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## CHAPTER 6 NATIONAL LOGISTICS STRATEGY

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### 6.1 Anticipated Benefits and Development Issues

#### 6.1.1 National Policy and Vision of Logistics Development

##### (1) National Policy

Lao Government formulates National Growth and Poverty Eradication Strategy as the most principle strategy for national development, which aims at accelerating the pace of economic development to eradicate poverty. The poverty reduction strategy highlights the Government's plans to graduate from least developed country status by 2020. Three focuses in this strategy are to: (i) foster economic growth with equity; (ii) enhance social development; and (iii) sustainably preserve environment. The poverty reduction strategy has been translated into the 6<sup>th</sup> 5-Year National Socio-Economic Development Plan (NSEDP) 2006–2010 and its priority sectors have been mainstreamed. The ultimate goal stated in the NSEDP is to realize Lao PDR's graduation from status as least developed country by accelerating the pace of economic development. The development policy in the NSEDP comprises the following 3 pillars:

- Promoting economic development with human development;
- Increasing competitiveness and utilizing comparative advantages to implement effectively international economic commitments in the framework of the ASEAN, GMS and WTO; and
- Strengthening the positive linkages between economic growth and social development, in addressing social issues.

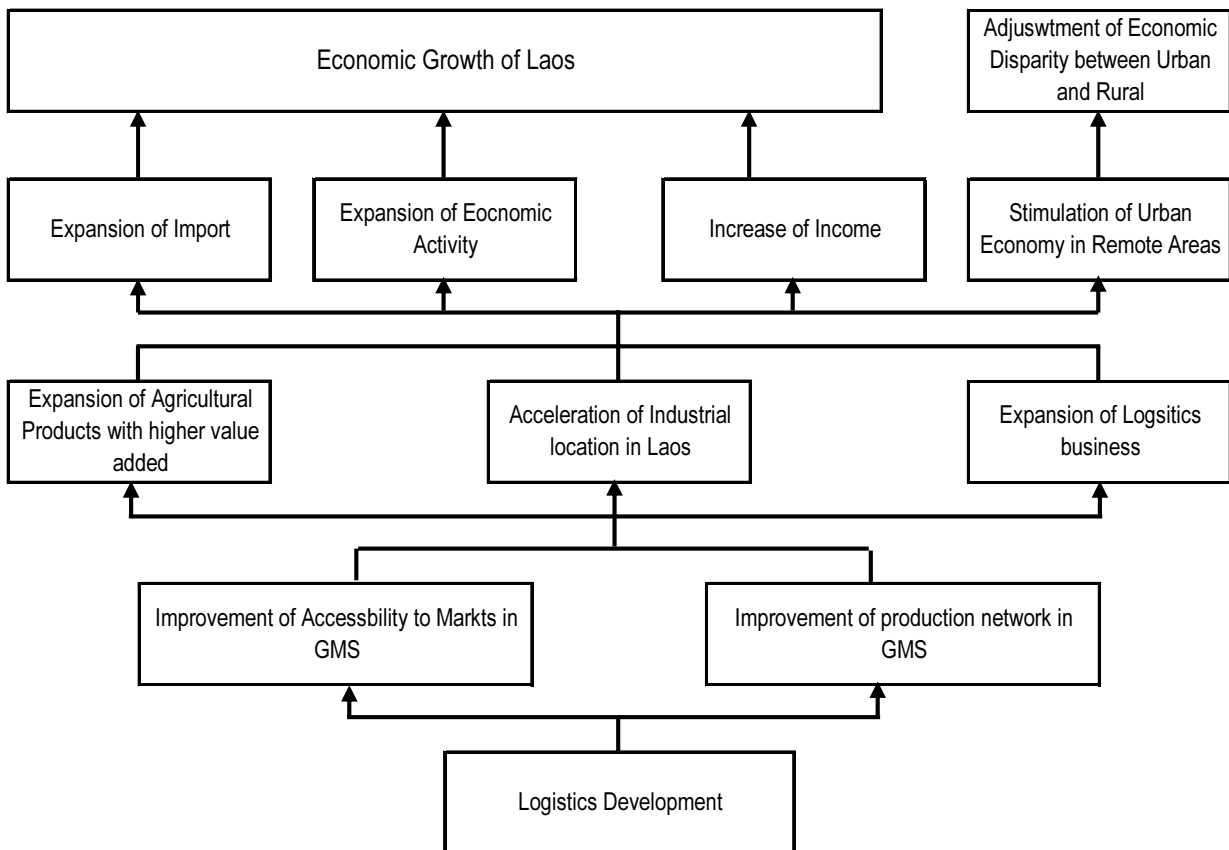
For this purpose, transforming the Lao PDR **“from a landlocked to a land-linked country”** by generating regional economic integration is a key strategy to realize the pillars above. To achieve this, NSEDP emphasizes developing economic corridors; reducing trade barriers, promoting cross-border investment, and capitalizing on the benefits accrued from membership in the GMS, ASEAN, AFTA, and WTO, together with bilateral trade agreements. ASEAN has set a target to complete its process of establishing a single market in the region by 2015. Regional cooperation framework in trade, investment and cross-border transport in GMS/ ASEAN will be a diminished barrier to approaching foreign markets as well as diversifying supply chain network in GMS. Therefore, it seems to be a fast way to achieving future economic development in Lao PDR. The key strategy of transformation “from a landlocked to land-linked country” aims at fully utilizing these potentialities by linking markets in GMS/ASEAN. Logistics development in Lao PDR should be one of the important tools to materialize the transformation “from a landlocked to land-linked country”.

