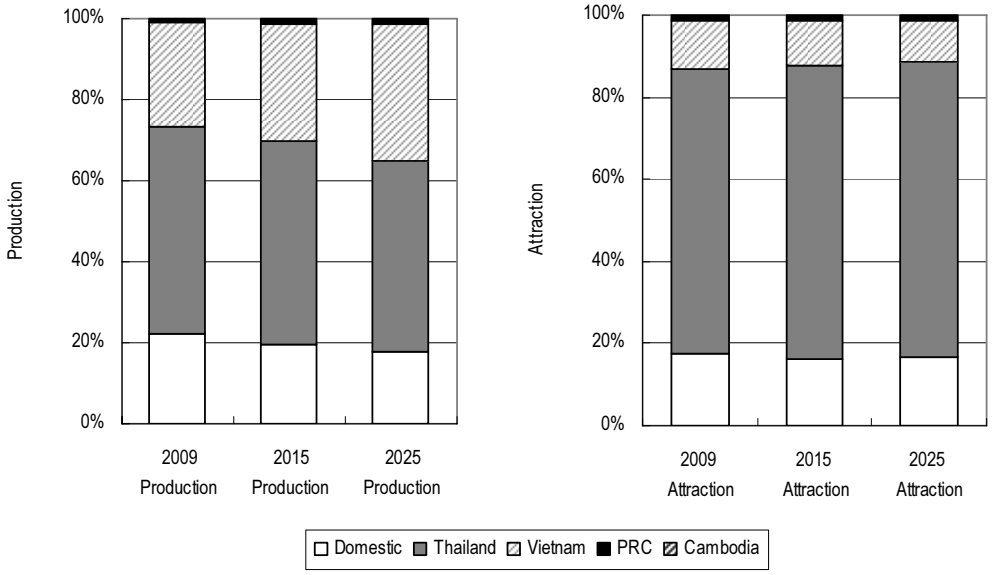
7.7.3 Freight Demand Forecast

Future freight demand in Khammuane is, as shown in Figure 7.7.3, expected to reach 1,115,00 and 1,010,000 tons per year.



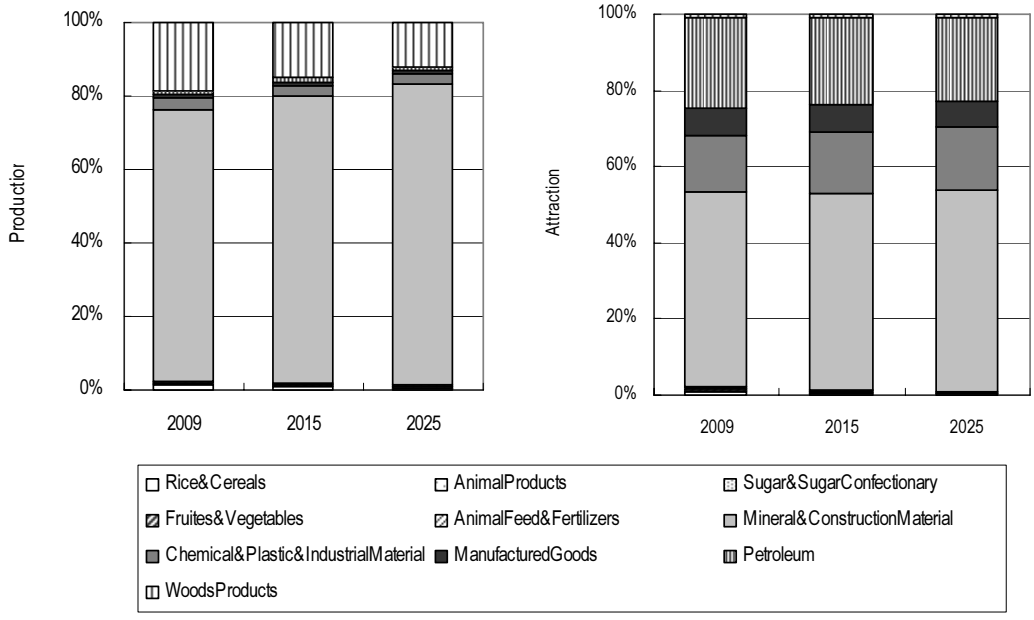
Source: JICA Study Team

Figure 7.7.3 Forecasted Freight Generation in Thakhek



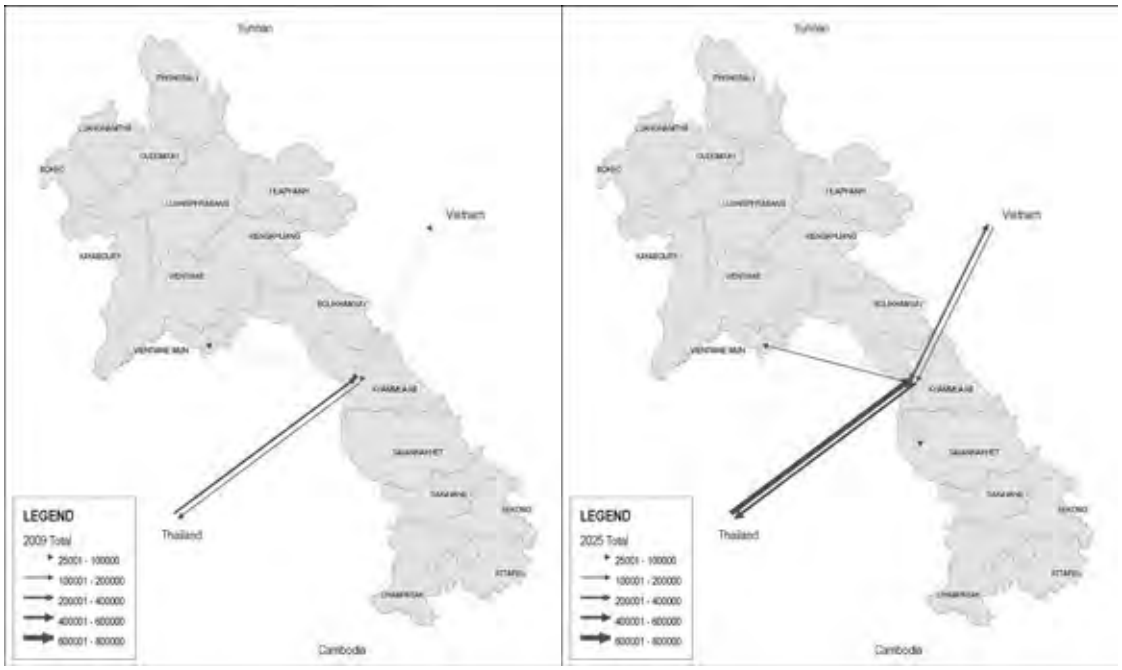
Source: JICA Study Team

Figure 7.7.4 Forecasted Freight Composition in Thakhek



Source: JICA Study Team

Figure 7.7.5 Forecasted Freight Commodity Apportionment in Thakhek



Source: JICA Study Team

Figure 7.7.6 Forecasted Freight Distribution

7.7.4 Logistics Development Strategy

(1) Roles and Functions of Logistics of Khammuane in the Context of National Logistics Strategy

As proposed in Chapter 6, Thakhek is expected to become one of the regional logistics hubs in Lao PDR, providing up-to-date logistics park and sufficient road infrastructure. In the medium to long term, Thakhek is also expected to function as a cross-border point and trans-shipment center for international transit cargo between Thailand and Vietnam along NR-12, and partial trans-shipment of domestic cargo from Vientiane Logistics Park, which is expected to add cargo to the handling volumes of VLP and SLP; hence generating scale merits for VLP and SLP.

(2) Logistics Facility Development Strategy in Khammuane

As proposed in National Logistics Strategy, Khammuane is expected to develop regional logistics parks to improve efficiency of regional logistics system by creating hierarchical logistics network. Khammuane and surrounding provinces are also expected to develop international and regional transport routes (Detailed in Action P121 and P122) to speed up travel time of the large vehicles and improve road structure to accommodate larger truck loading: installation of road safety facilities is also expected of them. It is beneficial to concentrate logistics functions into one place so as to attain higher efficiency of operations as well as to attract foreign involvement in the project.

7.7.5 Thakhek Logistics Park

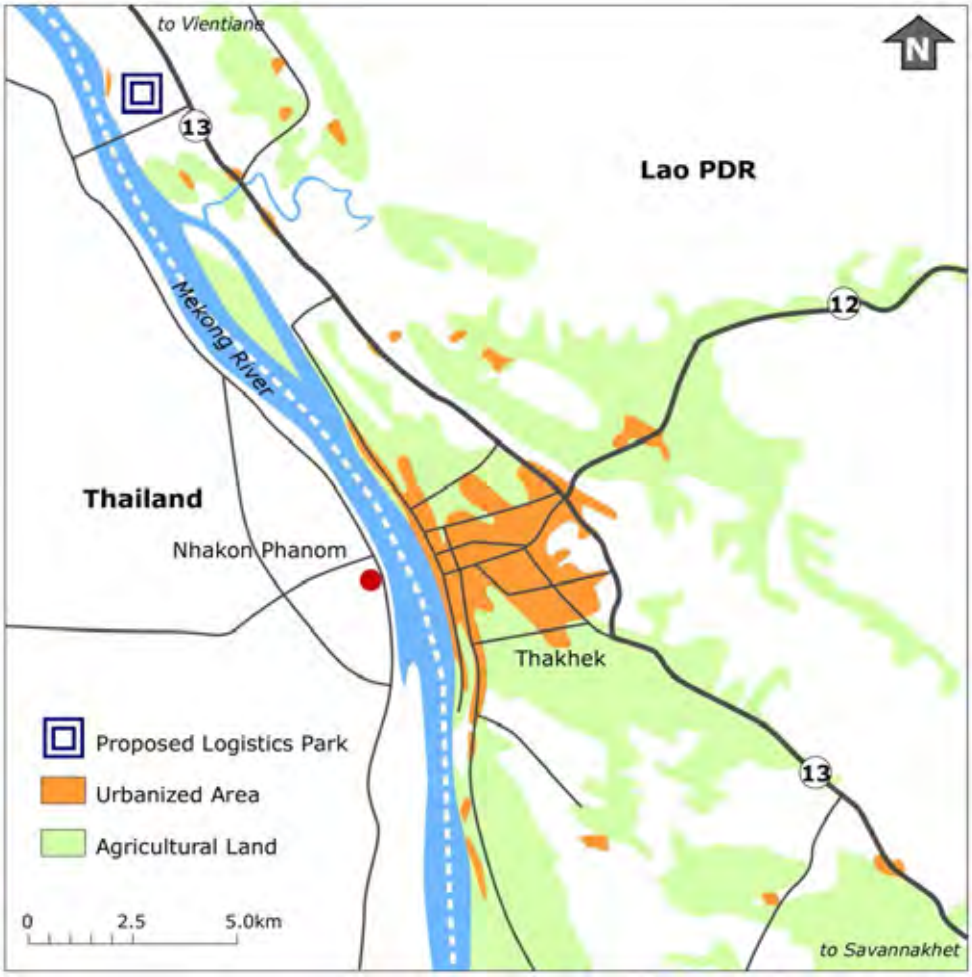
(1) Location

Thakhek Logistics Park (TLP) is expected to function as a regional hub of the logistics system in

central Lao PDR. Thakhek also seems to have potential to become a cross-border logistics center for Thailand, Lao PDR and Vietnam across Mekong River along NR-12. Accordingly, the location of TLP should be decided upon with the following considerations:

- Good accessibility to NR-13S and NR-12,
- Good accessibility to 3rd Mekong Bridge
- Minimum disturbance to urban activities in Thakhek

In consideration of the above, an area in the vicinity of the 3rd Mekong Bridge was selected as a potential site of the TLP, as indicated in Figure 7.7.7.



Source: JICA Study Team

Figure 7.7.7 Location of the Logistics Park in Thakhek

(2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the Thakhek Logistics Park (TLP) is expected to handle mainly import cargo from Thailand. Due to its geographic advantage and development of road network, such as construction of the Third Mekong Bridge, it is also expected to become a trans-shipment centre for the transit cargo between Vietnam and Thailand in the future. Also, using the trunk road network connecting with Khammuane, the TLP is expected

to function as the distribution centre for central Lao PDR. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the TLP is expected to provide following functions and services.

- Interface with Thailand for import/export cargo and transit cargo between Thailand and Vietnam
- Integration of cargo flow to and from the surrounding provinces
- Inventory and storage service for the areas along NR-12
- Trans-shipment and Consolidation

(3) Capacity

In the course of the study, the comprehensive freight demand forecast model was developed to foresee the province/commodity-wise freight demand (detailed in Chapter 5 of this report). Based on this future freight demand, the volume of cargo to be handled at the TLP was estimated for the target year 2025 and summarized in Table 7.7.1.

Table 7.7.1 Annual Handling Volume in 2025

Unit: 000 tons

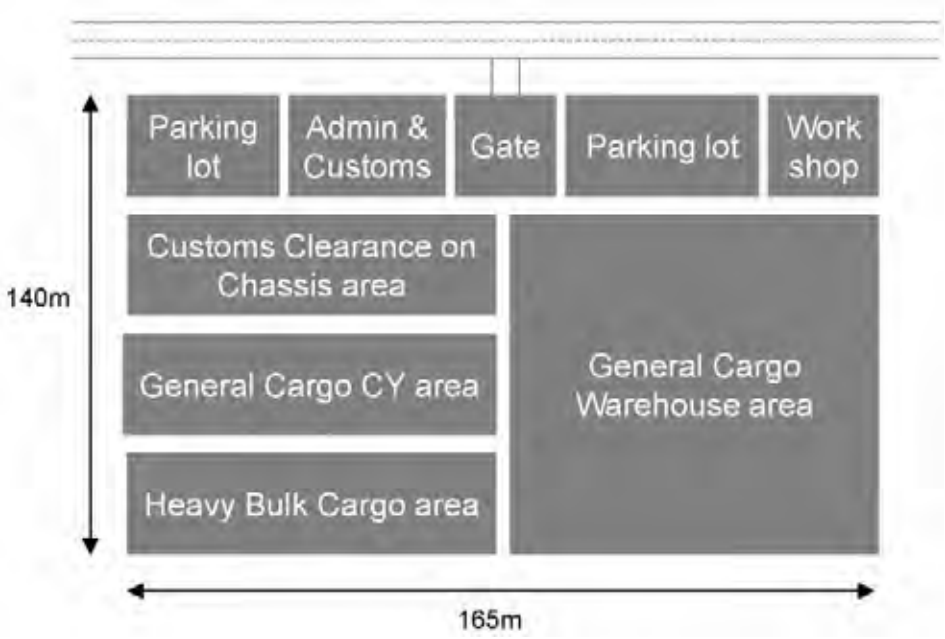
Package Type	2025
Container	24.9
General Cargo	52.6
Heavy Bulk	1.8
Liquid Cargo	0.0
Total	79.2

Source: JICA Study Team

(4) Facility Plan

As discussed above, the functions and services provided at the TLP include (i) Interface with Thailand for import/export cargo and transit cargo between Thailand and Vietnam, (ii) Integration of cargo flow to and from the surrounding provinces, (iii) Inventory and storage service for the areas along Mekong River including Thai side and (iv) Trans-shipment and Consolidation. In consideration of these functions and services, the type and size of logistic facilities at the TLP were planned taking into account the future freight volume. The layout plan of these facilities was prepared considering operational efficiency and security.

The facilities proposed at the TLP include (i) Customs clearance area, (ii) Heavy bulk cargo area, (iii) General cargo CY area, (iv) General cargo warehouse area, (v) Parking lots, (vi) Administration and customs office, (vii) Operator office, (viii) Maintenance workshop. Assuming the same occupancy rate as the CLP, the area required for the TLP was estimated to be 2.3 ha.



Source: JICA Study Team

Figure 7.7.8 Layout Plan of TLP

Table 7.7.2 Summary of Total Area required for TLP

Facilities	Area (m^2)
Customs Clearance on chassis	300
Heavy bulk Cargo area	300
General Cargo CY area	700
General Cargo FS area	2,500
Parking Lots	1,400
Administration and Customs office	400
Operator Office	300
Maintenance shop	200
Gate and Weight Station	600
Buffer area	-
Load in SLP	-
Others	-
Total Floor area	6,700
Total Floor area, excluding parking lots	5,300
Occupancy rate at CLP	23%
Total area of LP	23,300

Source: JICA Study Team

(5) Anticipated Project Cost

Project cost of the LPLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at 3.7 million USD (as of November 2009).

Table 7.7.3 Summary Project Cost of LNLP

Items		Total Cost (USD)	Remarks
1	Land Preparation Works	1,050,955	
2	Building Works	1,381,133	
3	Access Road Works	643,506	
4	Total Construction Cost	3,075,595	1+2+3
5	Administration Cost	92,268	3% of 4
6	Consultant Cost	215,292	7% of 4
7	Contingency	329,089	10% of 4+6
8	Total Project Cost	3,712,243	4+5+6+7

Source: JICA Study Team

(6) Implementation Plan

The implementation process was divided into the following 4 stages: preparatory stage, design stage, construction stage and operation stage. Considering the size and facilities of the project, it would take 35-40 months to complete this project.

7.8 Savannakhet

7.8.1 Current Economy and Future Development Plan

(1) Current Economic Conditions

Savannakhet Province is located in the central part of Lao PDR, and shares borders with Thailand and Vietnam. Provincial area is 22,000 km^2, and population was 826,000 in 2005. The population of Savannakhet Province, which accounts for 15% of the national population, is the highest provincial population in Lao PDR, according to the Censuses of 1995 and 2005. Khanthabouly, capital city of Savannakhet Province is located on the western edge, neighboring Mukdahan over Mekong River. Population of Khanthabouly was 125,000, accounting for 19% of provincial population in 2005. Khanthabouly has an airport, and it connects to Vientiane and Bangkok 3 days per week.

Since most of the area in Savannakhet Province is flatland, it has abundant rice fields. Area for rice fields and rice production takes up 20% of the country's area. Savannakhet is the highest rice producing province in Lao PDR in 2007. Production of sugarcane is also major agricultural activity in Savannakhet. It has rapidly increased from 84,000 tons in 2007 to 610,000 tons in 2008 due to commencement of operations by two sugar factories. These factories are run by Thai company and the sugar produced is exported to EU countries though NR-9. Generalized System of Preference (GSP) is effectively working for the export.

The Sepon mine located in the western part of Savannakhet Province provides huge contribution to national economy. Gold and copper are exploited in the Sepon Mine, and annual production volumes have amounted to 5-10 tons for gold and 60,000 tons for copper in recent years. In 2008, Export value of gold and copper accounted for 58% of total export value. Gold is exported to Australia by air, while copper is exported to Thailand, China, South Korea, etc though NR-9.

Lao Government intends to develop Special Economic Zone along the NR-9, and Sites A, B, C

and D were set between Khanthabouly and Seno by Savan-Seno Special Economic Zone Authority under Prime Minister Office. A concessionaire plans to develop tourism & commercial facilities at Site A which is located near the 2nd Friendship Bridge. It has taken time to start construction work due to the relocation of inhabitants in the site. Site B is planned to be used as a logistics center because it is located at crossroads of NR-9 and NR-13. There are some logistics companies located at the site, but full-scale operations have not started yet. A concessionaire has started land works of the 1st phase development (50ha) at Site C, located 10-11km from Khanthabouly. Some anticipatory investments have already started in these sites but it will take time to engage in full-scale economic activities. Site D is planned to be a receptacle for inhabitants displaced from Site A. Housing development is on-going with development of agricultural collage and international bus terminal.

Savannakhet Province has abundant flatland and labor force but income per capita is lower than that for Vientiane Capital and Champasack. Therefore the provincial capital plans to speed up economic development by full use of the East West Economic Corridor and Savan-Seno SEZ.