**(2) Vision**

Current conditions relevant to logistics in Lao PDR have drastically changed due to completion of major routes of Indochina economic corridors, globalization in trade and transport, regional economic cooperation and integration in GMS / ASEAN region, and future development potential of Lao PDR. It is accordingly said that both external and internal favorable changes should be a good trigger for Lao PDR to shift “from landlocked to land-linked country”. Along these favorable circumstances, the Logistics industry can pursue the status as center of regional logistics in terms of cargo flow and logistics services as part of realization of the national policy of ““from landlocked to land -inked country”. Accordingly, the logistics vision can be described as:

**Lao PDR to be Regional Logistics Service Hub in GMS**

Logistics can be one of promising economic sectors in Lao PDR based on the increased volume of land transport cargo: it can also act as a support business to other economic activities such as manufacturing, agriculture and commerce by improving accessibility to markets and production network in GMS with lower costs as shown in Figure 6.1.1.



Source: JICA Study Team

**Figure 6.1.1 Roles of Logistics in the Socio-Economic Development Process**

### (3) Benefits of Lao PDR from the Vision

Meanwhile, Lao PDR has disadvantages of small/limited size of domestic market, large gaps in competitiveness of domestic private businesses relative foreign investors due to insufficient accumulation of technology, human resources and capital in Lao PDR. Thus, it is sometimes pointed out that such direction has a risk of Lao PDR developing into a transit country in the GMS with little benefits for Lao PDR itself. Accordingly, logistics development strategy is strongly required to cover the following 3 aspects:

- Formulation of land link in GMS,
- Utilization of the land link, and
- Generation of benefits in Lao PDR from the land link.

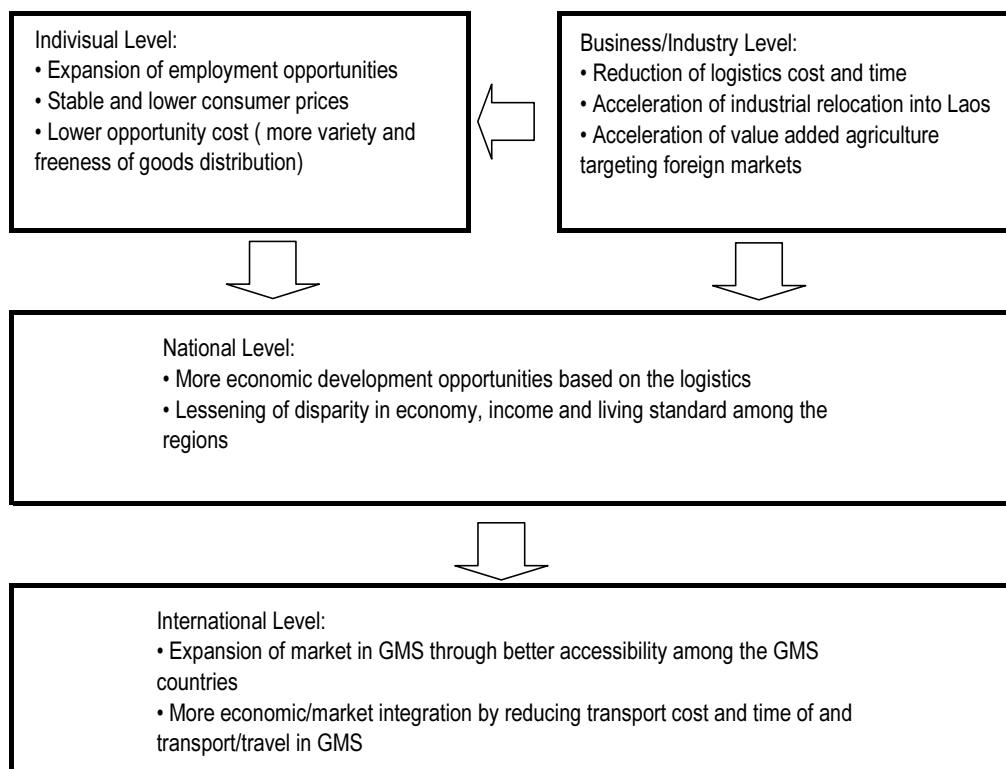
In particular, it is essential that the logistics development strategy enhances generation of benefits in Lao PDR and it is expected that the benefits are to be provided at all levels such as national level, industry level and individual level together with GMS level, which is shown in Table 6.1.1.

**Table 6.1.1 Benefits of Logistics Development**

Level	Anticipated Benefits from logistics development
Individual level	<ul style="list-style-type: none"> <li>• Expansion of employment opportunities</li> <li>• Stable and lower consumer prices</li> <li>• Lower opportunity cost ( more variety and freedom of goods distribution)</li> </ul>
Business/Industry level	<ul style="list-style-type: none"> <li>• Reduction of logistics cost and time</li> <li>• Acceleration of industrial relocation into Lao PDR</li> <li>• Acceleration of value added agriculture targeting foreign markets</li> </ul>
National level	<ul style="list-style-type: none"> <li>• More economic development opportunities based on the logistics</li> <li>• Lessening of disparity in economy, income and living standards in the regions</li> </ul>
GMS level	<ul style="list-style-type: none"> <li>• Expansion of market in GMS through better accessibility among the GMS countries</li> <li>• More economic/market integration by reducing transport costs and time of and transport/travel in GMS</li> </ul>

Source: JICA Study Team

At the individual level, expansion of employment opportunities, stable and lower consumer prices, and lower opportunity cost (or more variety and freedom of goods distribution) are major anticipated benefits from logistics development in Lao PDR. At the business and industry level, reduction of logistics cost and time, acceleration of industrial development in particular industrial location and value added agriculture are major anticipated benefits. Based on the benefits on individual and business/ industry levels, the benefits of more economic development opportunities and lessening of disparity in economy, income and living standards in the regions would be anticipated at the national level. Through the benefits on Lao PDR, the benefits would ripple to the GMS level. Market expansion and integration in GMS would be the anticipated benefits for GMS countries through logistics realizing better accessibility with reduced costs and time of transport/travel in the GMS.



Source: JICA Study Team

Figure 6.1.2 Flow of Ripple Benefits of Logistics Development

## 6.1.2 Development Issues

### (1) General

Lao PDR occupies strategic location in GMS i.e., at the center of the region. Major land transport route in GMS such as North-South Corridor, East-West Corridor and Central Corridor pass through Lao PDR. It seems to bring economic development potential by generating new business opportunities based on the increased volume of international cargo via Lao PDR. Accordingly, Lao Government has made great effort to improve cross-border transport by concluding agreements on cross-border transport with surrounding countries. Currently Lao PDR is the most advanced country in this field in the GMS, having entered into agreements with all surrounding countries except Myanmar.

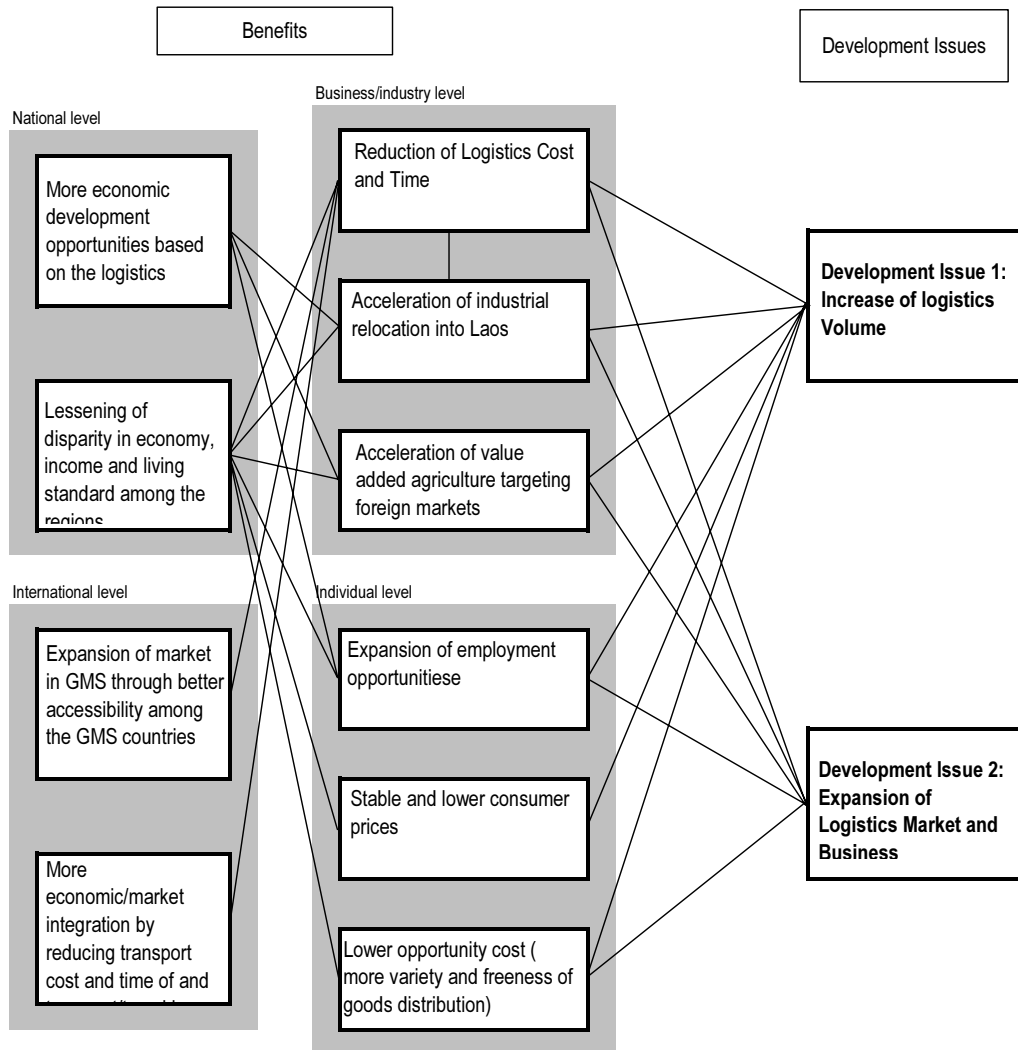
Furthermore, GMS countries are steadily progressing towards market integration by realizing seamless movement of “people”, “goods” and “investment” in GMS currently. Under this circumstance, global good movements will be more generated with horizontal division of labor in manufacturing sector as well as formulation of global network of agricultural production and supply system in GMS. Population increase and economic growth in GMS will positively work to expand good movement in GMS, as well.

All these factors clearly indicate large possibility of expansion of goods transport in GMS. It may lead to several business opportunities in logistics in the GMS.

However, there are several constraints for further development of logistics in Lao PDR. One is

competition among transport modes in GMS, in particular competition between land transport and sea transport. As such, devising means of expanding land transport volume passing through Lao PDR will become a key issue for logistics development in Lao PDR.

The other is limited capacity of domestic market and business. These will be substantial constraints to promotion of land transport in GMS. Meanwhile, Lao PDR has limited domestic market and economic activities due to its small population and belated economic development. This causes difficulty in considering Lao PDR as potential market for goods distribution as well as a place to add value to goods.



Source: JICA Study Team

**Figure 6.1.3 Identification of Issues in Logistics Development**

These constraints make it difficult for Lao PDR to generate the benefits from expansion of international logistics in GMS passing through Lao PDR. To generate the benefits in Lao PDR, the strategy should be focused on the following 2 development issues:

- Issue 1: Facilitation of Land Transport in GMS via Lao PDR
- Issue 2: Expansion of Logistics Market and Business

Inter-relations between the benefits and issues are shown in Figure 6.1.3.

## **(2) Development Issues 1: Facilitation of Land Transport in GMS via Lao PDR**

Most goods in GMS are currently transported by sea transport, while land transport volume is still in marginal. One of the major reasons for this is the higher land transport costs relative to sea transport costs. Land transport in GMS is faster than sea transport, but the land transport costs are much higher; hence losing its competitiveness as a viable alternative to sea transport.

Major reasons for this are the imbalances in export/import volumes for each bilateral trade pair and insufficient transport volumes. Land transport in GMS has a high incidence of empty return haulage due to imbalances in export/import volumes between countries, for example between Thailand and Yunnan of China, between Thailand and Vietnam, between Thailand and Lao PDR. This makes the land transport costs higher.