(2) Transport Network

Savannakhet is located at the strategic point along the East-West Corridor. The town traditionally developed as a river crossing town of Mekong River. On the other side of the river is Mukdahan in Thailand. As regards the transport network, it comprises the East-West Corridor (NR-9) with 2nd International Mekong Bridge, NR-13S, river transport and domestic airport in Savannakhet. NR-9 connects Savannakhet with Thailand and Vietnam, while NR-13S connects it with Vientiane and Pakse.

(3) Development Plan

1) Socio-economic Development

In the current socio-economic development plan, 6th 5-year development plan 2006-2010, the provincial government set the following objectives, priorities and targets.

In regard to population, expected population in 2010 is 914,965 with an annual average growth rate of 2.1%. Target of life expectancy is 65 years old in 2010. Target enrollment rates are 25% for kindergarten, 90% for elementary school, 63% for lower secondary school and 25% for upper secondary school. As for sanitation, access rate to cleaning water will be 95% and utilization rate of toilets is 70%. The target in poverty eradication is to reduce number of poor families by two thirds the number of poor families in 2001, which was 14,408.

As regards the economy, the target GRDP growth rate is 12%, and GRDP per capita is USD700 in 2010. Growth rate of each sector is 7 to 8% for agriculture, 18-19% for industry and 13-14% for service, and target industrial composition in 2010 is 39% for agriculture, 31% for industry and 30% for service.

2) Urban Development

Savannakhet is the second largest city in Lao PDR. Savannakhet traditionally developed as a center of agricultural products and trade and commerce along Mekong River. Savannakhet is a provincial center of Savannakhet province and is almost the only urbanized area in the province. Currently, the Savan-Seno special economic zone is developing based on the East-west Corridor and 2nd International Mekong Bridge. The Urbanized area is spread along

the Mekong River and currently, expansion of the urban area occurs along the NR-9.

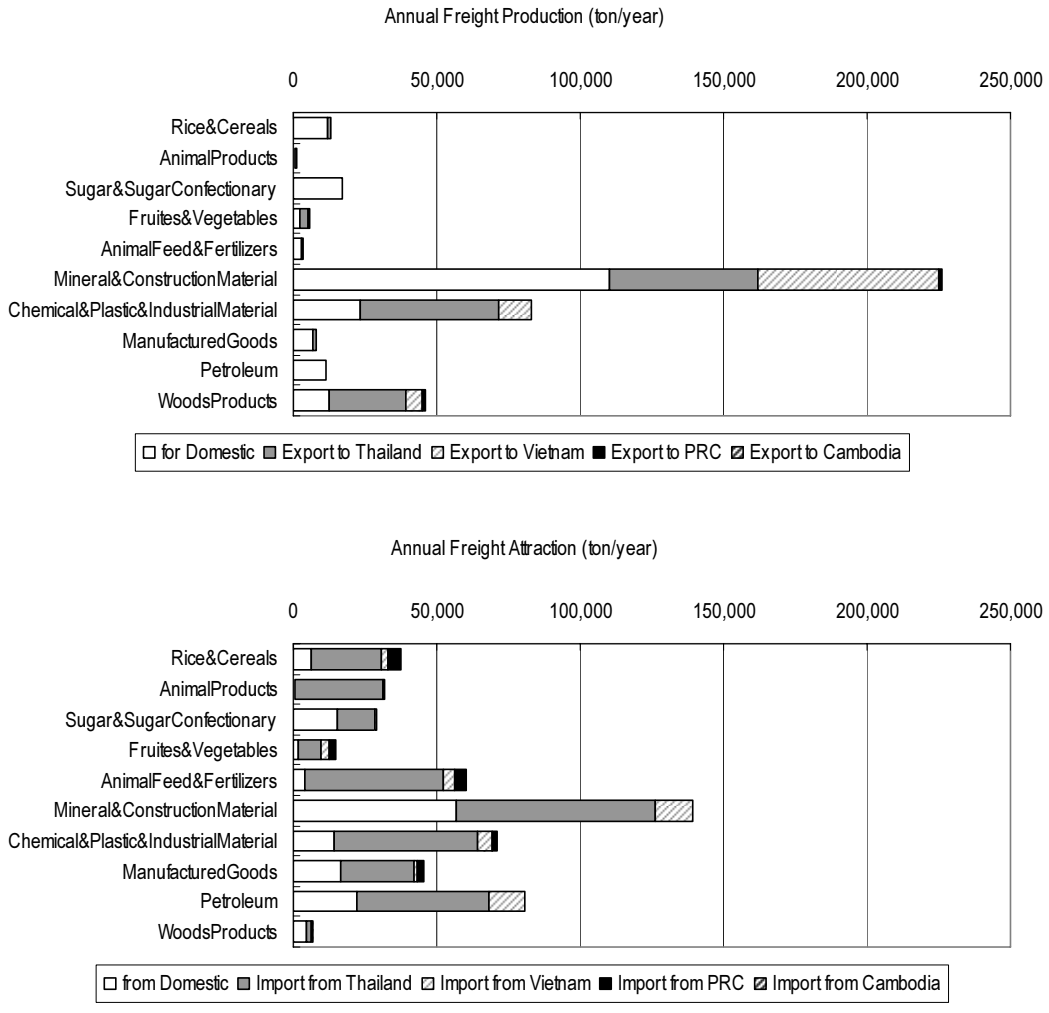
The current urban master plan accords with the current trend of urbanization by designating new urban areas in an eastern direction along the NR-9 and in the southern direction.

7.8.2 Logistics in Savannakhet

Current freight production volume from Savannakhet is about 415,000 tons per year and consists of domestic cargo (48%), exports to Thailand (32%) such as refined copper and exports to Vietnam (19%) such as gypsum.

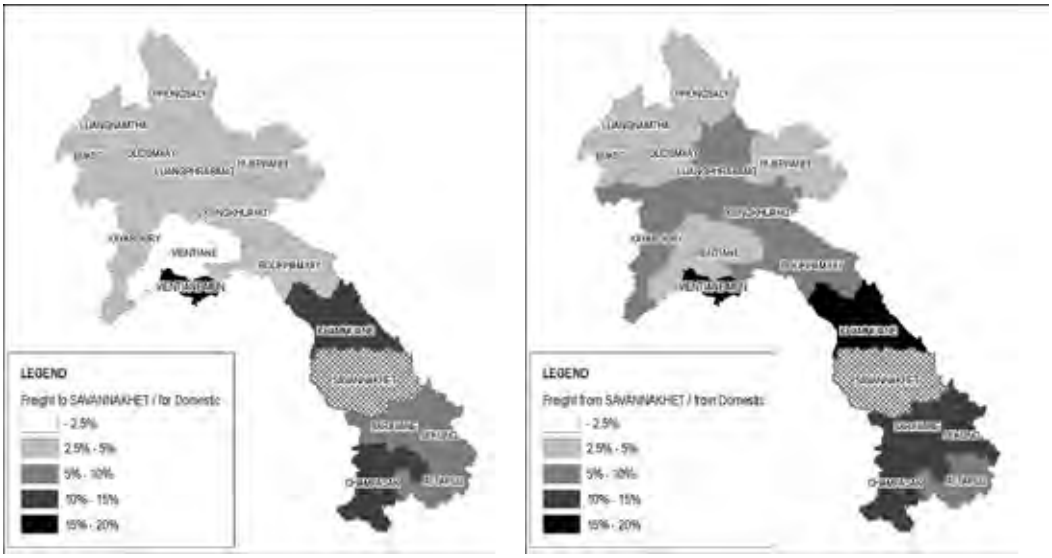
Current freight attraction volume to Savannakhet is about 516,000 tons per year and consists of domestic cargo (28%), imports from Thailand (62%) and imports from Vietnam (8%) such as cement, steel and ceramic products.

Transit freight between Thailand and Vietnam through Savannakhet is about 87,000 tons per year. The major commodity from Vietnam to Thailand is agricultural products such as vegetables. The major commodities from Thailand to Vietnam are sugar, beverages and miscellaneous.



Source: JICA Study Team

Figure 7.8.1 Current Freight Generation Volume

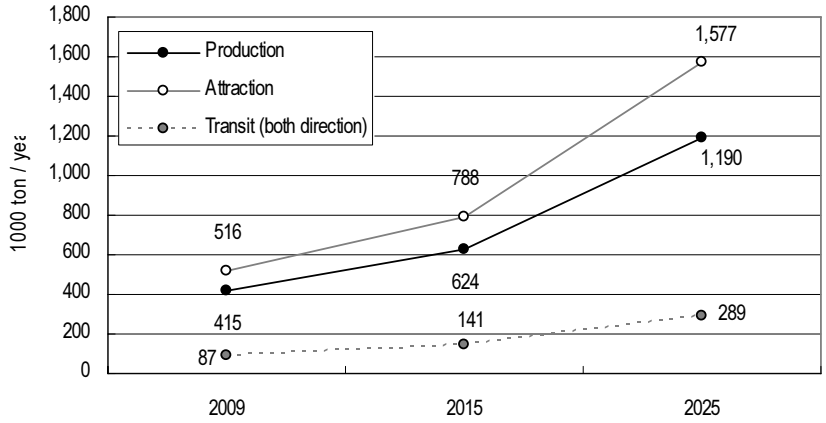


Source: JICA Study Team

Figure 7.8.2 Current Share of Freight from / to Savannakhet in Domestic Generation

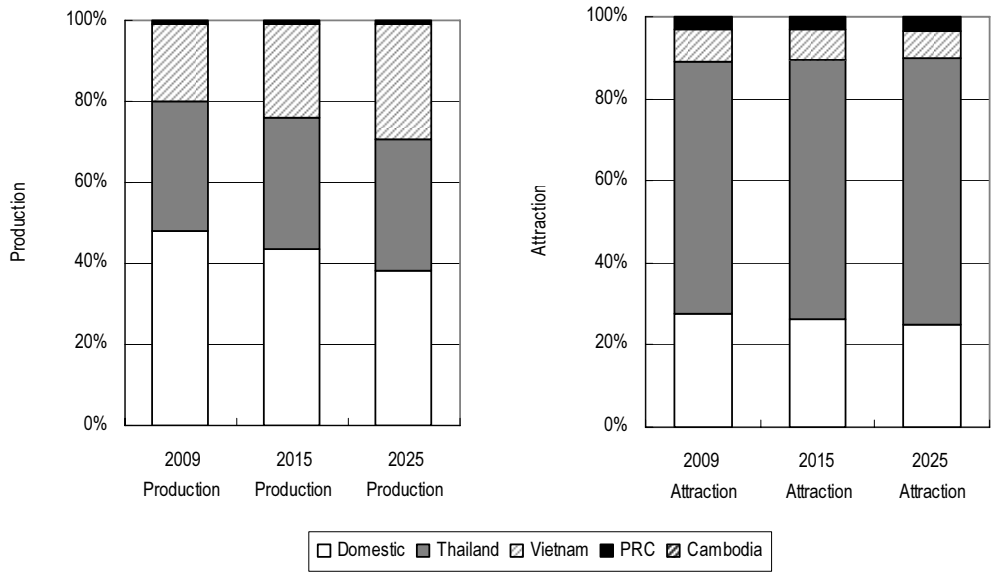
7.8.3 Freight Demand Forecast

Future freight production and attraction in Savannakhet is expected to reach 1,190,000 and 1,577,000 tons per year in 2025, respectively. Transit freight between Thailand and Vietnam is expected to reach 289,000 tons per year by the same year.



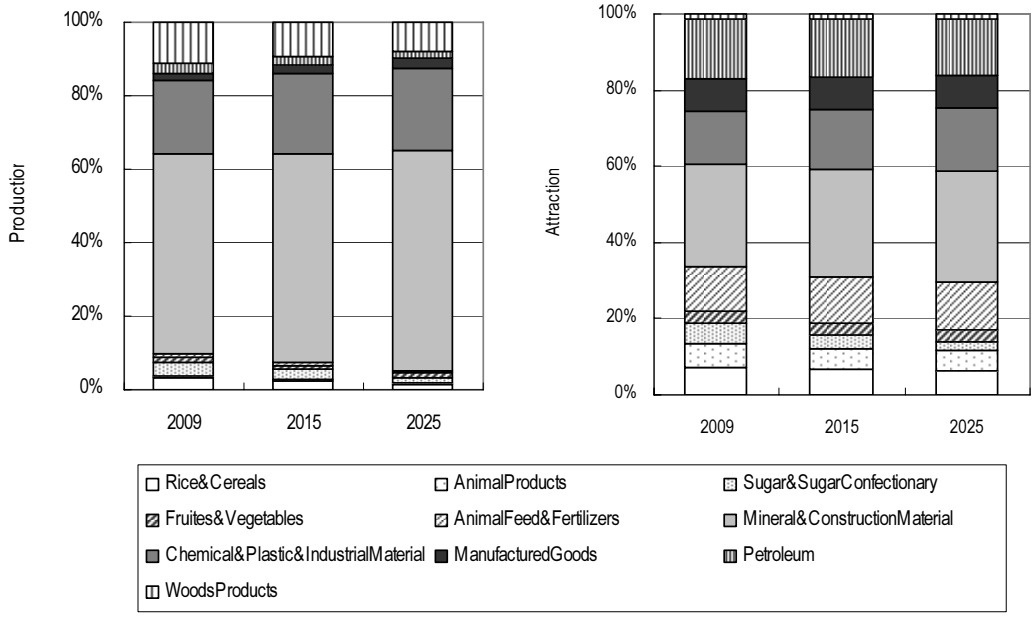
Source: JICA Study Team

Figure 7.8.3 Forecasted Freight Generation in Savannakhet



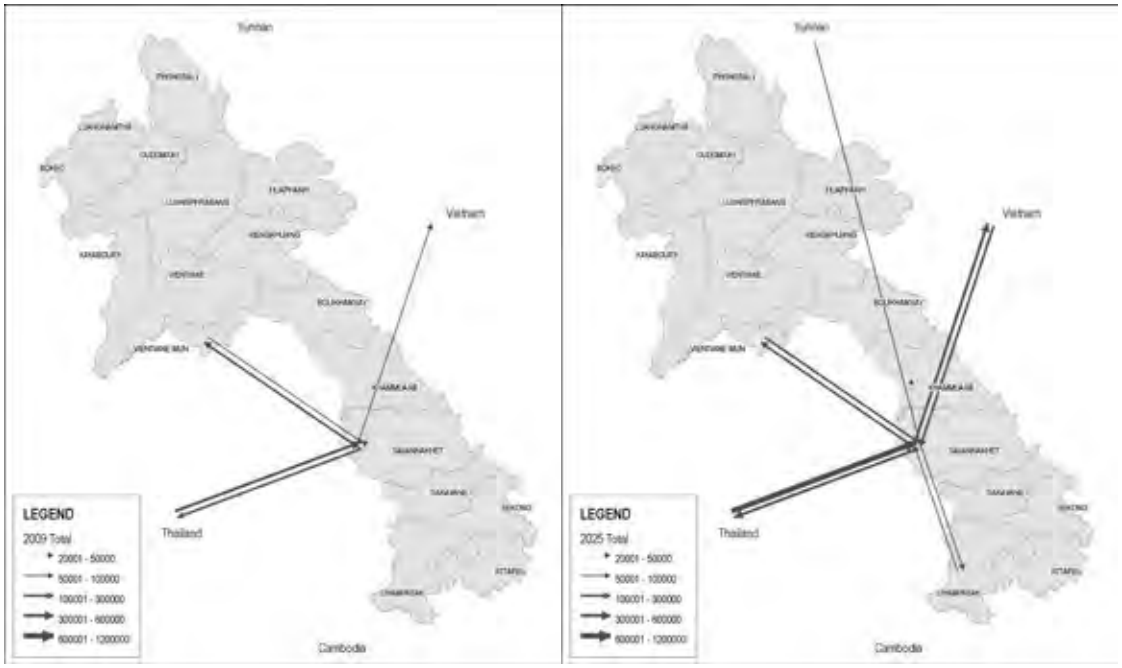
Source: JICA Study Team

Figure 7.8.4 Forecasted Freight Composition in Savannakhet



Source: JICA Study Team

Figure 7.8.5 Forecasted Freight Commodity Apportionment in Savannakhet



Source: JICA Study Team

Figure 7.8.6 Forecasted Freight Distribution

7.8.4 Logistics Development Strategy

(1) Roles and Functions of Logistics of Savannakhet in the Context of National Logistics Strategy

As proposed in Chapter 6 of this report, development of the logistics in Lao PDR can be achieved through application of 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, (iii) Market Expansion. To realize these strategies, Savannakhet is expected to become a core in the logistics system in Lao PDR, providing up-to-date logistics park in the heart of Lao PDR, to combine and integrate cargo flows to generate scale merits for Lao PDR, by utilizing geographic and economic advantages of Lao PDR.

At the early stage in the short term, it is important to establish cargo flow between Lao PDR, Thailand and Vietnam. Savannakhet Logistics Park (SLP) is a key facility in handling transit cargo between Thailand and Vietnam and import/export cargo with Thailand.

(2) Logistics Facility Development Strategy in Savannakhet

As proposed in National Logistics Strategy, explored in Chapter 6 of this report, Savannakhet is expected to develop an international logistics park (Detailed in Action No. P111 of the National Logistics Strategy) to develop international interface logistics function in Lao PDR. Savannakhet and surrounding provinces are also expected to develop international and regional transport routes (Detailed in Action P121 and P122) to speed up travel time of the large vehicles and improve road structure to accommodate larger truck loading: road safety facilities are also expected to be installed. It is beneficial to concentrate logistics functions into one place so as to attain higher efficiency of operations as well as to attract foreign involvement in the project.