Elsewhere, the cross-border level of service is also another focal issue. According to Logistics Performance Index (LPI) analyzed by World Bank, logistics in Lao PDR were evaluated by international private logistics providers as being of low quality, especially in the criteria of “infrastructure”, “logistics competence” and “customs”. Since “Logistics competence” and “customs” are the criteria for evaluating logistics service provided, there’s clear necessity to improve reliability of logistics service in Lao PDR.

As such, in order to facilitate land transport via Lao PDR, it’s necessary to tackle the following 3 sub-issues in order to expand logistics volume via Lao PDR:

- Reduction of Logistics Cost
- Improvement of Reliability in Logistics System and Service
- Enhancement of Transport Capacity

## **(3) Development Issue 2: Expansion of Logistics Market and Business**

When land transport volume via Lao PDR increases, it will be necessary for Lao PDR to maximise benefits from the increased volume of cargo as much as possible. However, Lao PDR has a small population and an immature economic structure, such that the logistics market in Lao PDR is on a very limited scale domestically to create adequate business opportunities in Logistics. Special transport duty on trucks passing economic corridors in Lao PDR is inconsistent with both seamless transport policy under CBTA philosophy and the policy of facilitating land transport via Lao PDR. To obtain benefits from increased volume of land transport via Lao PDR, it is accordingly essential for Lao PDR to target not only the domestic market but also the GMS market as the fields of logistics business. For this purpose, it is a most promising course of action to open up market and create competitive market in Lao PDR and GMS.

In this regard, Lao Government currently has made efforts to introduce “Competition” into domestic logistics market since the deregulation in 2004. Many foreign logistics companies entered Lao market, in particular companies dealing in cargo between Thailand and Lao PDR. This seemed to drastically improve logistics services resulting in higher scores in “International shipping” and “timelines” in the LPI. The current competition in the market exists primarily among Thai logistics companies; hence, it is necessary to strategically stimulate domestic logistics companies so as to enable them be competitive enough against foreign companies: this would help preserve benefits from the open market policy within Lao PDR as much as possible. At the same time, stimulation of domestic logistics companies would enable participation in the logistics market in GMS, in particular in transit transport and transport between third countries contingent

upon progress of market integration in GMS. Lao PDR shall be the home-base of transport and logistics companies and service among third-party countries utilizing Indochina Economic Corridors.

Accordingly, it is necessary for Lao PDR to tackle the following 3 sub-issues so as to expand logistics volume via Lao PDR:

- Expansion of Market
- Attraction of Foreign Investment
- Strengthening of Local Businesses

## **6.2 Target and Strategy**

### **6.2.1 Overall Strategy**

#### **(1) Approach**

Although network and market accessibility have drastically improved in both physical and institutional aspects by developing major economic corridors in GMS and several market integration initiatives such as CBTA, AFTA and AIA. However, land transport among GMS countries, in particular transit cargo, hasn't increased significantly compared to the expectations prior to the development.

Table 6.2.1 shows trade volumes among GMS countries. According to the table, it is found that there isn't any trade pair that balances export and import volumes with the exception of Thailand and China. Lao PDR has much more imports than exports of any of the countries. The largest trade volume is for exports from Thailand to China and exports from China to Thailand, which amount to USD 14,834 million and USD 11,979 million, respectively.

Meanwhile, Table 6.2.2 shows transit cargo volume through Lao PDR. Comparing both tables, it can be discerned that a negligible cargo volume is transported between Thailand and China through Lao PDR. Furthermore, trade volume between Thailand and Vietnam through Lao PDR is also very minimal. As regards transport volume by direction, no trade pair balances import and export volumes. Most of the current transport seems to cause empty return haulage.

It is caused mainly by the constraints mentioned before. The constraints are inter-related to each other, forming a "vicious cycle" of logistics in Lao PDR. Economic disparity among the GMS countries leads to high 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 limited business profits for private companies on the other hand: this constrains growth of active competitive market with many participants in logistics.

**Table 6.2.1 Trade Volumes among GMS Countries**

Unit: Million USD

	Thailand	Vietnam	Cambodia	Lao	China
Thailand		3,803	1,356	1,312	14,834
Vietnam	1,034		991	104	3,357
Cambodia	45	184		0	46
Lao	432	189	1		77
China	11,979	11,906	881	177	

Note: Export value from each country is adopted as trade value to avoid effect of difference in import tax.

Source: Direction of Trade, IMF, 2007

**Table 6.2.2 Transit Cargo Volumes from GMS Countries through Lao PDR**

Unit: Million USD

	Thailand	Vietnam	Cambodia	Lao	China
Thailand		185		1,091	1
Vietnam	15			81	
Cambodia	0				
Lao	477	99			15
China	3			118	

Source: C2000 Database, Ministry of Finance, Lao PDR, Oct. 2007 – Sep.2008

From a different point of view, these two tables can be interpreted as evidence of the huge potential in land transport in GMS in case of a shift from sea transport to land transport in the GMS. The logistics strategy must provide means to escape the “vicious cycle” of Logistics in Lao PDR. For this purpose, the following considerations should be taken into account:

- Logistics volume, in particular transit transport volume, shall be increased in accordance with increase of trade in GMS. The problem of empty return haulage caused from imbalance in transport volumes can be mitigated by integrating some logistics flow.
- Since logistics market in Lao PDR is limited in terms of potential market size, logistics businesses in Lao PDR should target not only logistics in Lao PDR but also logistics in GMS. Lao PDR should play a leading role in formulating an open market in logistics on the one hand, and positively open own logistics market to all other GMS countries on the other hand.
- Lao PDR needs to provide more logistics services to take advantage of opportunities engendered by policies mentioned above. A competitive market with more participants will be a key policy. Lao PDR has advantages in its location in the GMS and cross-border agreements with GMS countries as well as lower labor and land costs. By utilizing these advantages, it is essential for Lao PDR to stimulate logistics industry.