7.8.5 Savannakhet Logistics Park

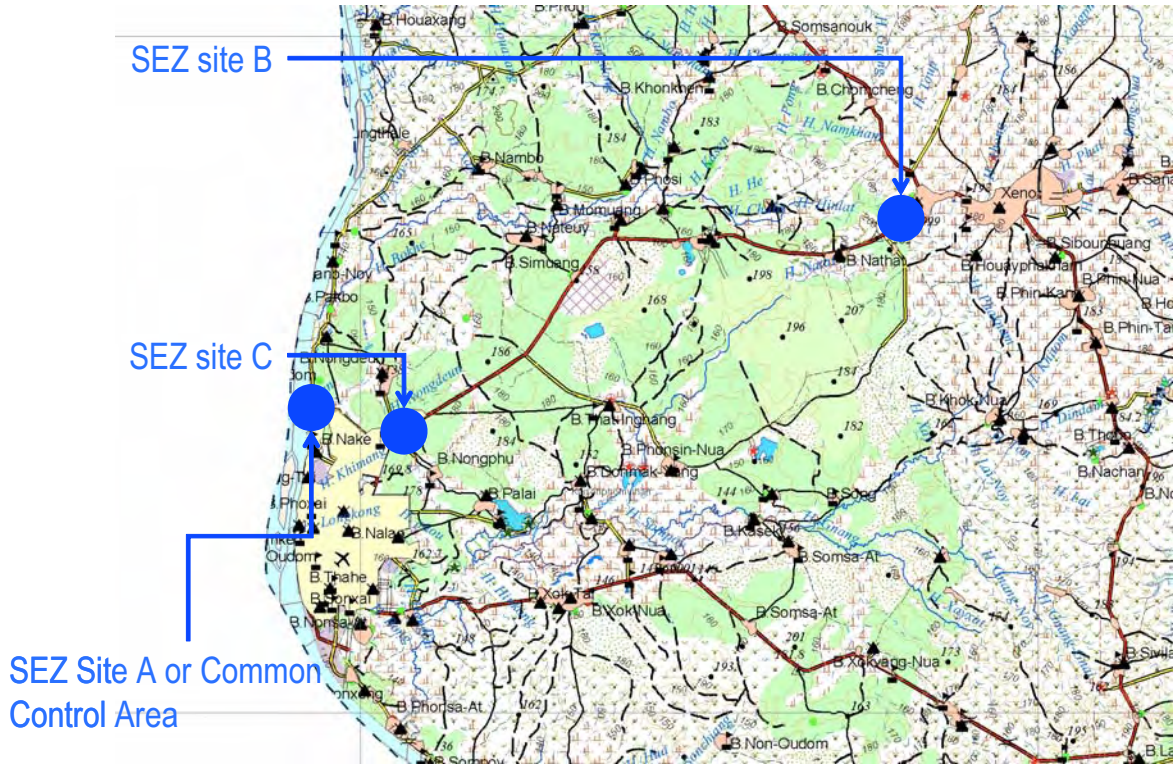
(1) Location

Savannakhet Logistics Park (SLP) is expected to function as an international logistics hub in central Lao PDR along East-West Corridor of NR-9. To maximize these functions, alternative locations for SLP were evaluated taking into account the following facets:

- Good accessibility to NR-9 and NR-13N,
- Good accessibility to Savannakhet Special Economic Zones
- Accessibility to Savannakhet but minimum disturbance to urban activities in Savannakhet

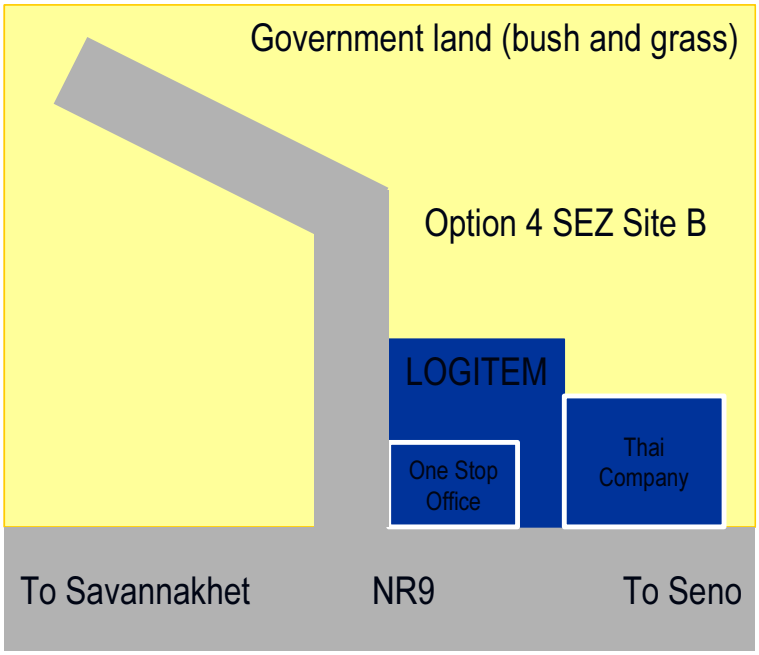
In consideration of the above, 3 alternative locations were considered, namely: Site A, Site B and Site C as shown in Figure 7.8.7. From the alternatives, Site B was selected after a series of stakeholders meetings at Savannakhet based on the availability of land at the site and accessibility to NR-9 and NR-13S.

Detailed location of Site B is shown in Figure 7.8.8. The site B lies at the cross-roads of NR-13S and NR-9, behind the existing SEZ office and logistics company.



Source: JICA Study Team

Figure 7.8.7 Alternative Locations for the Logistics Park in Savannakhet



Source: JICA Study Team

Figure 7.8.8 Location of the Logistics Park in Savannakhet (Site B)

(2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the SLP is expected to handle mainly import cargo from Thailand and transit cargo between Thailand and Vietnam. Due to its geographic advantage, it is also expected to become a trans-shipment centre for the transit cargo between Thailand and Vietnam. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the SLP is expected to provide following functions and services.

- Interface with Thailand for import/export and transit cargo
- Integration of cargo flow along NR-13N including domestic, transit and import/export cargo, competing with the NR-3 route to reduce empty return haulage
- Trans-shipment and Consolidation
- Inventory and storage service for the areas along Mekong River including Thai side

(3) Capacity

In the course of the study, the comprehensive freight demand forecast model was developed to foresee the province/commodity-wise freight demand (detailed in Chapter 5 of this report). Based on this future freight demand, the volume of cargo to be handled at the SLP was estimated for the target years of 2015 and 2025 and summarized in Table 7.8.1. The freight demand forecast of the SLP is detailed in a separate volume of the feasibility study report (see the Appendix of this report).

Table 7.8.1 Annual Handling Volumes in 2015 and 2025

Unit: 000 tons

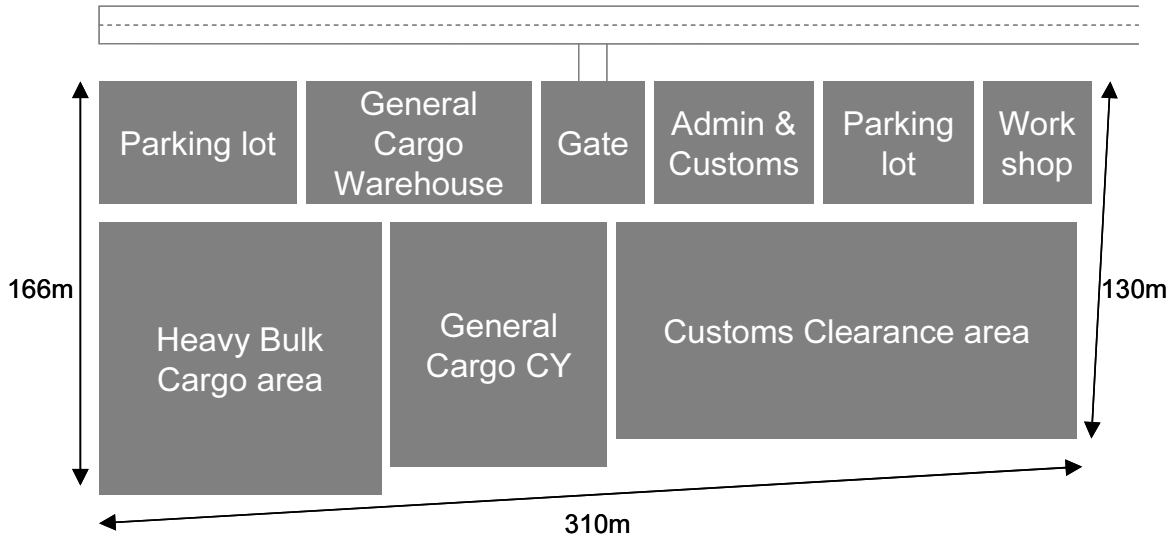
Package Type	2015	2025
Container	20.3	123.1
General Cargo	12.2	20.5
Heavy Bulk	3.4	7.3
Liquid Cargo	0.0	0.0
Total	35.9	150.9

Source: JICA Study Team

(4) Facility Plan

As discussed above, the functions and services provided at the SLP include (i) Interface with Thailand for import/export and transit cargo, (ii) Integration of cargo flow along NR-13N including domestic, transit and import/export cargo, competing with NR-3 route to reduce empty return haulage, (iii) Trans-shipment and Consolidation and (iv) Inventory and storage services for the areas along Mekong River including Thai side. In consideration of these functions and services, the type and size of logistic facilities at the SLP were planned taking into account the future freight volume. The layout plan of these facilities was prepared considering operational efficiency and security.

The facilities proposed at the SLP include (i) Customs clearance area, (ii) Heavy bulk cargo area, (iii) General cargo CY area, (iv) General cargo warehouse area, (v) Parking lots, (vi) Administration and customs office, (vii) Operator office, (viii) Maintenance workshop. The area required for the SLP was calculated as 5.1 ha.



Source: JICA Study Team

Figure 7.8.9 Layout Plan of SLP

Table 7.8.2 Summary of Total Area required for SLP

	Area (m^2)	Remarks
Customs Clearance area	8,000	
Heavy bulk Cargo area	6,100	
General Cargo CY area	5,500	CY area includes CY, container pool, chassis pool and container washing area.
General Cargo Warehouse area	2,800	Warehouse includes warehouse and warehouse office.
Parking Lots	8,800	Aisle is shared by heavy bulk and general cargo area
Administration and Customs office	3,400	
Operator Office	1,800	
Maintenance shop	1,600	
Gate and Weight Station	2,400	
Buffer area	4,300	
Load in SLP	5,800	
Others	600	
Total area	51,100	

Source: JICA Study Team

(5) Anticipated Project Cost

Project cost of the SLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at 4.6 million USD (as of November 2009). The detailed project cost of the SLP is separately discussed in the feasibility study report (see Appendix).

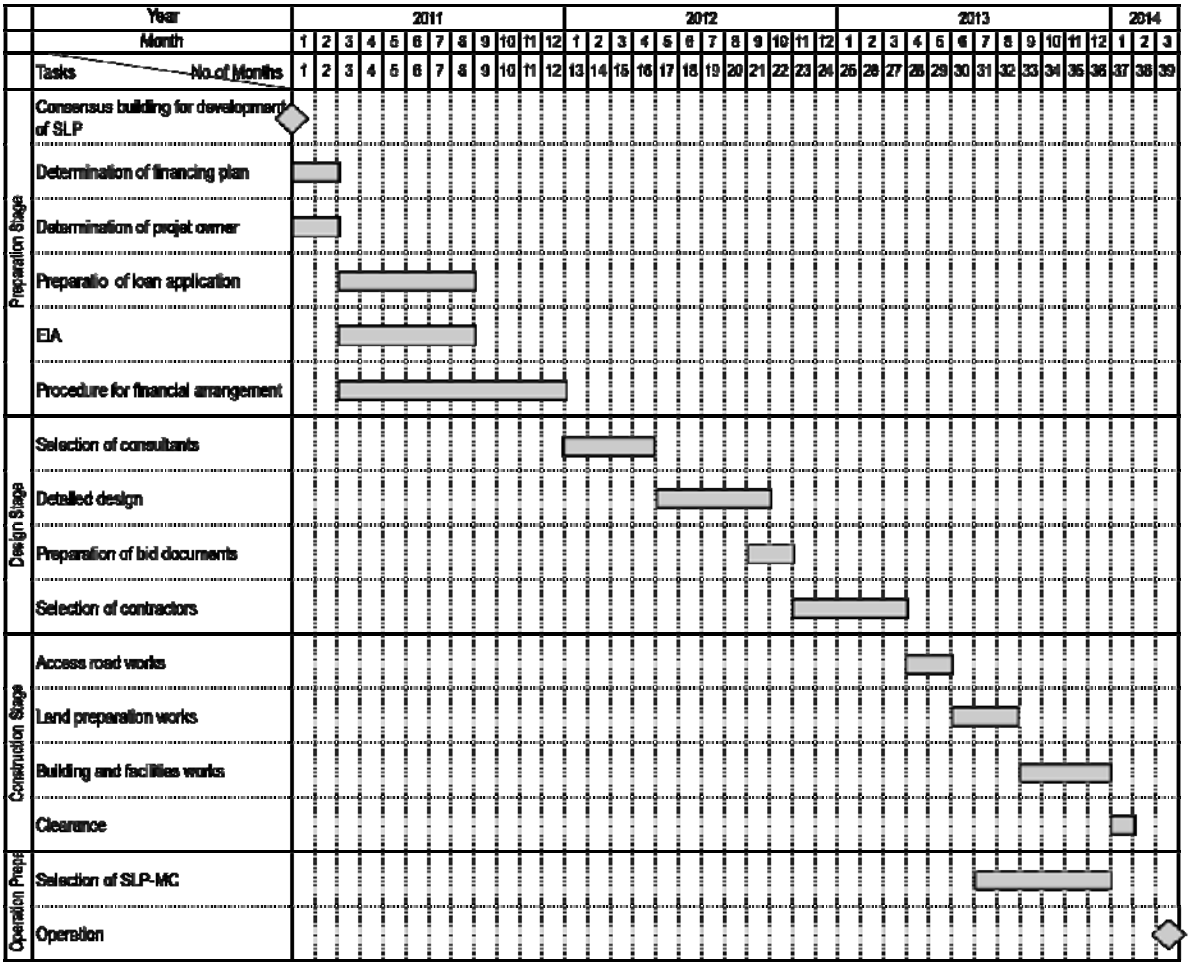
Table 7.8.3 SLP Project Cost

Items		Total Cost (USD)	Remarks
1	Land Preparation Works	2,302,020	
2	Building Works	834,320	
3	Access Road Works	640,932	
4	Total Construction Cost	3,777,272	1+2+3
5	Administration Cost	113,318	3% of 4
6	Consultant Cost	264,409	7% of 4
7	Contingency	404,168	10% of 4+6
8	Total Project Cost	4,559,167	4+5+6+7

Source: JICA Study Team

(6) Implementation Plan

The implementation process is divided into the following 4 stages: preparatory stage, design stage, construction stage and operation stage. It would take 39 months to complete the SLP project as indicated in Figure 7.2.15. The detailed implementation plan of the SLP is separately discussed in the feasibility study report (see Appendix).



Source: JICA Study Team

Figure 7.8.10 Implementation Schedule

7.9 Pakse

7.9.1 Current Economy and Future Development Plan

(1) Current Economic Conditions

Champasack Province is located in the southern end of Lao PDR, and shares borders with Thailand and Cambodia. Provincial area is around 150,000 km^2 with population of 600,000 in 2005. Champasack Province has wide flat land along Mekong River, and also has Bolaven plateau in the northeastern part which has abundant rich soil and high potential for agricultural development.

Pakse, the provincial city of Champasack Province is a center for economic activity such as agriculture, and has developed as a strategic point of routes connecting neighboring countries. It is only 120 kilometers from Pakse to Ubon Ratcathani, one of the centers in northeastern region of Thailand by NR-10, 780 kilometers to Phnom Penh and 760 kilometers to Ho Chi Minh City by NR-13. Pakse has an international airport with air routes to Vientiane (6 days per week), Bangkok (3 days per week) and Shem Reap (daily).

Champasack Province consists of 10 districts. 13% of population lived in Pakse in 2005. Major

economic activity of the province is agriculture. Rice production was recorded at 313,000 tons, placing it 3rd behind Savannakhet Province and Vientiane Capital. Vegetable production was recorded at 132,000 tons, placing it in the 1st position in 2007. Bolaven plateau is very famous for commercial crops production and it still has potential to expand its production. Coffee produced in Bolaven plateau is exported to European countries by way of Bangkok. Vegetables are provided to not only major cities in Lao PDR but also northeastern Thailand. Rice and local chicken are appreciated as being of very high quality. Wood industry is also a major industry; however, its stature is declining due to application of quota to logging.

The other major industry in Champasack Province is tourism. This province has rich tourism resources such as Wat Phu, 4000 islands in Khon and Bolaven plateau. Pakse plays a role as a tourism base for international tourists from European countries and Thailand.

Since Pakse is located near Ubon Ratcathani, one of the centers in northeastern Thailand, cross-border trade is a major activity. Wide range of goods from petroleum to daily goods are imported from Thailand, and distributed not only to Champasack Province but to other southern provinces such as Saranane, Sekong and Attapeu as well. National Roads connects Pakse with these 3 provincial towns (NR-20 for Saravane, NR-16 for Sekong and NR-16 and 11 for Attapeu).

Major activities in manufacturing sector are wood & wood products industry and food processing industry. In accordance with agricultural development, agricultural processing industry and food industry are expected to expand their production volumes. The fact that Beer Lao established its second factory in Champasack province is evidence of the strategic location of this province in Lao PDR. Bauxite reserve was found in Bolaven plateau, and the exploration is being conducted by a concessionaire.

(2) Transport Network

Pakse is located in a strategic area, at the intersection of NR-13S, the north-south national trunk road and NR-16, the east-west national corridor connecting Pakse to Ubon Ratchathani in Thailand. The town is the old capital of the Champasack dynasty, which developed along Mekong river. Pakse is also a center of the southern road network connecting surrounding provinces and Cambodia and Vietnam by NR-18, NR-14 and NR-20. Pakse airport is a domestics airport hub with daily flights to Vientiane and Savannakhet.

(3) Development Plan

1) Socio-economic Development

The Provincial government has the following medium to long term visions:

- Pakse is connected to Bangkok, Shem Reap, Ho Chi Minh City, Danang, Hue Phnom Penh and the center of the southern part of Lao PDR. The future vision is “Core City to attract tourism,” and “Center for investment to serve surrounding towns.”
- Inviting investment for commercial and tourism activities, and develop Pakse as a town which is abundant in tradition, culture and green.
- Develop agro-industry (coffee and maize production and wood processing) in areas surrounding Pakse to avoid concentration of population.
- In the medium to long run, Pakse will be the second most prominent city in Lao PDR, and will be upgraded to the same status as Vientiane Capital.

The provincial government also set the following targets in the current socio-economic development plan (6th 5-year development plan).

As regards population, expected population in 2010 is 666,285 with an annual average growth rate of 1.9%. Target of life expectancy is 63 years old in 2010. Target enrollment rate of elementary school is 98%, and target access rate to clean water is 95%.

As regards the economy, target GRDP growth rate is 11%, with GRDP per capita of USD 950 in 2010. Growth rate of each sector is 4% for agriculture, 15% for industry and 17% for service, and industrial composition in 2010 is 37% for agriculture, 30% for industry and 33% for service sector.

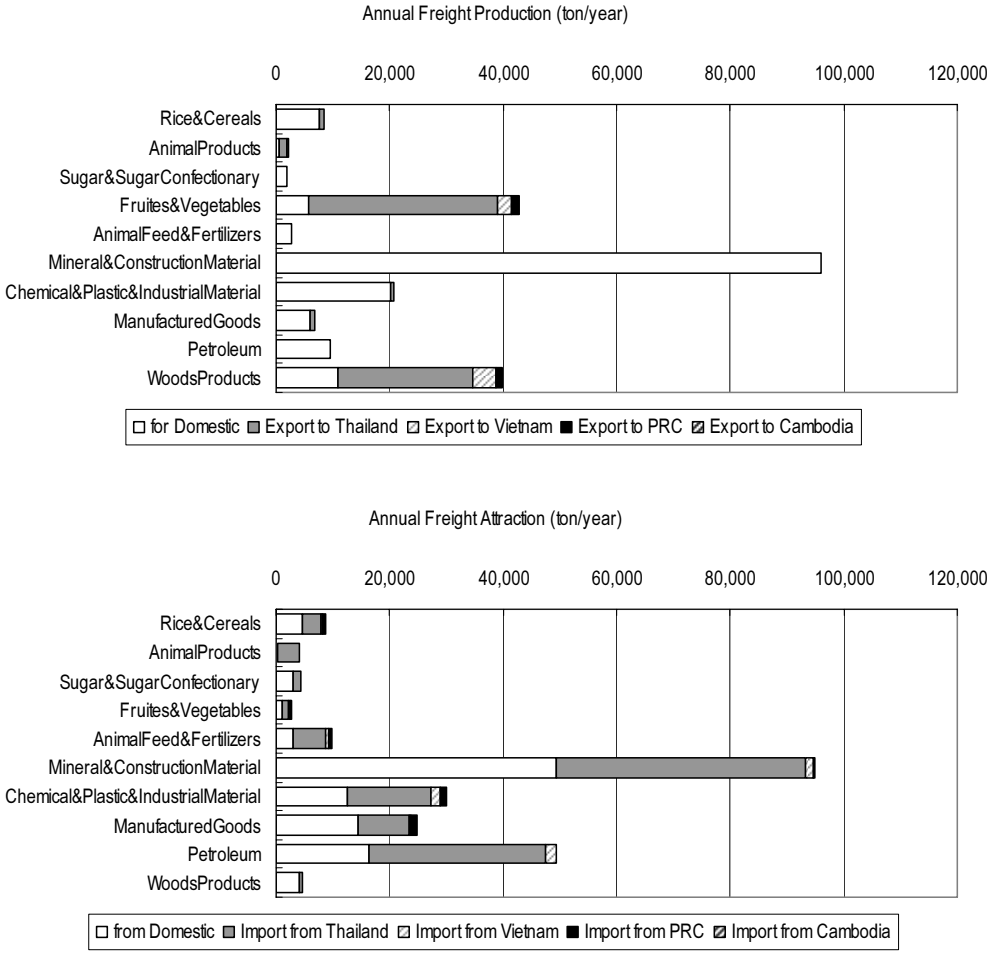
2) Urban Development

Pakse is an old capital of the Champasack Dynasty, which developed along the Mekong River. Pakse is at present a provincial center of Champasack province and is an economic and administration center for the southern region of Lao PDR. Many tourism developments such as development of hotels, restaurants and shops in the city are currently observable. Agricultural development in the hinterland of the Bolaven plateau currently activates the urban economy of Pakse together with some industrial locations. The Urbanized area is spread along the Mekong River and currently expands along NR-13S and NR-16.