Development of logistics in Lao PDR aims at effectively generating business opportunities in logistics targeting GMS market by inducing more land transport cargo via Lao PDR and by stimulating logistics business in Lao PDR. In this regard, the following public intervention should be strategically taken into account to transform the “vicious cycle” into a “preferable positive cycle” and achieve the development vision.

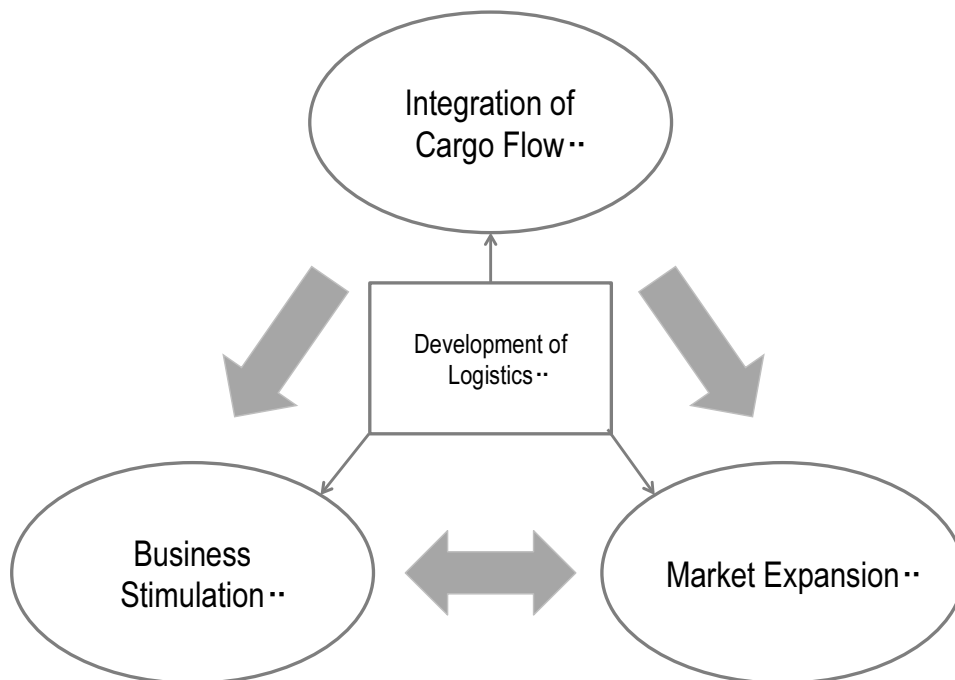


- Cargo flow should be strategically combined/integrated to generate “scale merits” for Lao PDR by utilizing its advantages.
- Logistics market should be expanded to target not only domestic market (import, export and transit cargo via Lao PDR) but also GMS market.
- Promoting logistics businesses targeting the expanded market for Lao PDR to become logistics service hub.

Accordingly, the following strategies are identified.

Strategy 1: Integration of Cargo Flow  
 Strategy 2: Business Stimulation  
 Strategy 3: Market Expansion

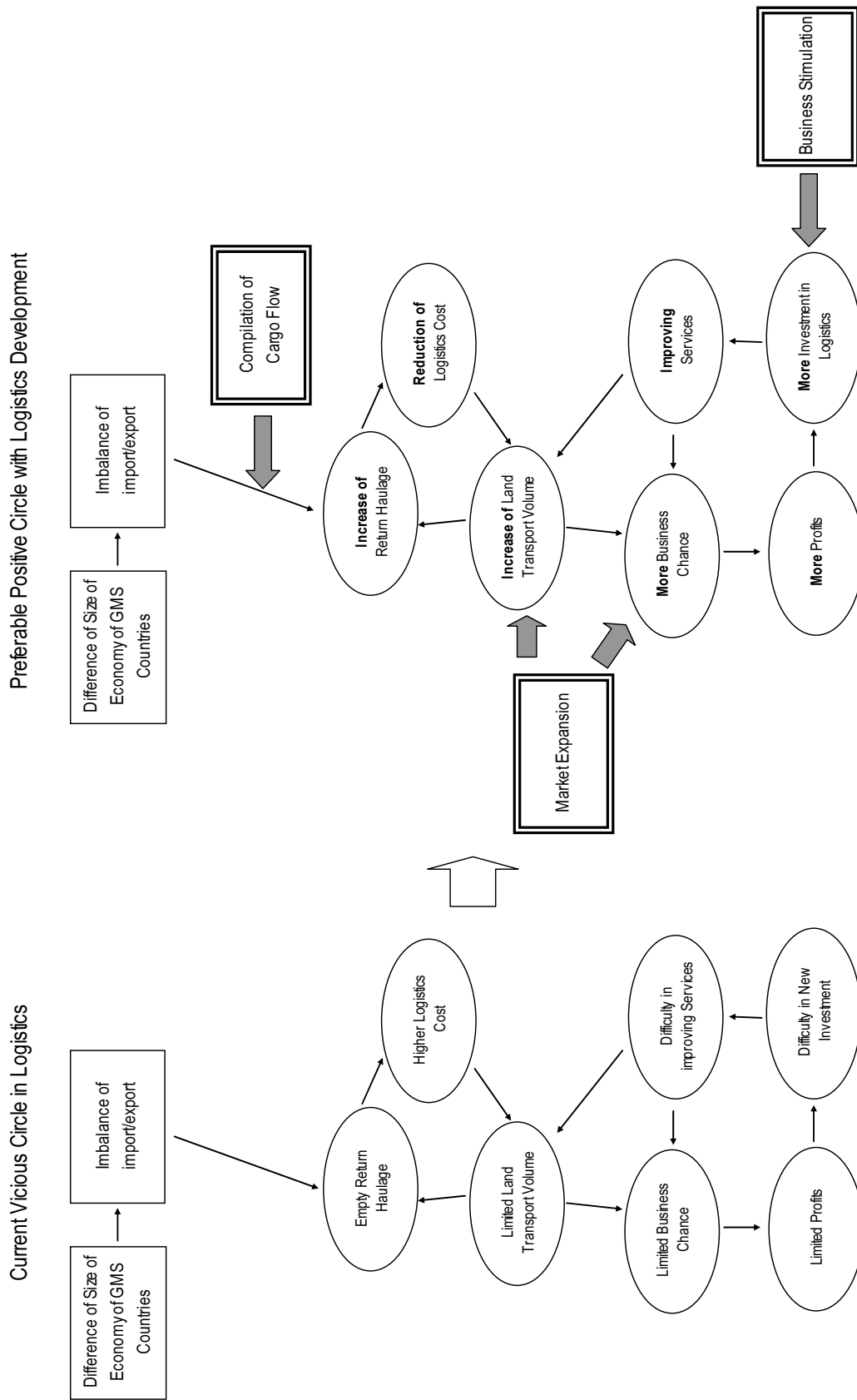
Integration of cargo flow shall mitigate the problem of empty return haulage; causing reduction in logistics costs. Cargo volumes shall increase in response to the reduced logistics costs. “Economies of Scale” are then expected to be generated on international land transport route via Lao PDR. This may generate more business opportunities and competition in logistics market by strategically expanding market accessibility with stimulation of logistics businesses.