According to the urban master plan, new urban areas will expand in the northern and southern directions along the NR-13S and NR-16. In the plan, the central area of the city is designated as mixed land use area with moderate density while surrounding areas are designated as low density residential areas.

7.9.2 Logistics in Pakse

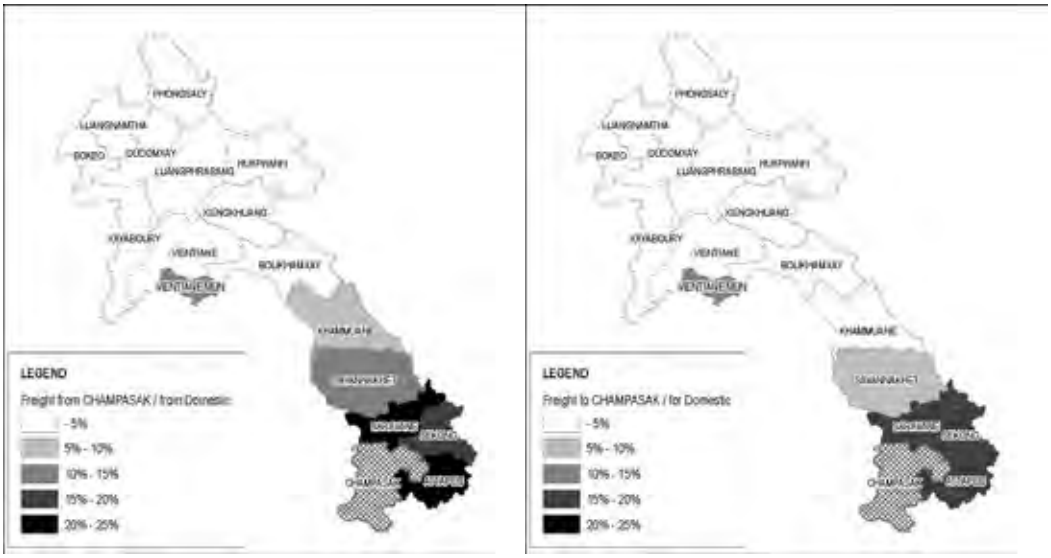
Freight production in Champasack is about 231,000 tons per year in 2009. 19% of total production volume is vegetables and fruits. Freight attraction in 2009 is about 234,000 tons per year and consists of imports from Thailand (49%) and domestic cargo (47%). Major freight attraction commodity is construction materials such as cement and ceramic products.



Source: JICA Study Team

Figure 7.9.1 Current Freight Generation Volume

As shown in Figure 7.9.2, domestic freight relevant to Champasack flows from/to the region south of Savannakhet.

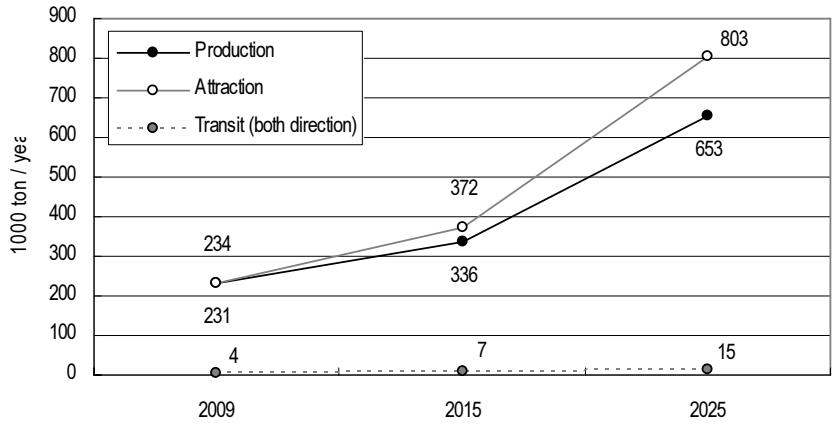


Source: JICA Study Team

Figure 7.9.2 Current Share of Freight from / to Champasack in Domestic Generation

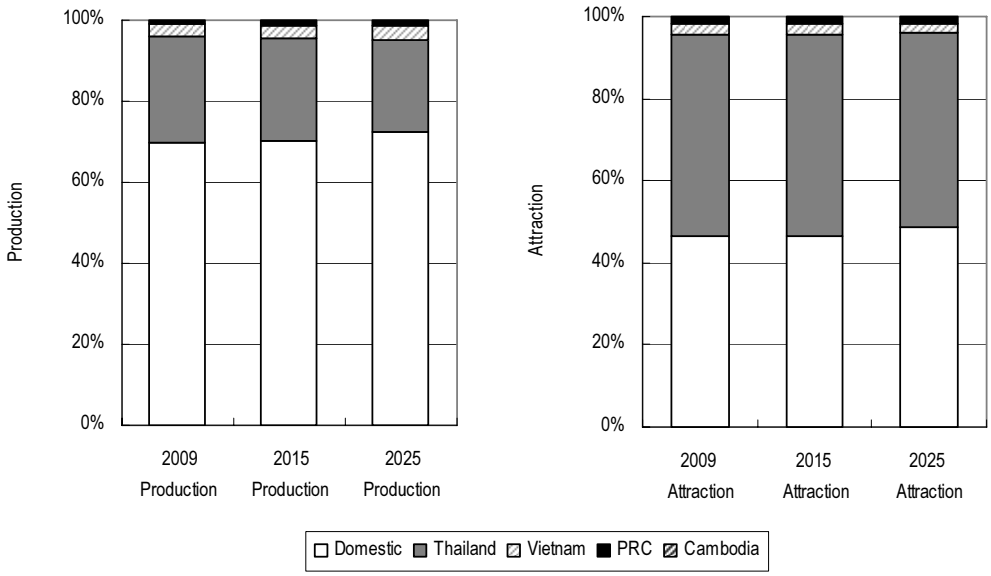
7.9.3 Freight Demand Forecast

Figure 7.9.3 shows forecasted freight demand of Champasack. Future freight production is expected to reach 653,000 tons per year while freight attraction is expected to reach 803,000 tons per year in 2025.



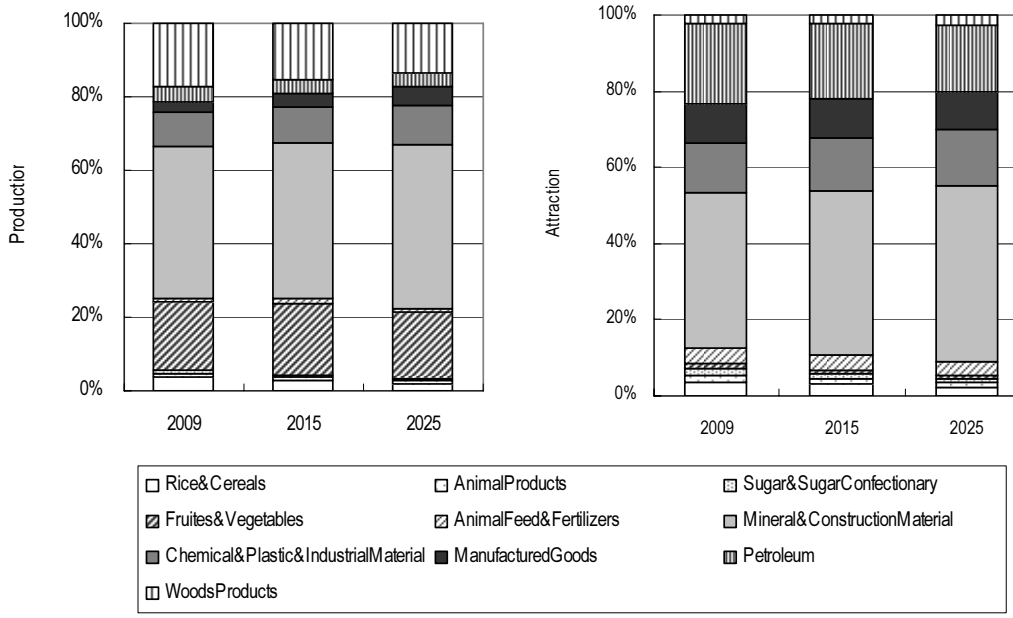
Source: JICA Study Team

Figure 7.9.3 Forecasted Freight Generation in Champasack



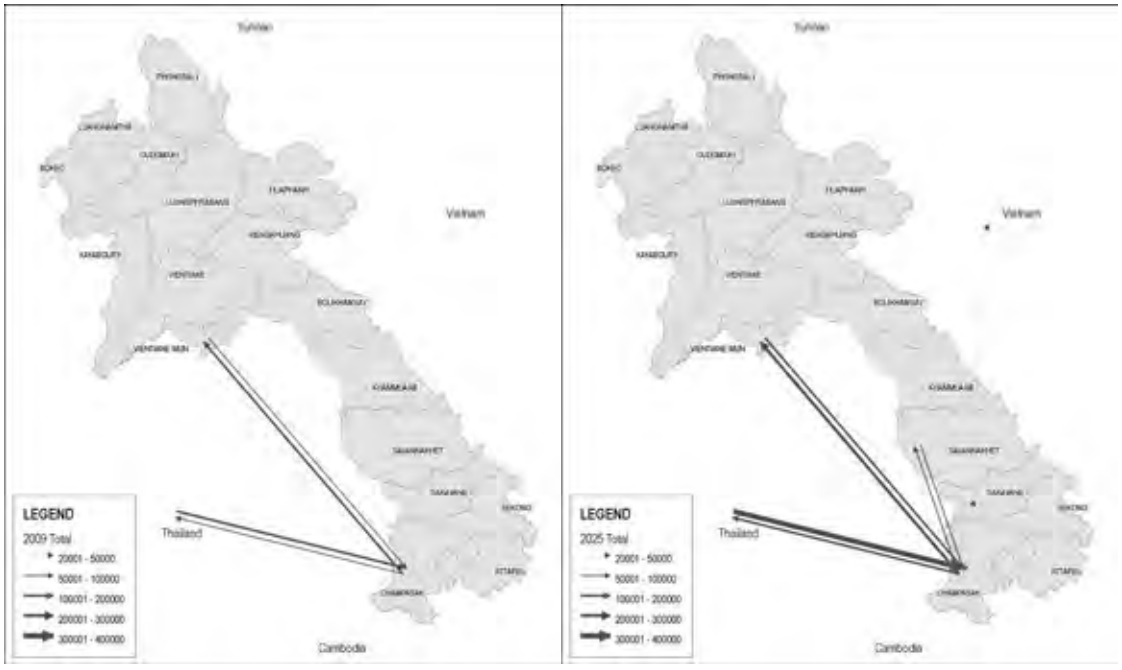
Source: JICA Study Team

Figure 7.9.4 Forecasted Freight Composition in Champasack



Source: JICA Study Team

Figure 7.9.5 Forecasted Freight Commodity Apportionment in Champasack



Source: JICA Study Team

Figure 7.9.6 Forecasted Freight Distribution

7.9.4 Logistics Development Strategy

(1) Roles and Functions of Logistics of Champasack in the Context of National Logistics Strategy

As proposed in Chapter 6 of this report, development of the logistics in Lao PDR can be achieved

by application of 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, (iii) Market Expansion. To realize these strategies, Champasack is expected to become one of the international logistics hubs in Lao PDR, providing up-to-date logistics park and sufficient road infrastructure, to combine and integrate cargo flows to generate scale merits for Lao PDR, by utilizing geographic and economic advantages of Lao PDR.

(2) Logistics Facility Development Strategy in Champasack

As proposed in National Logistics Strategy, explored in Chapter 6 of this report, Champasack is expected to develop regional logistics parks (Detailed in Action No. P112 of the National Logistics Strategy) to improve efficiency of regional logistics system by creating hierarchical logistics network. Champasack and surrounding provinces are also expected to develop international and regional transport routes (Detailed in Action P121 and P122) to speed up travel time of the large vehicles and improve road structure to accommodate larger truck loading: road safety facilities are also expected to be installed.

7.9.5 Champasack Logistics Park

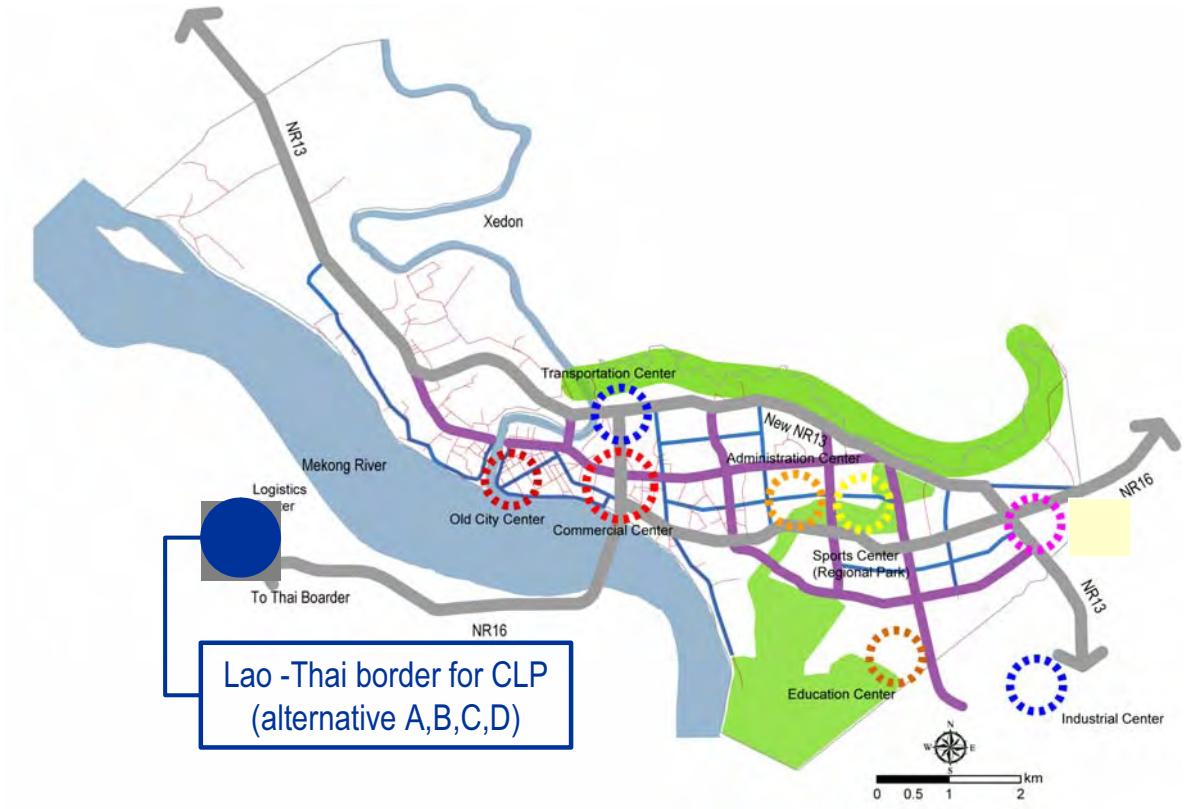
(1) Location

Champasack Logistics Park (CLP) is expected to function as a regional hub of the logistics system in southern Lao PDR targeting mainly imports and exports from/to Thailand as well as acting as a trans-shipment centre for southern Lao PDR. Pakse, provincial center of Champasack province, has grown as an agricultural center in the southern region, such that a logistics hub is needed to serve the function of logistics center for agricultural products. To maximize these functions, alternative locations of CLP were evaluated taking into account the following facets:

- Good accessibility to NR-13N
- Good accessibility to NR-16,
- Suitability for cross-border procedure,
- Accessibility to Pakse but minimum disturbance to urban activities in Pakse

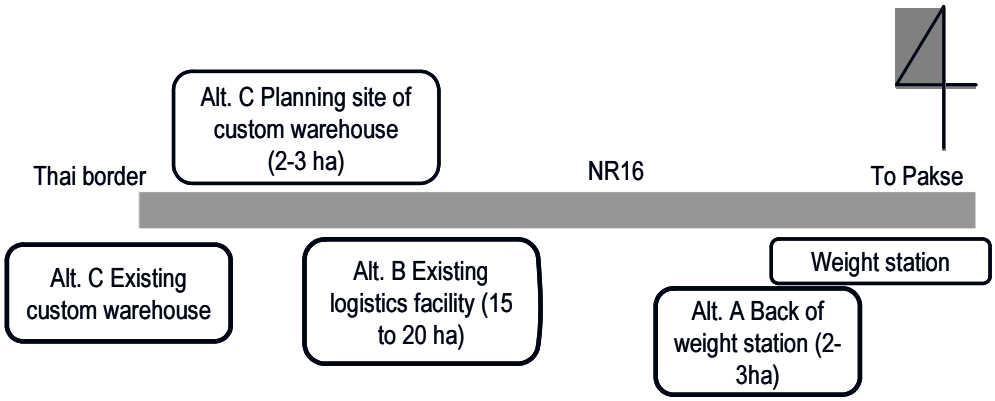
In consideration of the above, 4 alternative locations were evaluated, namely: Site A, Site B, Site C and Site D as shown in Figure 7.8.7. From the alternatives, Site C was selected after a series of stakeholders meetings in Pakse based on the availability of land at the site, accessibility to Thai border and proximity to new customs office.

Detailed location of Site C together with other sites is illustrated in Figure 7.9.8. The site C is located at border area along NR-16 just behind the newly planned customs office site.



Source: JICA Study Team

Figure 7.9.7 Alternative Locations for the Logistics Park in Champasack



Source: JICA Study Team

Figure 7.9.8 Location of the Logistics Park in Pakse (Site C)

(2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the CLP is expected to handle mainly import and export cargo from Thailand. Also, using the trunk road network connecting with Champasack, the CLP is expected to function as the distribution centre for southern Lao PDR. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the VLP is expected to provide the following functions and services.

- Interface with Thailand for import/export cargo
- Integration of cargo flow to and from the surrounding provinces

- Trans-shipment and Consolidation
- Distributive processing for the goods imported from Thailand

(3) Capacity

In the course of the study, the comprehensive freight demand forecast model was developed to foresee the province/commodity-wise freight demand (detailed in Chapter 5 of this report). Based on this future freight demand, the volume of cargo handled at the CLP was estimated for the target years 2015 and 2025 and summarized in Table 7.9.1. The freight demand forecast of the CLP is detailed in a separate volume of the feasibility study report (see the Appendix of this report).

Table 7.9.1 Annual Handling Volumes in 2015 and 2025

Unit: 000 tons

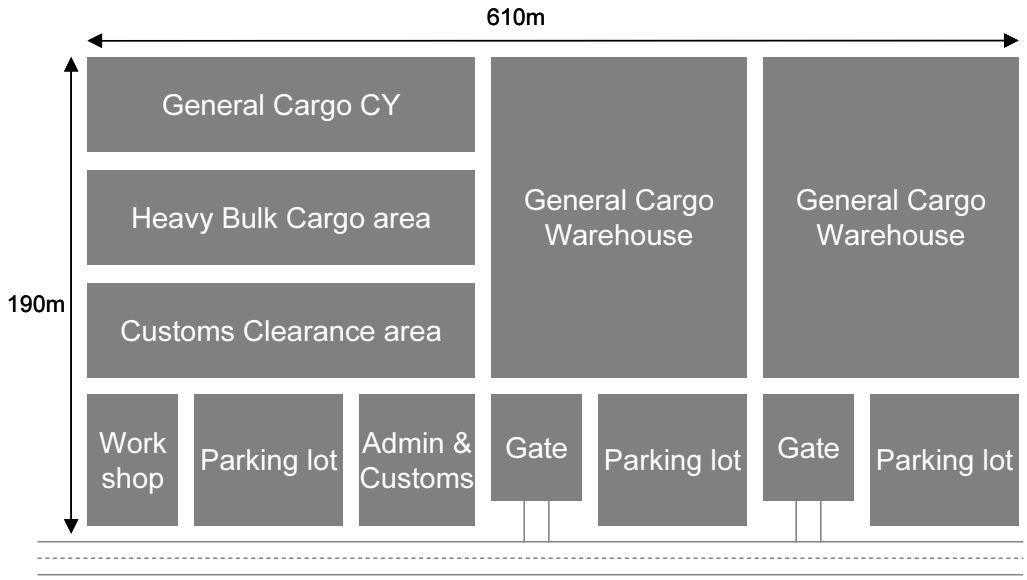
Package Type	2015	2025
Container	16.5	94.4
General Cargo	77.6	199.6
Heavy Bulk	12.3	1.7
Liquid Cargo	0.0	0.0
Total	106.4	295.8

Source: JICA Study Team

(4) Facility Plan

As discussed above, the functions and services provided at the CLP include (i) Interface with Thailand for import/export cargo, (ii) Integration of cargo flow to and from the surrounding provinces, (iii) Inventory and storage services for the areas along Mekong River including Thai side and (iv) Trans-shipment and Consolidation. In consideration of these functions and services, the type and size of logistic facilities at the CLP were planned taking into account the future freight volume. The layout plan of these facilities was prepared considering operational efficiency and security.

The facilities proposed at the CLP include (i) Customs clearance area, (ii) Heavy bulk cargo area, (iii) General cargo CY area, (iv) General cargo warehouse area, (v) Parking lots, (vi) Administration and customs office, (vii) Operator office, (viii) Maintenance workshop. The area required for the CLP was calculated as 11.6 ha.



Source: JICA Study Team

Figure 7.9.8 Layout Plan of CLP

Table 7.9.2 Summary of Total Area required for CLP

	Area (m^2)	Remarks
Customs Clearance area	8,600	
Heavy bulk Cargo area	5,500	
General Cargo CY area	10,600	CY area includes CY, container pool, chassis pool and container washing area.
General Cargo Warehouse area	42,000	
Administration and Customs office	3,800	2 stories: 1,000m^2.
Operator Office	5,500	By 2 operators. Operator office is included near the gate and neighboring warehouse.
Maintenance shop	1,200	
Gate and Weight Station	4,400	2 operators.
Parking Lots	13,800	Aisle is shared by customs clearance and warehouse area. Occupancy area of parking lot is 4800 m^2.
Buffer area	12,700	
Load in CLP	7,700	
Others	100	
Total	115,900	

Source: JICA Study Team

(5) Anticipated Project Cost

Project cost of the CLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at 14.8 million USD (as of November 2009). The detailed project cost of the CLP is separately discussed in the feasibility study report (see Appendix).

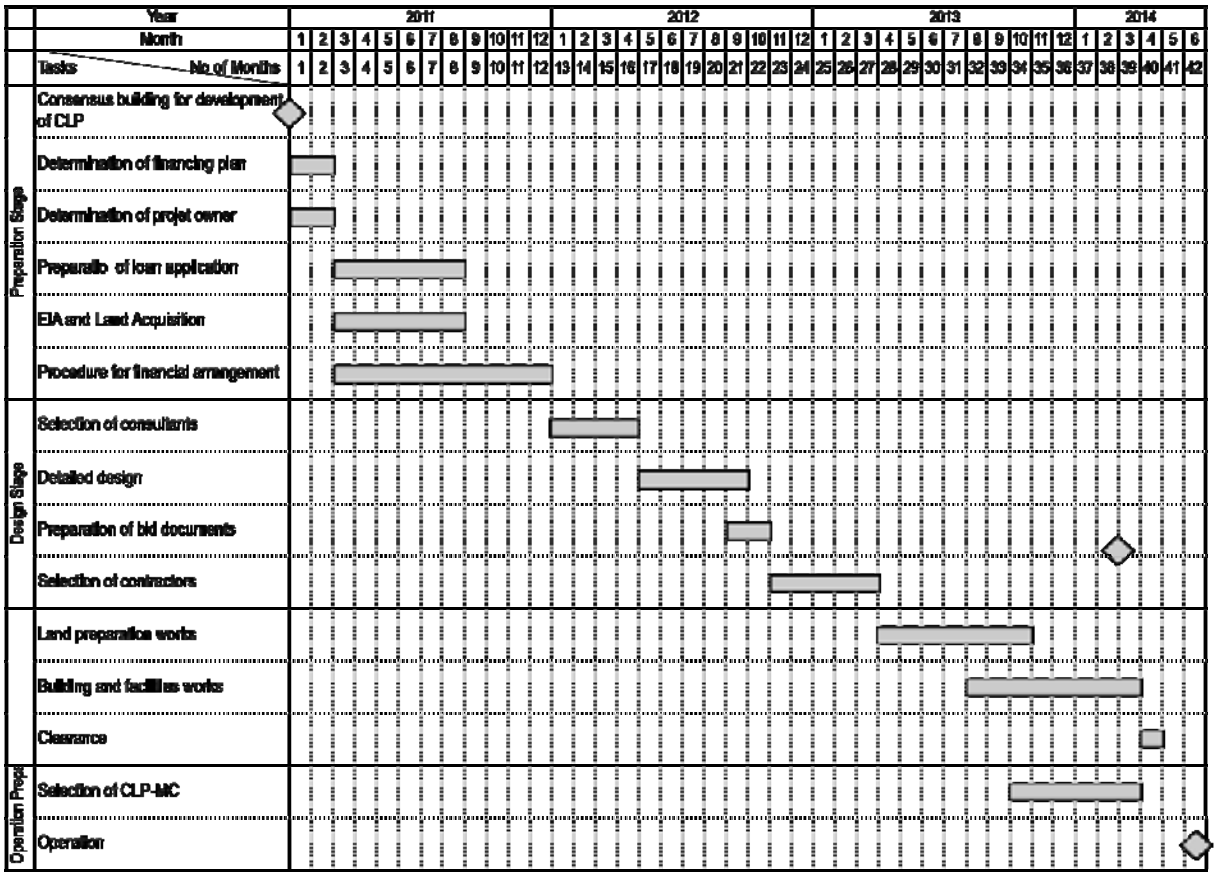
Table 7.9.3 CLP Project Cost

Items		Total Cost (USD)	Remarks
1	Land Preparation Works	5,223,975	
2	Building Works	7,017,760	
3	Total Construction Cost	12,241,735	1+2
4	Administration Cost	367,252	3% of 3
5	Consultant Cost	856,921	7% of 3
6	Contingency	1,309,866	10% of 3+5
7	Total Project Cost	14,775,774	3+4+5+6

Source: JICA Study Team

(6) Implementation Plan

The implementation process is divided into the following 4 stages: preparatory stage, design stage, construction stage and operation stage. It would take 42 months to complete CLP as indicated in Figure 7.2.15. The detailed implementation plan of the CLP is separately discussed in the feasibility study report (see Appendix).



Source: JICA Study Team

Figure 7.9.9 Implementation Schedule

CHAPTER 8 PRELIMINARY IMPLEMENTATION PLAN

8.1 Identification of Projects and Programs

Necessary actions to realize the national logistics strategy are delineated in Chapter 6. Actions are carefully examined to clarify objectives and brief scope to forum as practical project and programs as shown in Table 8.1.1. As a result, 27 of projects and programs are identified under the national logistics strategy.

Figure 8.1.1 Projects and Programs of National Logistics Strategies

No	Strategy	Action	Projects/Program	Code No.	Objectives	Scope
1	Integration of Cargo Flow	Development of Logistics Hub	International Logistics Parks Development Project	P111	• To develop international interface facility in logistics along strategic economic corridors of NR-13N and NR-9	• Construction of logistics parks at Vientiane, Savannakhet and Luangnamtha • Management and operation of logistics parks under PPP
2			Regional Logistics Parks Development Project (P112)	P112	• To improve regional distribution system in Lao by developing regional logistics hub as well as to increase transport volume along the strategic corridors of NR-13N and NR-9	• Construction of regional logistics parks at Huoixai, Muang Xai, Luangprabang, Thakhek and Champasack • Management and operation of logistics parks under PPP
3			Specific Logistics Hubs Development Project	P113	• To develop logistics hub for specific products to promote export of local products and local logistics business	• Construction of Specific logistics parks at Huoixai and Champasack • Management and operation of logistics parks under PPP
4		Improvement of Major Logistics Routes	International Transport Routes Improvement Project	P121	• To improve international logistics routes to form major land transport corridors in GMS through Lao PDR	• Road Improvement in response to larger trucks and trailers • Road Improvement for night driving
5			Regional Transport Improvement Project	P122	• To establish more international sub-corridors connecting surrounding countries to add more cargo flow on the strategic corridors of NR-13N and NR-9	• Road Improvement in response to larger trucks and trailers • Road Improvement for night driving
6		Improvement of Transport Efficiency	Truck Enlargement Program	P131	• To assist private transport company to replace older trucks with larger capacity vehicles to reduce transport costs	• Incentives and financial support • Assist mutual cooperation among logistics businesses
7			Consolidation Promotion Program	P132	• To speed up consolidation cargo transport to reduce transport costs through	• Assist in Standardization and business reliability of logistics businesses

No	Strategy	Action	Projects/Program	Code No.	Objectives	Scope
					improving loading factor	• Incentives and financial support • Assist mutual cooperation of logistics businesses
8			Inter-modality Improvement Project	P133	• To promote usage of railway for freight transport	• Construction of logistics parks at Vientiane
9	Business Stimulation	Attraction of Foreign Logistics Business	Foreign Investment and Partnership Promotion Program	P211	• To promote foreign direct investment in logistics sector	• Incentives
10			Logistics Business Deregulation Program	P212	• To activate logistics market by deregulating logistics business	• deregulation
11			Leading Company Cultivation Program	P221	• To strategically grow local logistics company to adequately compete against foreign logistics companies	• Revision of qualification of registration depending on size and type of business • Grading of company
12			New Business Incubation Program	P222	• To incubate logistics related businesses at logistics parks	• Construction of logistics parks • Formulation of incubation scheme in logistics parks
13			Business Matching and Service Improvement Program	P223	• To assist logistics businesses by providing information on business inquiry, common use of information network at and around logistics parks	• Establishment of business support unit in MPWT • Develop business matching service and Information service
14			Guarantee Association Development Program	P224	• To assist LIFFA to set up guarantee scheme	• Advice to LIFFA on set-up of guarantee association • Reliability support
15			Cargo Liability Development Program	P225	• To develop cargo insurance scheme in Lao PDR	• Design insurance system • Financial support (funding or guarantee etc)
16			Capacity Development Program	P226	• To carry out capacity development program for staff of private logistics businesses and local officers	• Development of training program • implementation
17			Program on Establishment of Office responsible for Logistics	P241	• To integrate and strengthen logistics administration to improve planning and management capacity	• Establishment of logistics office in MPWT • Establishment of individual logistics agencies
18			LIFFA Strengthening Program	P242	• To assist LIFFA to strengthen its function	• Determination of necessary functions • Assistance to strengthen financial basis
19			CBTA Implementation Monitoring Program	P311	• To facilitate practice of CBTA agreements by carrying out monitoring	• Monitoring • Revision of milestones • Evaluation
20			Common Control Area Development Project	P312	• To develop CCAs to facilitate cross-border inspections such as CIQ	• Construction of CCAs • Standardization of operations
21			Cross-Border Checkpoints Standardization Program	P313	• To standardize cross-border operation to ensure reliability of land transport in GMS	• Standardization of operations • Standardization of documentation • Standardization of procedure
22			Tractor Head Exchange System Promotion Program	P314	• To promote tractor change system for increased trans-shipment efficiency	• Construction of logistics parks • Deregulate towing tractor etc.
23			Cross-Border Points Development Project	P321	• To increase cross-border points to facilitate more land transport.	• Improvement of local cross-border points into international cross-border points

24			Customs Facilitation Program	P322	• To promote external trade itself by easing procedure and documentation	• Incentives for good traders • More simple and transparent customs procedure
25			National Single Window Acceleration Program	P323	• To share necessary information at cross-border points which are standardized and integrated with IT technology	• Development of NSW with IT • Development of bridge system among NSW in ASEAN as ASW
26		Liberalization in Logistics Market	Domestic Logistics Market Deregulation Program	P331	• To activate logistics market by deregulating logistics business	• Deregulation
27			Cabotage Deregulation Program	P332	• To expand free market access to GMS by removing Cabotage regulation in GMS	• Deregulation of cabotage

Source: JICA Study Team

8.2 Implementation of the Strategy

8.2.1 Preparatory for Implementation of the Strategy

The national logistics strategy proposes a way to develop logistics system in Laos with maximum benefits from increased cargo volume under the situations of market and economic integration of ASEAN and GMS. The projects and programs above proposed are the actual actions to be taken to realize the strategy. To steadily implement the strategy, MPWT should take at least the following actions as preparatory works to construct steady basement to implement strategy or projects and programs.

(1) Approval of the proposed strategy to be Official Strategy

The status of the strategy proposed in the report is a sort of proposal from JICA Study Team to the MPWT. The strategy should be the strategy of the MPWT. For this purpose, the strategy should be, first of all, approved by higher ranked decision making authority like ministers meeting so on.

(2) Designation of Organization responsible for the National Logistics Strategy

MPWT shall be an authority to take care of logistics administration. It is necessary to establish or assign certain section to dedicate logistics administration. Detailed proposal regarding the responsible organization is described in 8.4.

(3) Determination of Financial Source to implement the Strategy

Financial source to carry out the projects and programs, or more clearly say, foreign donors should be found to fiancé to the projects and programs with careful considerations on implementation under PPP scheme.

Technical assistance will also be necessary to develop capacity in logistics administration as well as logistics business association, so that technical cooperation regarding logistics strategy shall be also necessary to be taken into account.

(4) Confirmation of projects and programs and their Implementation Schedule

Many projects and programs are largely depended upon decision-making of foreign donors due to limit of budget and human resource of MPWT. It affects the implementation schedule so that the MPWT shall review implementation schedule after finding financial source including foreign donor and PPP partner.

8.2.2 Implementation of Projects and Programs under the Strategy

After preparatory actions, the responsible section will carry out the projects and programs based on the implementation plan. The following discussions are proposed implementation phases and schedule.

(1) Overall Phasing

There are 27 projects and programs proposed under the national logistics strategy as described in Chapter 6. The implementation of the strategy is divided into 3 phases to reflect the concept of the development scenario as shown below:

Phase 1: Formulating strategic logistics corridors and preparation of competition and liberalization

Phase 2: Reforming logistics business in Lao PDR based on the strategic logistics corridors

Phase 3: Expansion of logistics service to cover the whole GMS but based in Lao PDR

Logistics development shall start to make efforts to increase the land transport volume via Lao PDR. For this purpose, it is of great importance to integrate the flow of cargo along NR-13N and 9. Physical and institutional privileges are necessary and must be provided for cargo and/or forwarders such that Lao routes are selected by forwarders. As physical privileges, the hub and link system should be developed and cross-border procedures improved so as to ease the process of freight transportation: these are considered actions of the highest priority.

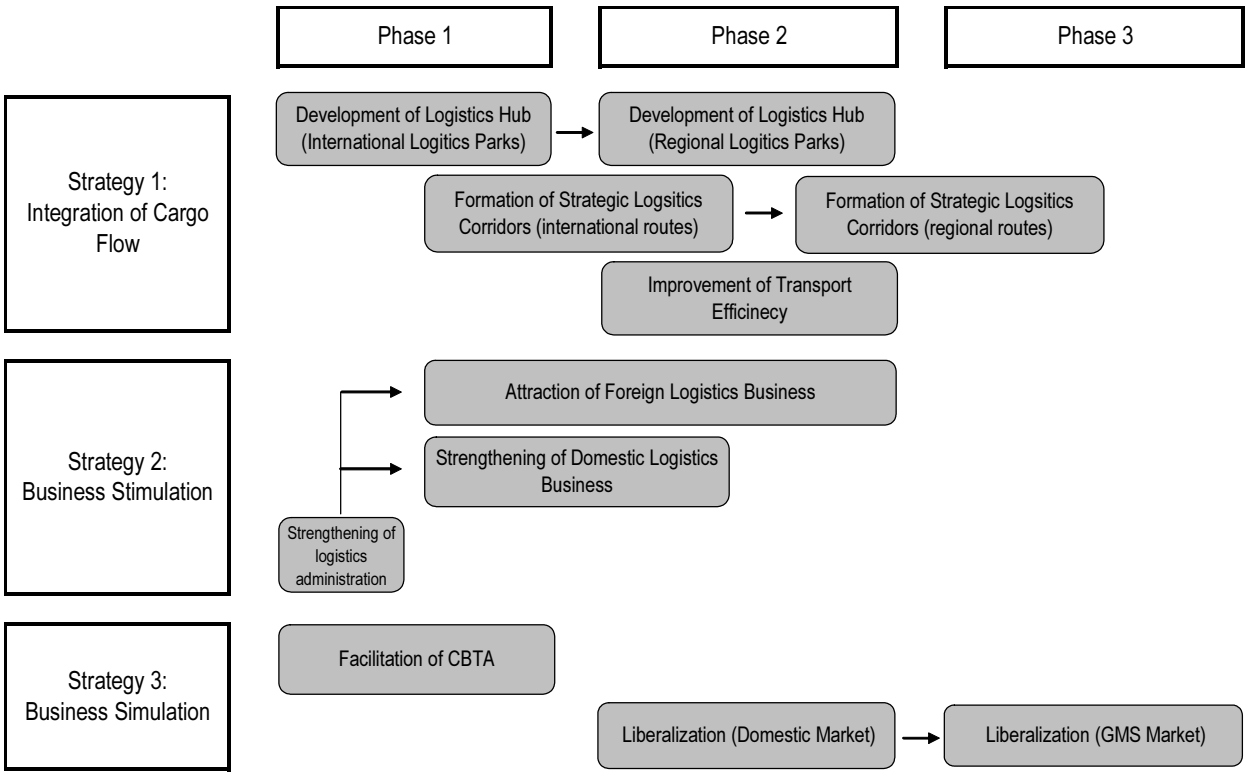
At the 1st stage, it is important to establish cargo flow between Thailand and Vientiane. Vientiane Logistics Park (VLP) is a key facility in handling transit cargo, import/export cargo with Thailand and domestic cargo as well. VLP will also perform as a place to have distributive processing targeting import commodities from Thailand. At the same time, the facilitation, realization and active enforcement of CBTA agreements is urgently required: it is expected that it would help designate strategic logistics corridors in Lao PDR by improving cross-border procedures. Strengthening of logistics administration should be taken into account so as to establish strong implementation body for projects and programs. Then, the local logistics businesses shall be strengthened together with attraction of foreign investment into logistics sector to activate the market as well as to strategically prop up local businesses' competitiveness against the foreign businesses.

For the 2nd stage, VLP and Savannakhet Logistics Park (SLV) would gradually increase transit cargo along NR-13N and NR-9 respectively. In order to add more transport volume, regional logistics parks will be developed based on the network of NR-13N and NR-9 and strategic logistics corridors will be created by up-grading these roads. VLP and SLP will grow up the function of distributive processing services targeting both import commodities and transit cargo. At this phase, Lao PDR should also emphasize acceleration of barrier-free cross-border transport and

trade in GMS. It would also be important for Lao PDR to liberalize the domestic market before other GMS countries; making it a trail-blazer within the GMS.