Source: JICA Study Team

**Figure 6.2.1 Development Strategy**

Anticipated process to shift from “vicious cycle” to “preferable positive cycle” by adopting public intervention measures aligning with the strategies mentioned above is shown in Figure 6.2.2.



Source: JICA Study Team

Figure 6.2.2 Shift from Vicious Cycle to Positive Cycle with Development Strategies

### 6.2.2 Development Target

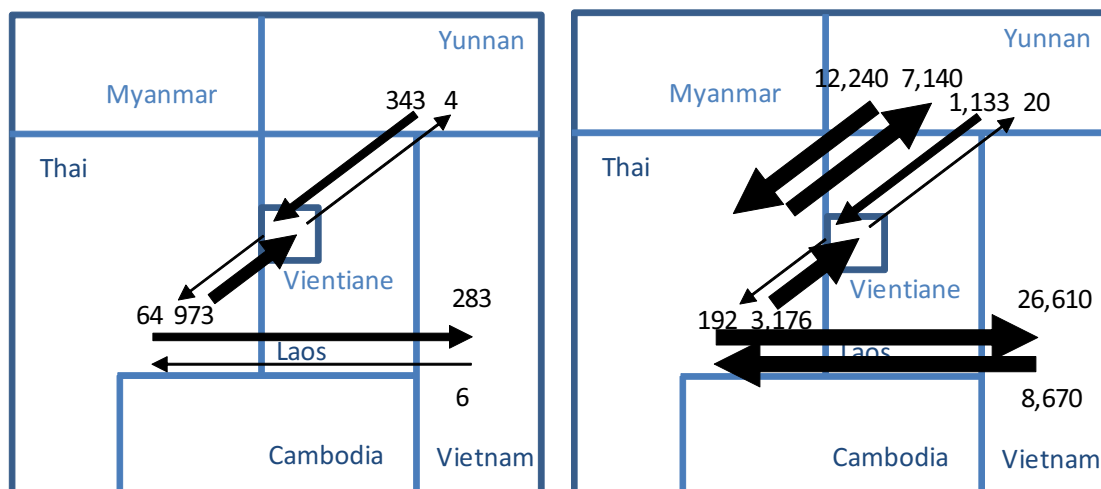
In order to monitor and evaluate the progress of the strategies proposed above, numerical development targets should be introduced and shared among all the stakeholders in Lao PDR. As proposed above, development of the logistics in Lao PDR can be achieved by establishment of the following 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, and (iii) Market Expansion. The outcomes from establishment of these strategies from the national (public) perspective include: increase in return haulage, reduction of logistics costs, and increase in transport volume. At the same time, more logistics business opportunities, improvement in logistics services, and more profits are amongst the outcomes of the logistics development strategies from the perspective of the private sector. The following discussion proposes numerical development targets for the first 3 outputs, namely: increase in return haulage, reduction in logistics costs, and increase in transport volume.

#### (1) Increase in Transport Volume

In the course of freight demand forecast in this study, the potentialities pertaining to transit cargo were identified and analyzed. As a consequence, the transit cargo between Thailand and China and that between Thailand and Vietnam was estimated as drastically increasing in consideration of realization of industrial development potential by the concerned countries and prospective shift from the sea transport routes to the land transport routes.

Taking an example of the manufactured goods, the transit volume between Thailand and Yunnan will increase to 714,000 tons per year (from Thailand to Yunnan) and 1,224,000 tons per year (from Yunnan to Thailand) by the year of 2025. The transit cargo between Thailand and Vietnam will increase to 2,661,000 tons per year (from Thailand to Vietnam) and 867,000 tons per year (from Vietnam to Thailand) by the same target year.

These figures could be one of the numerical development targets used to assess the progress of the proposed logistics strategies. When the actual transit volumes between the said countries lag behind the estimated volumes, relevant approaches and measures, including development of logistics infrastructure and facilitation of the trade procedures, should be taken to promote the transit trade through Lao PDR.



Source: JICA Study Team

Figure 6.2.3 Trade Volumes in GMS (manufactured goods, 00 ton/ year) in 2009 and 2025

**Table 6.2.3 Numerical Development Targets (Trade Volume of Manufactured Goods)**

Items	Present Volume of Manufactured Goods	2025 Potential Volume of Manufactured Goods
Transit Cargo:		
From Thailand to China via Lao PDR	Minimal	714,000 tons/year
From China to Thailand via Lao PDR	Minimal	1,224,000 tons/year
From Thailand to Vietnam via Lao PDR	28,300 tons/year	2,661,000 tons/year
From Vietnam to Thailand via Lao PDR	600 tons/year	867,000 tons/year

Source: JICA Study Team

The export and import cargo to/from Thailand will be transported by the newly extended railway tracks (Thanaleng – Vientiane) and handled at the planned Vientiane Logistics Park. The volume of the railway cargo is expected to increase. Based on the comprehensive freight demand forecast for the feasibility study on the Vientiane Logistics Park, the share of the railways against the total trade volume through the Friendship Bridge was estimated and summarized in Table 6.2.4. The use of the railway in transporting export and import cargo may significantly reduce the transport costs: hence the estimated railway cargo shares in the years 2015 and 2025 could be one of the numerical targets used.