At the 3rd phase, logistics companies based in Lao PDR will get involved in international logistics business within the GMS, in or outside Lao PDR, under barrier-free cross-border transport and trade circumstances. Lao PDR will also contribute by providing functional highway network and functional logistics parks (basements) to generate more scale merits in the integration of land transport cargo flow via Lao PDR. VLP and SLP will have strategic function of inventory management targeting industries in Vientiane and Savannakhet in addition to the distributive processing services targeting both import commodities and transit cargo.

The logistics development scenario based on the implementation of the development strategies mentioned above is illustrated in Figure 8.1.1.



Source: JICA Study Team

Figure 8.2.1 Overall Development Phasing

(2) Implementation Schedule

Implementation schedule for each project/program is determined based on the overall development phasing plan mentioned above.

Figure 8.2.2 shows the output on the subject of the preliminary implementation schedule for each project/program.

No.	Code No.	Strategy	Action	Projects/Program	Resposible Organization	Implementation Schedule			Project Cost (Million USD)
						Short (2010-2015)	Mid (2015-2020)	Long (2020-2025)	
1	P111	Integration of Cargo Flow	Development of Logistics Hub	International Logistics Parks Development Project	MPWT				40
2	P112			Regional Logistics Parks Development Project	MPWT, Province				22
3	P113			Specific Logistics Hubs Development Project	MPWT				7
4	P121		Improvement of Major Logistics Routes	International Transport Routes Improvement Project	MPWT				5
5	P122			Regional Transport Improvement Project	MPWT				60
6	P131		Improvement of Transport Efficiency	Truck Enlargement Program	MPWT				2
7	P132			Consolidation Promotion Program	MPWT				
8	P133			Inter-modality Improvement Project	MPWT				
8	P141		Provision of Value Added	Attraction of Distributive Processing	MPWT				
9	P211	Business Stimulation	Attraction of Foreign Logistics Business	Foreign Investment and Partnership Promotion Program	MPI,MPWT				
10	P212			Logistics Business Deregulation Program	MPWT,MIC,MPI				
11	P221		Strengthening of Domestic Logistics Business	Leading Company Cultivation Program	MPWT				
12	P222			New Business Incubation Program	MPWT,MPI				
13	P223			Business Matching and Service Improvement Program	MPWT				0.5
14	P224			Guarantee Association Development Program	PMWT,LIFFA				2
15	P225			Cargo Liability Development Program	PMWT,LIFFA, MPI				2
16	P226			Capacity Development Program	MPWT				
17	P241		Strengthening of Logistics Administration	Program on Establishment of Office responsible for Logistics	MPWT				
18	P242			LIFFA Strengthening Program	MPWT,LIFFA				
19	P311	Market Expansion	Facilitation of CBTA	CBTA Implementation Monitoring Program	MPWT,MOF(C), Police				
20	P312			Common Control Area Development Project	MPWT,MOF(Customs)				3
21	P313			Cross Border Checkpoints Standardization Program	MOF(Customs),Police				
22	P314			Tractor Head Exchange System Promotion Program	MPWT				
23	P321		More Improvement of Cross Border	Cross Border Points Development Project	PMWT,MOF(C), Police				1
24	P322			Customs Facilitation Program	MOF (Customs), MIC				
25	P323			National Single Window Acceleration Program	MOF (Customs)				1
26	P331		Liberalization in Logistics Market	Domestic Logistics Market Deregulation Program	PMWT,MPI				
27	P332			Cabotage Deregulation Program	PMWT,MPI				

Source: JICA Study Team

Figure 8.2.2 Implementation Schedule (Preliminary)

8.2.3 Priority Projects and Programs

9 projects and programs are identified to be implemented in the short term, namely:

- International Logistics Parks Development Project (P111)
- Leading Company Cultivation Program (P221)
- Program on Establishment of Office responsible for Logistics (P241)
- LIFFA Strengthening Program (P242)
- CBTA Implementation Monitoring Program (P311)
- Common Control Area Development Project (P312)
- Cross-Border Checkpoints Standardization Program (P313)
- Customs Facilitation Program (PP322)
- National Single Window Acceleration Program (P323)

Out of the 9 projects and programs above, P312, P313, P322 and P323 have already commenced to a certain extent. It is of great importance to continue and accelerate actions to be taken.

As mentioned in the development scenario in Chapter 6, International logistics parks have important roles to play in the integration of cargo flow which would trigger the increase in cargo volume passing through Lao PDR by reducing logistics costs. On the other hand, the Vientiane Logistics Park (VLP) is an important facility in carrying out distributive processing in Vientiane (as are other International Logistics Parks in their respective regions): this may largely contribute to increase in transit cargo volume in VLP by providing value-added to VLP and the NR 13N transit route. Accordingly, the implementation of International Logistics Parks Development Project (P111) shall be given highest priority: the implementation will act as a trigger for logistics development in Lao PDR.

8.3 Implementation Cost of National Logistics Strategy

The total cost to implement national logistics strategy is approximately 145.5 million USD. This implementation cost covers only the investment cost to implement the strategy: necessary costs from ordinary expenditure to carry out the strategy are not considered.

Out of the total cost, approximately 46.5 million USD is needed in the short-term, 59 million USD in the medium-term and 40 million USD in the long-term. In terms of strategy, approximately 136 million USD is needed for implementation of projects and programs under strategy 1. 4.5 million USD is needed for implementation of projects and programs under strategy 2 while 5 million USD is needed for implementation of those under strategy 3. Among the projects and programs, construction of logistics parks and improvement of roads are greatly dominant relative to other projects and programs as a result of exclusion of ordinary expenditure from the implementation of the strategy.

Table 8.3.1 summarizes the necessary investment expenditure (cost estimates) of the strategy.

Table 8.3.1 Implementation Cost of National Logistics Strategy

Strategy	Short –Term (2010-2015)	Medium-Term (2015-2020)	Long-Term (2020-2025)	Total
Strategy 1: Integration of Cargo Flow	42.5	53.5	40.0	136
Strategy 2: Business Stimulation	0	4.5	.0.0	4.5
Strategy 3: Market Expansion	4.0	1.0	0.0	5.0
Total	46.5	59.0	40.0	145.5

Source: JICA Study Team

8.4 Organization and Institutional Arrangements

8.4.1 Responsible Organization

(1) Ministry of Public Works and Transport

The Ministry of Public Works and Transport (MPWT) is defined as an authority at the central level both for transport and urban sectors. It was transformed and renamed from the former Ministry of Communication, Transport, Post and Construction in November 2007. The Prime Minister's Decree No.373/PMO, 22 October 2007, assigns the Ministry of Public Works the following duties:

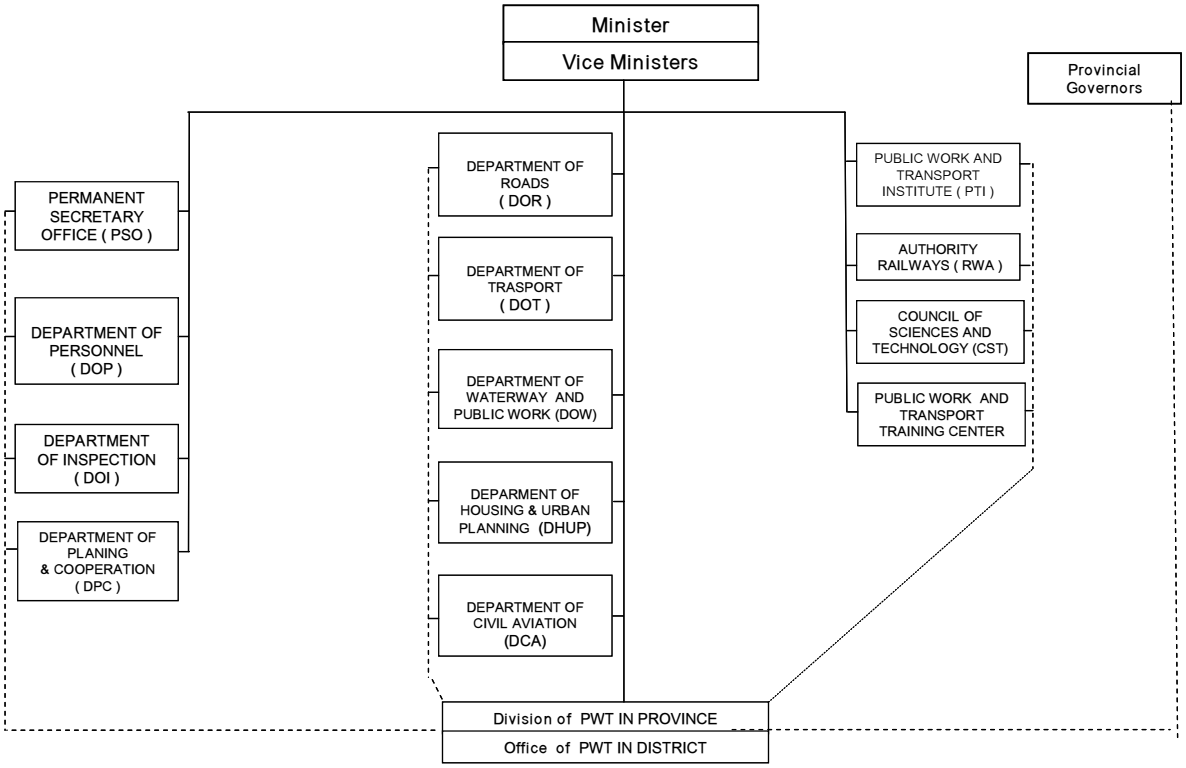
- Draft policy and strategy plans under jurisdiction of the Public Works and Transport and propose them to the government;
- Concretize and streamline the state and Party Policy related to Public Works and Transport into laws, rules and regulations;
- Manage, improve and expand all kinds of road networks, riverbank protection works, manage transport system by road, inland water, air, railway transport, urban planning and water supply management over the country;
- Manage the training program for ministry staff;
- Supervise and inspect all works under the Public Works and Transport;
- Plan and manage the budget;
- Supervise, inspect and manage the operation of the various technical units and its business production under jurisdiction of the Public Works and Transport in accordance with the rules, regulations, laws, standards and technical terms imposed by the state;
- Determine the activities and rules including an organizational chart, staffing, positions and staff level regulation; and
- Seek for internal and external sources of funds in order to improve and expand activities of the Public Works and Transport and develop them in accordance with the government plan.

MPWT is currently comprised of 8 departments, subsidiary agencies and provincial offices including: Department of Personnel (DOP), Inspection (DOI), Planning and Cooperation (DPC), Roads (DOR), Transport (DOT), Waterway and Public Works (DOW), Housing and Urban Planning (DHUP) and Civil Aviation (DCA), Public Work and Transport Institute (PTI), National Railways Authority (NRAL), Council of Sciences and Technology (CST) and Public Works and

Transport Training Center.

The DOR is responsible for construction and maintenance of all road networks in Lao PDR including national, provincial, district and rural roads, while the DOT has jurisdiction over road transport control and management such as vehicle registration/inspection, driving licenses and traffic safety management. Logistics is a newly identified field of service in the MPWT: it will fall under the realm of DOT.

Current organizational chart is illustrated in Figure 8.4.1.



Source: MPWT (2009) The Initiative in Transport Development in Lao PDR

Figure 8.4.1 Organizational Structure (Ministry of Public Works and Transport)

(2) Overlapping and Fragmented Jurisdiction

In the context of logistics, jurisdiction among the concerned ministries is fragmented and over-lapping. Even though DOT is the responsible agency in MPWT, some other agencies also handle logistics matters or other closely-related fields of service. Table 8.3.1 summarizes the roles and responsibilities of the concerned ministries. There is no sole agency which creates logistics policy guidelines. Ministry of Public Works and Transport is currently making effort to formulate a nation-wide logistics development strategy with the support of Japan and ADB. Under this ministry, a National Transport Facilitation Committee was established to facilitate cross-border transport between neighboring countries. The Ministry of Industry & Commerce is separately working on the development of a trade facilitation policy and is expected to create a National Trade Committee.

The Secretariat of GMS of Prime Minister's Office (PMO) is expected to take initiative in coordinating cross-border trade and transport facilitation exercises among the countries. However, there seems to be no capacity to do so in terms of human and financial resources. Institutional weakness is also pointed out since the Secretariat of GMS is one of the units of Water Resource

and Environment Administration (WREA) and is headed by the General Director. Accordingly, in reality, it plays the minimal role of organizing workshops with the support of ADB and reporting to the Head of Water Resource and Environment Administration.

Table 8.4.1 Ministerial Roles and Responsibilities in Logistics Service/Infrastructure Development

Roles/Ministries	Prime Minister's Office	Planning and Investment	Finance	Health	Public Security	Industry and Commerce	Public Works and Transport
Policy Making	Y	Y				Y	Y
Planning			Y	Y	Y		Y
Investment			Y	Y	Y		Y
Operation/Management			Y	Y	Y	Y	Y
Monitoring		Y	Y	Y	Y	Y	Y
Infrastructure Development			ICD, Cross Border Facility	Cross Border Facility	Cross Border Facility	ICD	Road, Railway, Civil Aviation, Inland water

Note: Y indicates ministry has roles and responsibilities in the project cycle, but does not necessarily mean the ministry plays its role in practice.

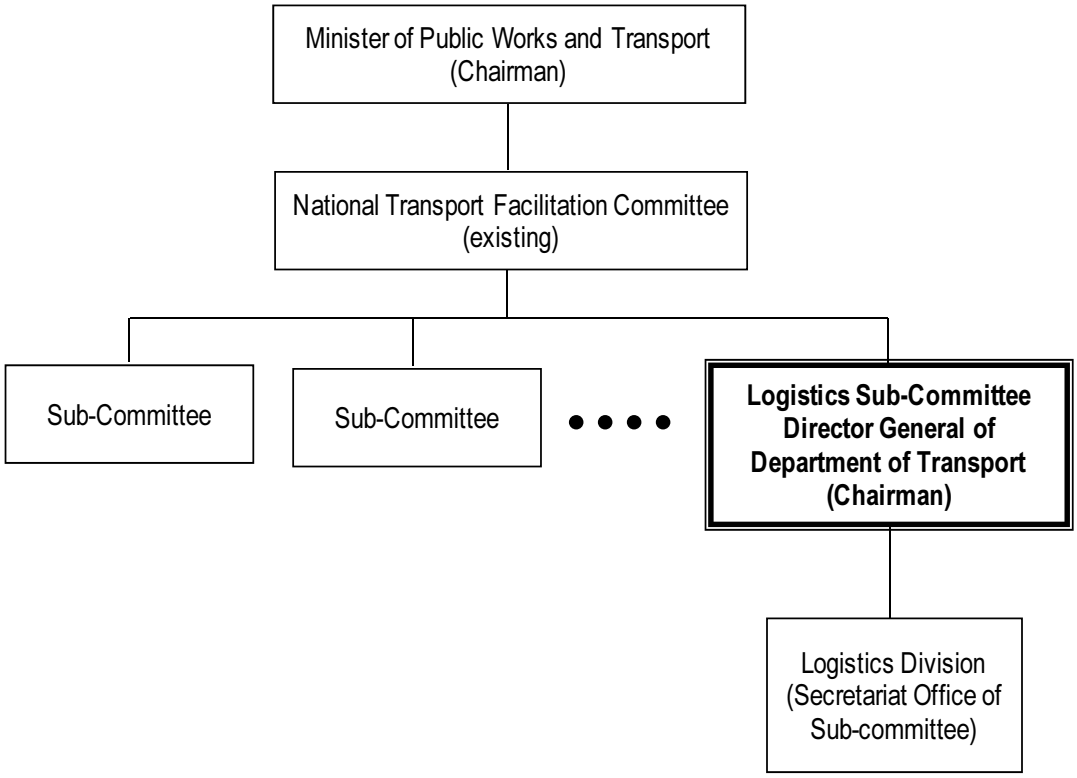
Source: JICA Study Team

(3) Establishment of Responsible Office for Logistics Administration

Proposed national logistics strategy consists of several projects and programs under the present jurisdiction of concerned agencies. It is of great importance to properly coordinate the various concerned agencies so as to effectively implement the proposed projects and programs. For this purpose, the establishment of national logistics sub-committee and logistics division in the DOT as a secretariat office for the sub-committee are recommended.

1) National Logistics Sub-committee

It is proposed that the National logistics sub-committee be established under the existing National Transport Facilitation Committee (the Committee) as a sub-committee dedicated to discussing and dealing with logistics. The sub-committee would discuss subjects concerning logistics at the behest of the Committee and would then present the results after the discussions. The Committee would then convey the results to the Minister of Public Works and Transport to take action. The sub-committee shall discuss logistics policy and strategy for Lao PDR.



Source: JICA Study Team

Figure 8.4.2 Logistics Sub-Committee

The committee shall be headed by the Director General of DOT and will be comprised of representatives from all agencies concerned and private logistics businesses such as:

- Department of Transport
- Department of Roads,
- Customs Department (Ministry of Finance)
- Immigration Department (Police Department) and Quarantine Office (Ministry of Agriculture)
- External Trade Department (Ministry of Commerce and Industry)
- LIFFA
- Truck Association
- Lao Chamber of Commerce

The logistics division shall be a secretariat office for the sub-committee to manage committee meetings as shown in Figure 8.4.2.

2) Logistics Division

The Logistics Division should be established under the Department of Transport to function as a secretariat office for the national logistics sub-committee. It will also act as coordinator for several concerned agencies in the administration of logistics through the following major activities:

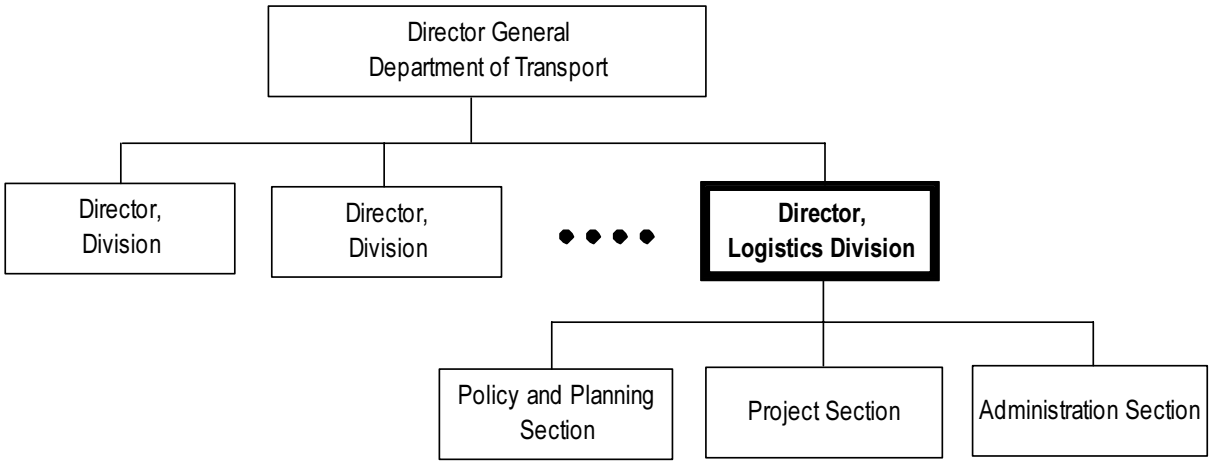
- Secretariat for the national logistics sub-committee
- Policy and planning in logistics development
- Project planning and implementation in logistics project such as logistics parks development

To carry out the tasks relevant to the above activities, the logistics division should have at least 3 sections, namely: 1) policy and planning section, 2) project section and 3) administration section as shown in Table 8.4.2 and Figure 8.4.3.