**Table 6.2.4 Numerical Development Targets (Estimated Rail Share in Vientiane Capital)**

Items	Rail share in 2015	Rail share in 2025
General Cargo	3.4%	9.1%
Containers	13.0%	34.8%
Heavy Bulk	4.4%	11.6%
Liquid Cargo	6.3%	16.9%

Source: JICA Study Team

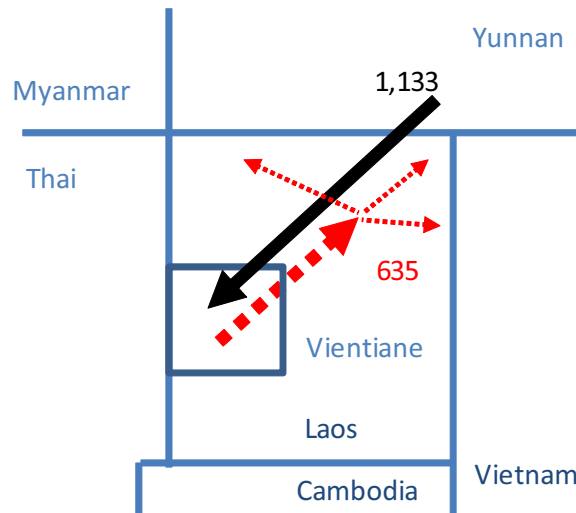
## (2) Increase in Return Haulage

Looking at the current trade volumes, the export, all of import and transit cargo to/from/through Lao PDR are imbalanced, and most of the return haulages to/from/through Lao PDR are empty. When the potential of trade demand in the GMS is realized and the regional logistics hub is established in Lao PDR, these empty return haulages are expected to significantly reduce. Assuming that half of transit cargo from Thailand to Yunnan is balanced by return cargo, the percentage of the return haulage from Yunnan to Thailand would then increase up to 30% by the year 2025. Likewise, assuming that half of trucks transporting transit cargo from Vietnam to Thailand have return haulages, the percentage of the return haulage from Thailand to Vietnam would increase to 16% by the same target year. As figure 6.2.4 illustrates, the same trend can be possibly observed for the export/import/domestic cargo in Lao PDR. For instance, the import cargo from Yunnan to Vientiane Capital can be balanced by return haulages from Vientiane to Northern Laos. The said percentage of the return haulage is also one of the development targets in realizing the logistics strategy in Lao PDR.

**Table 6.2.5 Numerical Development Targets (Return Haulage of Manufactured Goods)**

Items	Present % of Return Haulage of Manufactured Goods	2025 % of Return Haulage of Manufactured Goods
Transit Cargo:		
From Thailand to China via Lao PDR	Minimal	50%
From China to Thailand via Lao PDR	Minimal	30%
From Thailand to Vietnam via Lao PDR	Minimal	16%
From Vietnam to Thailand via Lao PDR	Minimal	50%

Source: JICA Study Team



Source: JICA Study Team

**Figure 6.2.4 Trade Volumes to/from Vientiane (Manufactured Goods, 00 tons/ year) in 2025**

**(3) Reduction in Transport Costs**

Assuming that the trade volume amongst the GMS increases and the return haulage increases (and the transport cost for return haulages are reduced to 70% of the transport cost for one-way cargo) as estimated, the transport cost in/through Lao PDR is estimated to be reduced by 10% from 1.9 USD/km to 1.7 USD/km. In general, the transport cost can be reduced not solely by the increase in the return haulage but also by several factors, including scale merits of the trade business and introduction of the competitive logistics market. Having said that, one-way cargo in Lao PDR is considered as the major determinant of the transport costs and 10% of reduction in the transport costs is set as the numerical target for development of the logistics strategy.

**Table 6.2.6 Numerical Target**

Items	Present	2025
Unit Transport Cost	1.9 USD/km	1.7 USD/km (10% down)

Source: JICA Study Team

**6.3 Development Scenario**

Logistics development shall start to make efforts to increase land transport volume via Lao PDR. For this purpose, it is highly essential to integrate cargo flow along NR-13N and NR-9. It is

necessary to provide physical and institutional privileges to cargo transporters and/or forwarders such that they select major domestic Lao routes. As physical privileges, hub and link system should be developed and cross-border procedures should be made less strenuous: these are actions of the highest priority. Regarding logistics services available in Lao PDR, it is important to improve level and variety of logistics services by introducing foreign logistics businesses in particular the services available along NR-13N and NR-9.

It is important to establish hub functions of cargo flow with Thailand and Vientiane in the short term. Vientiane Logistics Park (VLP) is a key facility to act as a centre to handle transit cargo, import/export cargo from/to Thailand and domestic cargo. Initial target goods of VLP are import goods from Thailand, especially consumer products from Thailand. At a later stage in the short term, VLP and Savannakhet Logistics Park (SLP) would gradually increase transit cargo along NR-13N and NR-9 respectively. Increased volume of cargo at VLP and SLP would contribute to reduced transport costs.

Lao PDR, on the other hand, should emphasize acceleration towards barrier-free cross-border transport and trade in GMS. These cannot be achieved singly by Lao PDR. However, Lao PDR should take initiative to lead towards such transport and trade circumstances in the GMS. On the other hand, Lao PDR should continue reorganization of logistics sector by inviting foreign logistics companies stationed in Lao PDR. Lao PDR would also have to continue improving transport efficiency by enlarge trucks which carry more cargo per trip to further reduce transport costs with improving the network to accommodate such larger and heavier trucks and trailers.