Table 8.4.2 Tasks of Logistics Division

Section	Tasks
Policy and Planning Section	• Secretariat for the national logistics sub-committee • Coordination of other agencies concerned with logistics • Policy making, master planning, strategic planning in logistics development • Foreign relations regarding logistics such as CBTA, bi-lateral agreements etc.
Project Section	• Project planning for projects such as logistics parks • Operation of logistics parks • Supervision of contractors in logistics parks
Administration Section	• EIA, land acquisition • Financial planning • procurement • personnel, accounting and management of the division

Source: JICA Study Team



Source: JICA Study Team

Figure 8.4.3 Logistics Division (tentative) in DOT

8.4.2 Strengthening of LIFFA

The private associations in logistics will be increasingly important to serve several functions such as liability insurance, cargo guarantee, financial support, staff training and information services, in order to expand logistics business in Lao PDR and GMS. The most potent organization that can

play that role is the Lao International Freight Forwarders Association (LIFFA), which is an existing private association of freight forwarders in Lao PDR. LIFFA acts as an amalgamation of associations of freight forwarders from foreign countries. However, LIFFA has a very weak financial base with very limited number of members, which limits the number of activities that LIFFA can engage in and prevents it from having a dedicated secretariat office. It is strongly recommended that LIFFA be strengthened so as to function properly. In this regard, it is proposed that a dedicated secretariat office be set up for LIFFA and several committees be instituted within it to carry out the tasks as shown in Table 8.4.3.

Table 8.4.3 Committees within LIFFA

Committee / Office	Tasks
GMS Policy Committee	• Policy recommendations to the government • Study of CBTA, bilateral agreements • Study standardized contract formats, agreements • Foreign relations
Business Supports Committee	• Study and present recommendations on liability insurance system • Cargo Guarantee system • Business matching and information system
Training and Capacity Development Committee	• Workshop, seminar on logistics business • Training in Language skills • Training in IT • Training in management skills in middle class
Secretariat Office	• Secretarial works for LIFFA and committees • Member support • Common purchasing and sharing system for members • Personnel, accounting and management of the division

8.4.3 Organization of Logistics Parks

There are many actions that should be done in order to create logistics parks. There are several potential project implementation bodies for implementation of logistics park development projects such as DOT of MPWT, local government, Ministry of Commerce and Industry, and private sector. Since logistic parks play a key role as strategic facilities in carrying out the national logistics strategy, it is desirable to have significant public involvement for at least a certain period. Due to inadequate experience in project management in local government, the DOT should take the reins in implementing the logistics park development project.

In DOT, the newly proposed “Logistics Division” or more specifically, the project section of the logistics division, shall handle the logistics park project implementation: it will be responsible for project formation activities for logistic parks and project implementation.

8.5 Attraction of Foreign Investment

The National logistics strategy is required to improve competitiveness of Lao PDR as logistics route, as market and as business environment for logistics businesses. In this sense, foreign

investment is essential for implementation of the national logistics strategy due to inadequate accumulation of capital, technology, business know-how and human resources in Lao PDR. There are mainly 3 necessities, namely:

- Transparency in market
- Provision of flexibility in business
- Incentives

8.5.1 Transparency in Market

Market transparency is a prerequisite for foreign investment. This is true not only for logistics businesses but other businesses as well. The problem concerning market transparency is the existence of a sort of "Grey Zone "in the regulations, which cannot be explicitly described in the regulations, leaving room for different interpretation of regulations by various concerned parties. According to the interview survey of private companies, many private companies consider the market transparency to be a more important factor than incentives in attracting foreign investment. This "grey zone" generates uncertainty and risk in business, leading to an air of uncertainty in the future business plans of the companies. It is obvious that private companies prefer standardized interpretations of regulations. To achieve this, it is necessary to make great effort in minimising the loopholes that induce personal discretion in interpretation of regulations as much as possible.

However, modifications of regulations or preparation of detailed standardised interpretation and manuals of the regulations will require a long time to complete. In this regard, "Trouble Shooting Office" for foreign investors is a proven approach applied by many industrial estates/parks in Asia.

8.5.2 Provision of Flexibility in Business

Private businesses generally tend to require alteration of business models in accordance with changes in business environment such as changes in demand, competitors and business climate. Accordingly, it is very important for a private business to maintain flexibility in both production and market. The same can be said for foreign investors in Lao PDR's logistics industry. Looking into current business opportunities in logistics in Lao PDR, logistics businesses related to export and import with Thailand may have the largest potential for growth which may induce foreign investors to formulate their business models based on the prevalent potentialities. It is of great importance to private businesses that they are able to flexibly change their business models in accordance with changes in business potential and risk. To put it more explicitly, it is important to the foreign investors that they are able to change clients, change use of factories and land in response to changes in business climate.

8.5.3 Incentives

Incentives system is a popular tool used to attract investment. Several incentives are given to the foreign investors even currently in Lao PDR. Since Lao PDR is a latecomer to industrialization compared to Thailand and Vietnam, there is a great need for Lao PDR to offer better incentives to compete favourably against them in attracting foreign investment. It is also necessary to consider the competition from fellow latecomers such as Cambodia, Myanmar, and even Bangladesh and Sri Lanka in attracting foreign investment. Among incentives, tax reduction is a major tool: there are many other potential incentives, however. Lao Government should consider variety of

incentives from various aspects which can generate a more attractive business environment compared to its competitors. As regards foreign investment in logistics, the following are potential tools that could be used:

- Work permits for foreigners
- Tax reduction for foreign businesses
- Percentage of foreign capital in investment
- Acceptable business in SEZ
- Length of tax free period in the logistics parks

CHAPTER 9 ECONOMIC ANALYSIS

9.1 Economic Effects of the National Logistics Strategy

9.1.1 Direct Effects and Indirect Effects

Economic effects generated from the National Logistics Strategy are divided into direct effects and indirect effects. Direct effects are directly generated from 3 strategies: “Integration of Cargo Flow,” “Business Stimulation,” and “Market Expansion”. The direct effects will bring about reduction in logistics costs.

Indirect effects are caused by reduction in logistics costs. They have an impact on both the supply and demand aspects of the national economy, and finally contribute to an increase in the GDP.

9.1.2 Direct Effects

Figure 9.1.1 indicates direct effects of the National Logistics Strategy. Implementation of the 3 strategies which include 27 projects and programs generates the following 6 effects:

- Increase in cargo volume across Lao PDR,
- Decrease in empty return haulage,
- Reduction in travel times along international and regional logistics routes and reduction in trans-shipment time at logistics hubs, and
- Introduction of freight train at VLP.

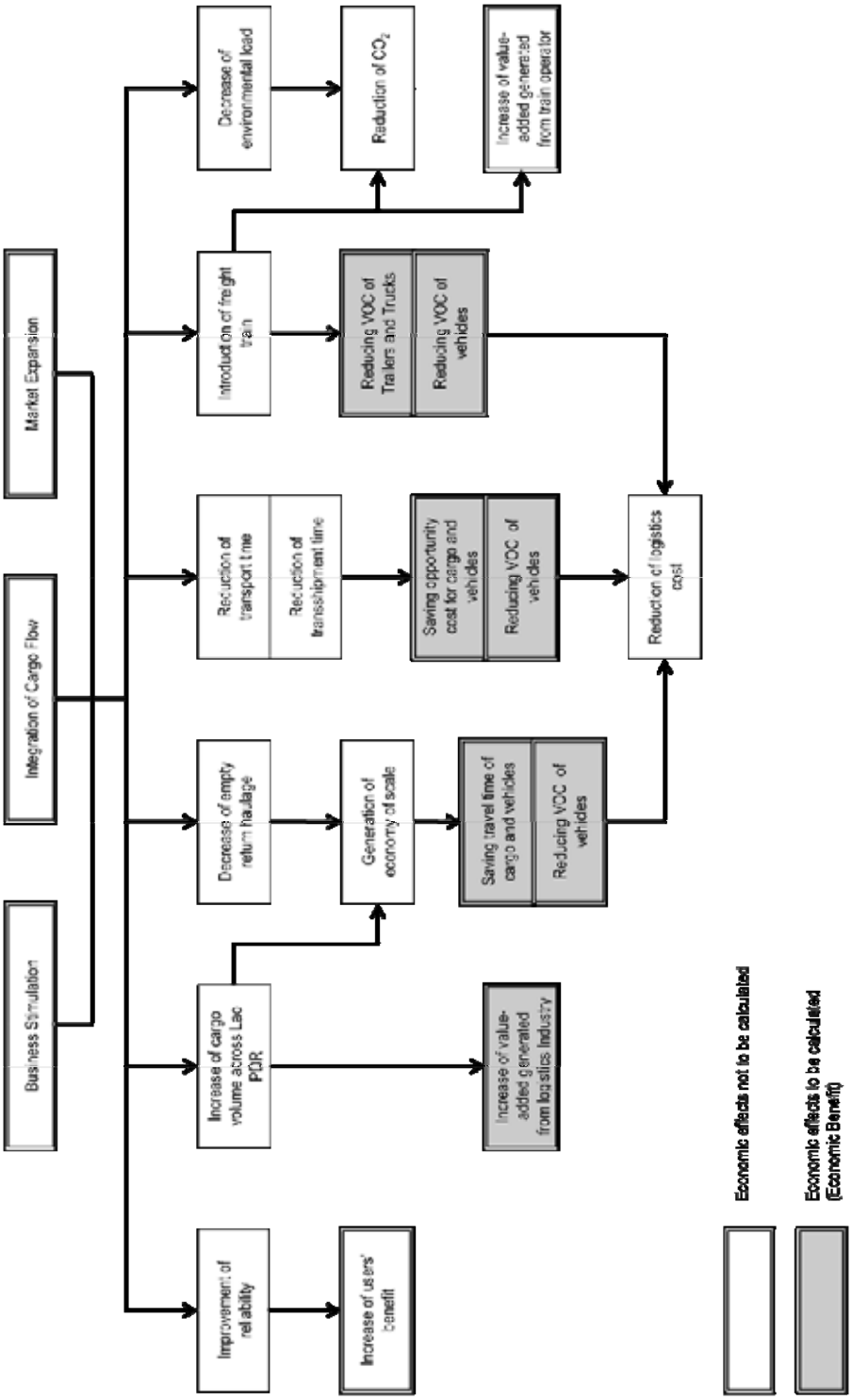
These effects generate “savings in opportunity cost of cargo and vehicles,” reduction in vehicle operation costs (VOC)” and “increase in value-added generated from logistics industry.” These effects are measured as economic benefits and included in calculation of EIRR in 9.2.4.

Furthermore, the implementation of the National Logistics Strategy generates the following effects:

- Improvement of reliability in logistics due to improvement of inventory function at logistics hubs;
- Decrease of environmental load.

Improvement of reliability in logistics is an important effect of the National Logistics Strategy; however, it is almost impossible to quantify as a benefit to logistics service users. The decrease of environmental load is also one of the direct effects of the National Logistics Strategy. It is possible to measure reduction in CO_2 emissions caused by reduction in travel distances and transition from

road transport to railway transport. However, this effect is not included as part of the economic benefits in the EIRR analysis. Savings in travel time of cargo and vehicles, and reduction in VOC eventually induce reduction in logistics costs. The reduction in logistics costs will be one of the factors to accelerate national economic development.



Source: JICA Study Team

Figure 9.1.1 Direct Effects of National Logistics Strategy

9.1.3 Indirect Effects

Figure 9.1.2 indicates indirect effects of the National Logistics Strategies. The effects can be classified into 3 categories, namely: (1) effects on consumer goods which could be translated as effects on the demand side; (2) effects on intermediate goods which could be translated as effects on the supply side, and; (3) effects on logistics industry.

Reduction in logistics costs, which is the end-result of direct effects, is the starting point for the indirect effects. The reduction in logistics costs brings about reduction in prices of consumer goods. The reduction relies on the price elasticity of demand. For instance, the demand for foods with low price elasticity does not change a great deal yet demand for most goods tends to increase when their prices drop. Consumers can thus enjoy the consumer goods in terms of price and consumption volume; hence the benefits accrued from the goods increase[1].

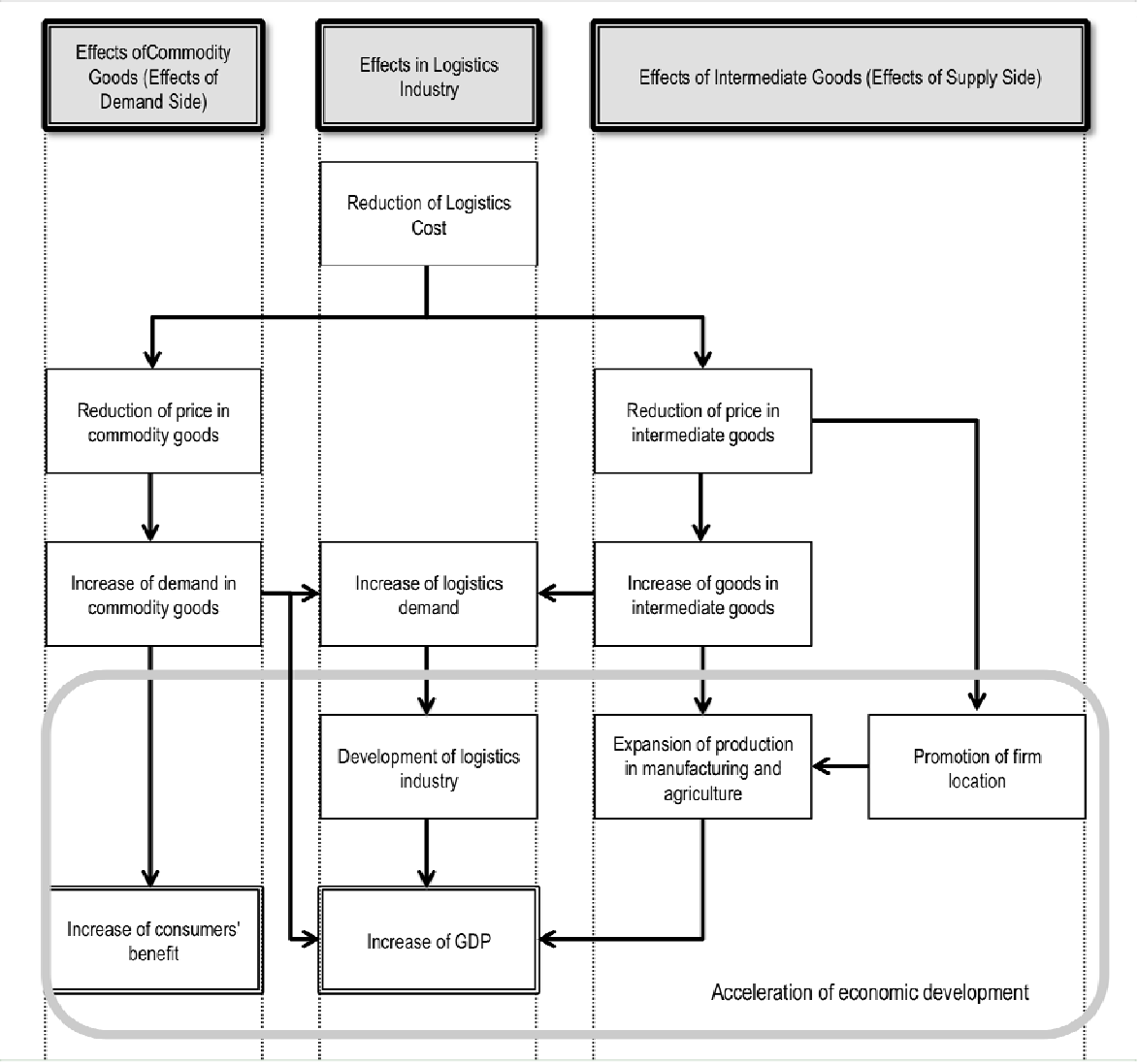
The second group of the indirect effects also arises out of the reduction in logistics costs. The reduction in logistics costs leads to diminution of prices of intermediate goods. Intermediate goods are parts or components of the final assemblies of goods such as vehicles, electric machines, electric appliances and fertilizer. As is the case with the consumer goods, demand for the intermediate goods will increase: this will bring about expansion of production in manufacturing and agriculture. Reduction in prices of intermediate goods also improves investment environment, and promotes foreign direct investment in Lao PDR. Expansion of existing entities in manufacturing and agriculture and establishment of new business entities through foreign direct investment increases production volume of manufactured goods and agricultural goods.

Increase in demand for consumer goods and intermediate goods has an impact on the logistics industry. Demand on the logistics industry is boosted and the logistics companies eventually increase in terms of number and scale. The industry also generates employment.

Therefore, the end-results of the 3 categories of indirect effects are: increase in consumers' benefits; expansion of production in manufacturing and agriculture and; development and job creation in the logistics industry. The end-results ultimately contribute to increase of GDP. Hence, implementation of the National Logistics Strategy accelerates national economic development.

If Input-Output Table were developed and reduction in logistics costs were set, it would be possible to analyze the push-up effect of GDP under implementation of the National Logistics Strategy. However, it is difficult to calculate the effect for Lao PDR given the present level of data availability.

[1] This situation can also be referred to as "increase in consumers' surplus" in economics term.



Source: JICA Study Team

Figure 9.1.2 Indirect Effects of National Logistics Strategy

9.2 EIRR Analysis

9.2.1 Basic Assumptions

The Economic Internal Rate of Return (EIRR) of the National Logistics Strategy (NLS) was calculated and evaluated in this section. First of all, the following basic assumptions were employed:

- Methodology of economic analysis: In this analysis, the economic costs and economic benefits of the 27 projects and programs in the National Logistics Strategy were consolidated and treated as a single project.
- 'With-project' case and 'Without-project' case: The 'With-project' case in this analysis considers a situation where all the 27 projects and programs are conducted, while the 'Without-project' case is one where all the 27 projects and programs are not conducted.

- Project implementation schedule: Development of logistics hubs and improvement of international and regional logistics routes consists of 2 years of engineering service, 3 years of construction. The implementation period lasts until 2045 i.e., 35 years from commencement of the National Logistics Strategy.
- Lifetime: Lifetime for civil works in the logistics hub and logistics routes in the projects is assumed to be 30 years.

9.2.2 Economic Benefits

(1) Benefits of logistics hub development projects

Economic benefits calculated in separate feasibility studies were utilized for logistics parks in Vientiane, Savannakhet and Champasack. For other logistics parks and logistics hubs in Vientiane, Champasack, Luangnamtha, Luangprabang, Thakhek and Huoixai, economic benefits were estimated from these feasibility studies. In particular, the figure in Savannakhet Logistics Park was employed in this estimation. Table 9.2.1 indicates economic benefits of logistics hub projects.

Table 9.2.1 Annual Economic Benefits of Logistics Hubs in 2025, 2035 and 2045

Unit: USD million

Project	2025	2035	2045
P111 International Logistics Parks Development Project	19.0	20.2	20.2
P112 Regional Logistics Parks Development Plan	5.3	10.1	10.3
P113 Specific Logistics Hub Development Project	1.8	5.1	5.1

Source: JICA Study Team

(2) Benefits from improvement of transport efficiency

Improvement of transport efficiency, which consists of truck enlargement program, consolidation promotion program and inter-modality improvement program, brings about an increase in return haulage and reduction in transport costs as described in 6.2.2 (2) and (3). Such benefits can be specified as reductions in VOC and savings in travel time for cargo and vehicles. Table 9.2.2 shows differences in travel length and travel time between 'With-NLS' and 'Without-NLS' scenarios as well as quantities of VOC reduction and travel time savings in 2025.

Table 9.2.2 Economic Benefits of Improvement of Transport Efficiency in 2025

	Travel length		Travel time	
	w/o NLS	with NLS	w/o NLS	with NLS
Reduction in travel length (1000 vehicle km)	8,996	8,551	-	-
Travel time saving (1000 vehicle hours)	-	-	152.3	136.9
VOC Reduction (USD million)	213		-	
Value of travel time savings (USD million)	-		31	

Source: JICA Study Team

(3) Benefits from International Transport Routes Improvement Project

Economic benefits are also quantified for the International Transport Routes Improvement Project

(P113). Main component of the project is improvement of night-driving environment along NR-13 and NR-9. The benefit of the project is savings in travel costs for cargo and vehicles.

Currently, driving time lasts for about 12 hours a day from 6:00hrs to 18:00hrs along these international transport routes. It is assumed that driving time would be lengthened to 14 hours a day, from 6:00hrs to 20:00hrs (an increase of 17%). It is also assumed that cargo transport volume along NR-13 and NR-9 accounts for 50% of the total cargo transport volume in Lao PDR. According to vehicle registration data in 2009, proportion of registered cargo vehicles (trucks and trailers) to the total are 44% for Vientiane Capital, 10% for Vientiane Province, 10% for Savannakhet Province and 7% for Champasack Province.

Table 9.2.3 Economic Benefits of International Routes Improvement Project

	2025	2035	2045
Savings in travel time of cargo and vehicle (1000 vehicle hours)	11.6	22.6	33.6
Value of travel time of cargo and vehicle (USD million)	0.2	0.5	1.0

Source: JICA Study Team

In addition to the International transport routes improvement project, regional transport improvement project will also generate economic effects such as reduction in VOC and savings in travel time. However, these effects are not included as economic benefits due to limited transport volume and difficulty in forecasting of demand.

9.2.3 Economic Costs

Costs for projects and programs are indicated in Figure 8.1.1. These costs include consultant service costs, administration costs and contingency; the contingency was excluded so as to determine an economic cost.

For development of logistics hubs (P111, P112 and P113) and improvement of major logistics routes (P121 and P122), operation and maintenance costs were estimated. For logistics hubs, cost figures determined in feasibility studies were used for logistics parks in Vientiane, Savannakhet and Champasack, while the operation and maintenance costs were estimated for other logistic parks/hubs.

Operation and maintenance costs of improved transport routes were also calculated. The International transport routes improvement project aims to improve night-time driving environment by setting up small equipment such as cats eye, etc; therefore, the operation and maintenance costs would not be incurred for this project. Contrarily, the Regional transport improvement project, which includes rehabilitation and construction of pavements of national roads, would require consideration of operation and maintenance costs. Another JICA Study titled “Preparatory Study on Improvement of Roads and Bridges in the south region in Lao PDR” prepared operation and maintenance costs for paved national roads. According to the economic analysis of the study, average operation and maintenance costs for pavement road with DBST amounts to 2% of construction cost.

9.2.4 Calculation of EIRR

Table 9.2.4 indicates economic costs and economic benefits of the National Logistics Strategy, net cash flow and EIRR of the strategy. EIRR falls below the opportunity cost of capital which is set at

12%. On the other hand, EIRR of the National Logistics Strategy excluding improvement of the international and the regional transport routes (USD65 million in total) amounts to 14.1%.

Table 9.2.4 Calculation of EIRR

	Economic Cost				Economic Benefit					Net Cash Flow
	Integration of cargo flow		Business Stimulation	Market Expansion	International Logistics Parks	Regional Logistics Parks	Specific Logistics Hubs	Improvement of transport efficiency	Improvement of international transport routes	
	Investment costs	O&M Costs	Investment costs	Investment costs						
	42.5	4.2	0.0	4.0						
	53.5	2.4	4.5	1.0						
	40.0	0.8	0.0							
1	7.7		0.0	0.7						-8.5
2	7.7		0.0	0.7						-8.5
3	7.7		0.0	0.7						-8.5
4	7.7	4.2	0.0	0.7	1.1					-11.6
5	7.7	4.2	0.0	0.7	5.1			0.1	0.8	-6.7
6	9.7	4.2	0.8	0.2	5.4			0.1	0.0	-9.4
7	9.7	4.2	0.8	0.2	5.8			0.1	0.0	-9.0
8	9.7	4.2	0.8	0.2	6.3			0.2	0.0	-8.5
9	9.7	6.6	0.8	0.2	6.9	1.5	1.0	0.2	0.0	-7.7
10	9.7	6.6	0.8	0.2	7.9	3.0	1.5	0.2	0.0	-4.6
11	7.3	6.6	0.0	0.0	10.7	3.2	1.6	0.2	0.0	1.8
12	7.3	6.6	0.0	0.0	11.9	3.6	1.6	0.2	0.0	3.4
13	7.3	6.6	0.0	0.0	13.4	4.1	1.6	0.2	0.0	5.5
14	7.3	7.4	0.0	0.0	15.4	4.9	1.7	0.2	0.0	7.6
15	7.3	7.4	0.0	0.0	19.0	5.3	1.8	0.2	0.0	11.7
16		7.4			19.1	5.6	1.9	0.3	0.0	19.5
17		7.4			19.3	6.1	2.1	0.3	0.0	20.4
18		7.4			19.4	6.8	2.4	0.3	0.0	21.5
19		7.4			19.6	7.7	3.0	0.3	0.1	23.2
20		7.4			19.7	9.7	4.9	0.3	0.1	27.3
21		7.4			19.9	9.8	4.9	0.4	0.1	27.6
22		7.4			20.0	9.9	4.9	0.4	0.1	27.9
23		7.4			20.2	9.9	5.0	0.4	0.1	28.2
24		7.4			20.2	10.0	5.0	0.4	0.1	28.4
25		7.4			20.2	10.1	5.1	0.5	0.1	28.5
26		7.4			20.2	10.2	5.1	0.5	0.1	28.7
27		7.4			20.2	10.3	5.2	0.5	0.1	28.9
28		7.4			20.2	10.3	5.2	0.6	0.1	29.1
29		7.4			20.2	10.3	5.2	0.6	0.1	29.1
30		7.4			20.2	10.3	5.2	0.7	0.1	29.2
31		7.4			20.2	10.3	5.2	0.7	0.2	29.2
32		7.4			20.2	10.3	5.2	0.8	0.2	29.3
33		7.4			20.2	10.3	5.2	0.8	0.2	29.4
34		7.4			20.2	10.3	5.2	0.9	0.2	29.5
35		7.4			20.2	10.3	5.2	1.0	0.2	29.6
									EIRR	11.0%

Source: JICA Study Team

The result means that projects and programs which are directly connected to promotion and improvement of logistics in Lao PDR are feasible from the perspective of national economic development. However, the projects for improvement of transport routes (road network, in particular, regional road network) are not viable when economic benefits in the analysis are confined to the benefits to the logistics industry. In order to ascertain economic justification of the

projects, it is necessary to consider other beneficiaries such as automobile users, motorbike users and public transport users.

Therefore, an EIRR of 11% indicates that the National Logistics Strategy would be viable from the perspective of the national economy if benefits to other users were included in the economic analysis for regional road improvement projects. Hence, the strategy should be put into action.

9.3 Financial Capacity

9.3.1 Government Budget for Transport Sector

(1) Capital Investment and Expenditure by Departments

Capital investment in the Lao PDR is the largest line of expenditure at nearly 50% of the total national budget. Table 9.3.1 summarizes the total budget for the Ministry of Public Works and Transport (MPWT) and the ratio to the national budget per annum during the period 2000 to 2005. It shows that nearly half the national budget has been expended on infrastructure development which implies that the development of infrastructure is of high priority in Lao PDR.

Table 9.3.1 Ministerial Budget of MPWT and Proportion in National Budget (Unit: Billion Kip)

	00-01	01-02	02-03	03-04	04-05
Budget of MPWT (including donors)	702	305	537.5	759	938.7
Proportion in National Budget	37.6%	30.3%	37.7%	43.7%	47.6%

Source: Motoyoshi Suzuki (2008), Industrial Base in Lao PDR, Chapter 2, Section 3

Table 9.3.2 Expenditure of MPWT by Major Departments during Period 2001-2005 (Unit: Million Kip)

Type of Ministry	2000-01			2001-02			2002-03		
	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
Entire Ministry	71,052	254,558	325,610	65,026	507,709	527,735	110,394	474,179	584,574
Roads	67,603	201,127	268,730	63,338	397,488	460,826	109,584	368,857	478,440
Transport	50	0	50	40	0	40	65	0	65
Housing and Urban Planning	261	28,753	29,013	411	64,226	64,637	75	81,057	81,132
Civil Aviation	1,343	15,477	16,820	579	0	579	277	0	277
Railway	60	0	60	66	0	66	9	0	9

Type of Ministry	2003-04			2004-05		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Entire Ministry	233,081	910,641	1,143,721	123,369	768,860	892,229
Roads	190,911	827,256	1018,864	120,557	656,932	777,489
Transport	0	0	0	0	0	0
Housing and Urban Planning	65	37,457	37,522	38	9,740	9,778
Civil Aviation	39,305	0	39,305	2,043	53,296	55,339
Railway	10	0	10	0	40	40

Source: JICA (2008), The Study of Master Plan On Comprehensive Urban Transport In Vientiane In Lao PDR, Final Report, Chapter 11

Table 9.3.2 shows the expenditure of major departments of MPWT and a breakdown of domestic accounts and foreign aid during 2001-2005. It is noted that (i) the expenditure of Department of

Roads accounts for nearly 85% of the entire budget on average during the five years, (ii) the foreign aid input accounts for over 80% of the Ministry's total expenditure on average during the same period. Foreign aid in the expenditure of the Department of Roads accounts for more than 80% on average as well.

(2) Road Maintenance Fund

The RMF (Road Maintenance Fund) was established for road maintenance in 2001 with the support of the World Bank and other donors, and was officially introduced by decree (Decree No. 09/PM15/01/2001). The allocation of the RMF is restricted solely for road maintenance and its administration works. The RMF budget was greatly propped up by donations from the external agencies such as the World Bank and SIDA. By 2007, the budget was fully covered by tax and fees, including fuel tax (300 Kip per litre for gasoline and diesel), toll fee (one toll gate is placed in each province and 5,000 Kip is charged for each passenger car), and penalty charge for overloading of trucks.

The amount and proportion of revenue toward the RMF is summarized in Table 9.3.3. The revenue of the RMF has been considerably increasing since the RMF was introduced and reached 176 billion Kip in the year 2008. In the same year, 87% of the revenue was collected from fuel tax, 12% from toll fees and 1% from overloading fines. The Lao Government charges a levy on fuel at 300Kip per litre, equivalent to 5% of the fuel price. The government is currently considering introducing a higher fuel tax rate.

Table 9.3.3 Revenue for Road Maintenance Fund

(Unit: billion Kip)

Year	Fuel Tax			Toll Fees		Over Loading Fines		Other Donations		Total
	Kip/l	Revenue	%	Revenue	%	Revenue	%	Revenue	%	
2001	40	7.783	49.5	1.027	6.5	0.410	2.6	6.516	41.4	15.736
2002	40	13.820	52.4	8.927	33.8	2.476	9.4	1.171	4.4	26.397
2003	60	20.669	56.0	13.599	36.9	2.513	6.8	0.111	0.3	36.892
2004	100	35.319	64.8	15.947	29.2	3.266	6.0	0.006	0.0	54.538
2005	150	61.001	75.3	16.885	20.8	3.137	3.9	0.001	0.0	81.024
2006	200	92.125	80.5	20.262	17.7	2.050	1.8	0.008	0.0	114.445
2007	250	123.097	83.4	21.943	14.9	2.520	1.7	0.000	0.0	147.542
2008	300	151.000	85.8	23.087	13.1	1.971	1.1	0.000	0.0	176.058

Source: RMF

Table 9.3.4 Budget for Road Maintenance

(Unit: billion Kip)

Year	RMF		World Bank (Loan)		SIDA (Grant)		Total
	Revenue	%	Revenue	%	Revenue	%	
2001	15.736	29.4	37.815	70.6	0.0		53.551
2002	26.397	18.2	118.996	81.8	0.0		145.393
2003	36.892	46.4	42.600	53.6	0.0		79.492
2004	54.538	48.1	58.831	51.9	0.0		113.369
2005	81.024	56.2	49.893	34.6	13.312	9.2	144.229
2006	114.445	77.7	18.667	12.7	14.130	9.6	147.242
2007	147.542	91.0	1.876	1.2	12.582	7.8	162.000
2008	176.058	90.2	0.300	0.2	18.836	9.6	195.194

Source: RMF

As Table 9.3.4 shows, the road maintenance works once heavily depended on external assistance from the World Bank and SIDA. Currently, the RMF covers over 90% of the budget for road maintenance. RMF is managed using domestic financial sources.

9.3.2 Financial Capacity to Conduct the National Logistics Strategy

As indicated in Table 9.3.1, the budget for capital investment by MPWT amounted to LAK 938.3 million (USD110.3 million) in the financial year 2004-05. Annual disbursements of the National Logistics Strategy amount to USD 8.5 million from 1st year to 5th year, USD 10.7 million from the 6th year to 10th year and USD 7.3 million from the 11th year to 15th year. They are equivalent to 7.7% (1-5 years), 9.7% (6-10 years) and 6.6% (11-15 years). This would constitute a significant portion of the MPWT Budget such that financial support from development partners is a prerequisite.

Basically, private companies bear most of the operation and maintenance costs, while the government only disburses for CIQ services in logistics parks/hubs. However, the government has to prepare money for maintenance of regional transport routes: the amount is USD 1.2 million per year. The amount accounts for 5.2% of road maintenance costs in 2008 (USD 22.9 million in total). This is not a small amount given the state of the current road maintenance budget, and it is necessary to enhance financial capacity in this field.

CHAPTER 10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

Lao PDR is a landlocked country and this feature has traditionally been a large constraint in its economic development for a long time. The current movement of market integration and economic cooperation of GMS and ASEAN regions through CBTA and AFTA together with transport network development in the region may greatly contribute Lao PDR's economic development through activation of movement of people, goods, money and information.

On the other hand, Lao PDR is currently experiencing continuous economic growth dependent on mineral exploitation, expansion of foreign investment and consumption of urban population, which has resulted in a gradual shift from a traditional agro-based economy to an urbanized and industrialized economy.

These favorable socio-economic conditions are expected to continue into the future. In 2025, the population will be 7.59 million persons and GDP per Capita will be USD 2,168 in Lao PDR. In Vientiane, population will reach 1.24 million persons while GDP per Capita will reach USD 3,568. Contingent upon the increase in population, transport volume in Lao PDR in 2025 will also increase to 2.9 times its volume in 2009 (or 10.5 million tons per year in total transport volume). In Vientiane, 2.1 million tons of freight from Thailand will pass along the Mekong River: this will account for 40 % of total import volume from Thailand. Meanwhile, within the GMS, transit cargo volume through Lao PDR will reach 420,000 tons in 2025, which is 3.4 times the transport volume in 2009.

Given such future freight transport demand within the GMS and Lao PDR, there will be significant development potential for Lao PDR through development of economic corridors, reduction of trade barriers, promotion of cross-border investment, and capitalisation on the benefits accrued from membership in the GMS, ASEAN, AFTA together with bilateral trade agreements. Lao Government accordingly emphasizes the importance of transformation of the nation "from a landlocked to a land-linked country" by fully utilizing the stated potential by means of linking markets in GMS/ASEAN as a key strategy of national development.

However, there are several constraints to logistics in Lao PDR, which are inter-related to each other and generate a "vicious cycle". Economic disparity among the GMS countries causes a non-ignorable incidence of empty return haulage, which in turn leads to higher logistics costs. This is one of the constraints to increase in land transport volume. Limited land transport volume may affect the empty return haulage on one hand, and diminish business opportunities for private companies on the other hand.

Development of logistics in Lao PDR aims at effectively generating business opportunities in

logistics targeting the GMS market by inducing more land transport cargo via Lao PDR and by stimulating logistics businesses in Lao PDR. In this regard, the following public intervention should be strategically taken into account in order to transform the "vicious cycle" into a "preferably positive cycle"; hence enabling the achievement of the development vision.

Strategy 1: Integration of Cargo Flow	Cargo flow should be strategically combined/ integrated to generate "scale merits" for Lao PDR by utilizing its advantages.
Strategy 2: Business Stimulation	Promoting logistics business targeting the expanded market for Lao PDR to become logistics service hub.
Strategy 3: Market Expansion	Logistics market should be expanded to target not only domestic market (import, export and transit via Lao PDR) but also GMS market.

There are 27 projects and programs proposed under the national logistics strategy. The cost to implement national logistics strategy is approximately USD 145.5 million in total. Out of the total cost, approximately USD 46.5 million is needed for the short-term, USD 59 million for the medium-term while USD 40 million is needed for the long-term. Besides the investment projects proposed under the strategy, institutional improvement as well as private participation are essential for effective accomplishment of the strategy.

In regard to economic and financial feasibility, the National Logistics Strategy is a viable strategy in terms of development of the national economy. The EIRR of all projects and programs in the National Logistics Strategy is 11.0%, while the EIRR excluding projects on improvement of major logistics routes (code no P121 and P122) is 14.1%. The EIRR including projects on road improvement of international routes and regional routes does not exceed the opportunity cost of capita (12%) when benefits are limited to trucks and trailers that are a major component of the national logistics strategy which consists of development logistics hub and capacity development programs for business stimulation and market expansion. The EIRR would exceed the opportunity cost of capital if benefits to other road users were put into consideration. Accordingly, it can be said that the National Logistics Strategy is a financially and technically feasible strategy and its implementation is justified.

10.2 Recommendations

10.2.1 Towards Realization of the Strategy

(1) Approval of the Strategy

National Logistics Strategy is the comprehensive strategy to develop logistics system and relevant businesses in Lao PDR. It is recommended that the Lao Government approves the strategy and properly aligns it in the contexts of the national development plan, the 5 year plan and MPWT's 5 year development plan so as to ensure effective implementation of policies, projects, and programs under the strategy.

(2) Development of Responsible Body

Necessary actions to implement the strategy are not limited to the MPWT. It is necessary for the concerned agencies to jointly and separately carry out the projects on schedule. To integrate and coordinate implementation of the projects and programs, it is strongly recommended that a specially designated coordination committee and secretariat office be at the center of coordination

and integration of the projects and programs under Department of Transport, MPWT as soon as possible.

(3) Public and Private Participation to carry out the strategy

The private sector participation in logistics will be increasingly important to carry out the strategy such that policy dialogue will be indispensable in fostering a harmonious environment required to carry out the projects and programs. In particular, one of the means of strengthening local logistics is by developing a mutual supports system that serves several functions such as liability insurance, cargo guarantee, financial support, staff training and information services: this will expand the logistics business in Lao PDR and GMS.

In this regard, it is necessary to set up regular avenues that present forums for dialogue between public and private investors involved in implementing the strategy. The most potent organization to act as the representative organization for the private sector is the Lao International Freight Forwarders Association (LIFFA).

10.2.2 Implementation of Logistics Park Projects

(1) RAP and EIA

Logistics park projects, especially the Vientiane Logistics Park (VLP) project, require EIA and resettlement action plan (RAP) before implementation. This study has prepared necessary natural and social environment information for both of EIA and RAP, such that the responsible organization (which is described in the previous section) may conduct EIA and RAP in accordance with regulations in Lao PDR.

(2) Financial Arrangement

The logistics park development project requires a substantial initial outlay: this lowers the project's financial viability in spite of its high economic viability. Since the Lao Government has limited funds, it is strongly recommended that the Lao Government applies for a foreign soft loan for the logistics park project so as to reduce the financial burden on the Lao Government as well as to uphold the implementation schedule of the project.

(3) Operation Plan and Promotion

The logistics park is proposed to be managed by the private sector so as to ensure high quality of services and management in the park. Involvement of the private sector in the project from an early stage (at least design stage) is important to the maximization of efficiency of operations and management. On the other hand, the private sector with high quality and efficiency in logistics is very important in securing the cargo handling volume. It is accordingly recommended that the operation plan of the logistics parks as well as the promotion of private investment into the logistics parks be refined.