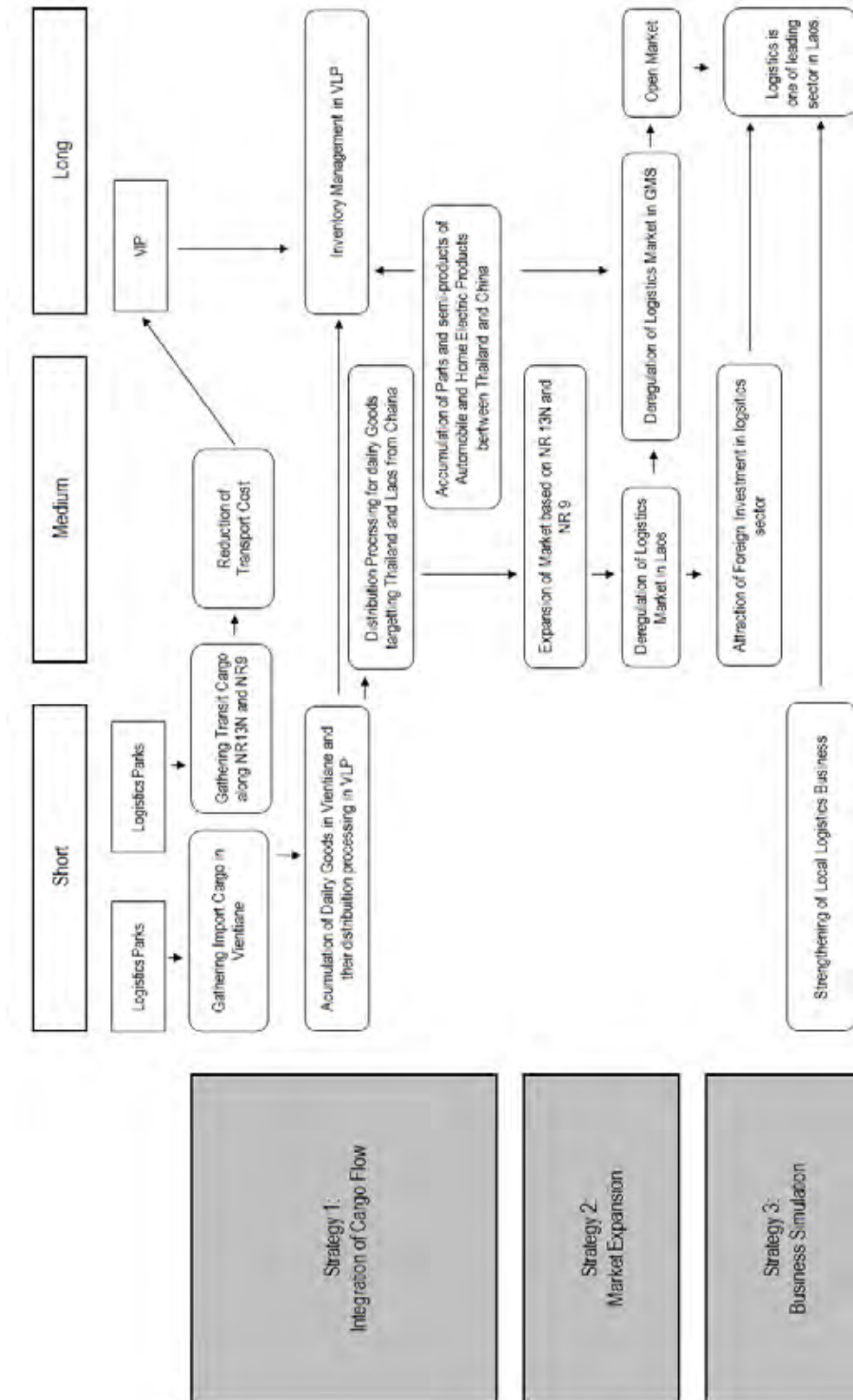
In the mid term period, increased volume of cargo at VLP and SLP would be a seed to develop new functions at VLP and SLP. Especially accumulation of the consumer products at VLP may generate potential to attract distributive processing into VLP. Firstly simple and conventional distributive processing targeting goods distribution in Lao PDR is realistic and acceptable to ensure accumulation of goods and know-how of distributive processing in the VLP.

On the other hand, accumulation of transit goods from China and Vietnam would generate potential of distributive processing targeting goods distribution in Thailand utilizing cheaper labor. In the medium-term, enhanced reputation and accumulation of goods would contribute to attraction of more distributive processing into VLP, positively resulting in further reductions in logistics costs coupled with accumulation of more goods along the NR-13N. Accumulated know-how of the distributive processing in VLP would create new potential to attract stock yards of parts and components of automobiles and home electric appliances from Thailand and China.

In the long term, there is potential for expansion of its stock yard function into an inventory management center connecting Thailand and China along NR-13N coupled with an increase in demand from factories in the VIP.

Logistics companies based in Lao PDR would involve international logistics businesses in GMS in or outside Lao PDR under barrier-free cross-border transport and trade circumstances. Lao PDR would contribute by maintaining functional highway network and functional logistics parks (basements) to generate more scale merits in integrating land transport cargo flow via Lao PDR.

The logistics development scenario mentioned above is illustrated in Figure 6.3.1.



Source: JICA Study Team

Figure 6.3.1 Development Scenario

## 6.4 Development Strategy 1: Integration of Cargo Flow

### 6.4.1 Basic Concept

#### (1) Concept

The circumstance of the logistics in Lao PDR is drastically changing. Two major agreements were enacted to promote the regional integration and economic growth: ASEAN Free Trade Area (AFTA) and Cross Border Transport Agreement (CBTA). AFTA is expected to remove custom duties within ASEAN countries by 2015 and CBTA aims to facilitate the cross-border procedure within GMS countries. These efforts will remove any obstacles in cross-border logistics and eventually create various business opportunities.

Under such circumstances in GMS and Lao PDR, this strategy aims at integrating land transport cargo flow into certain major transport routes in order to mitigate imbalance of transport volumes by guiding international transit cargo, import and export cargo and domestic cargo into efficient hub and link system along certain major routes in Laos as shown in Figure 6.2.3 and Figure 6.2.4.

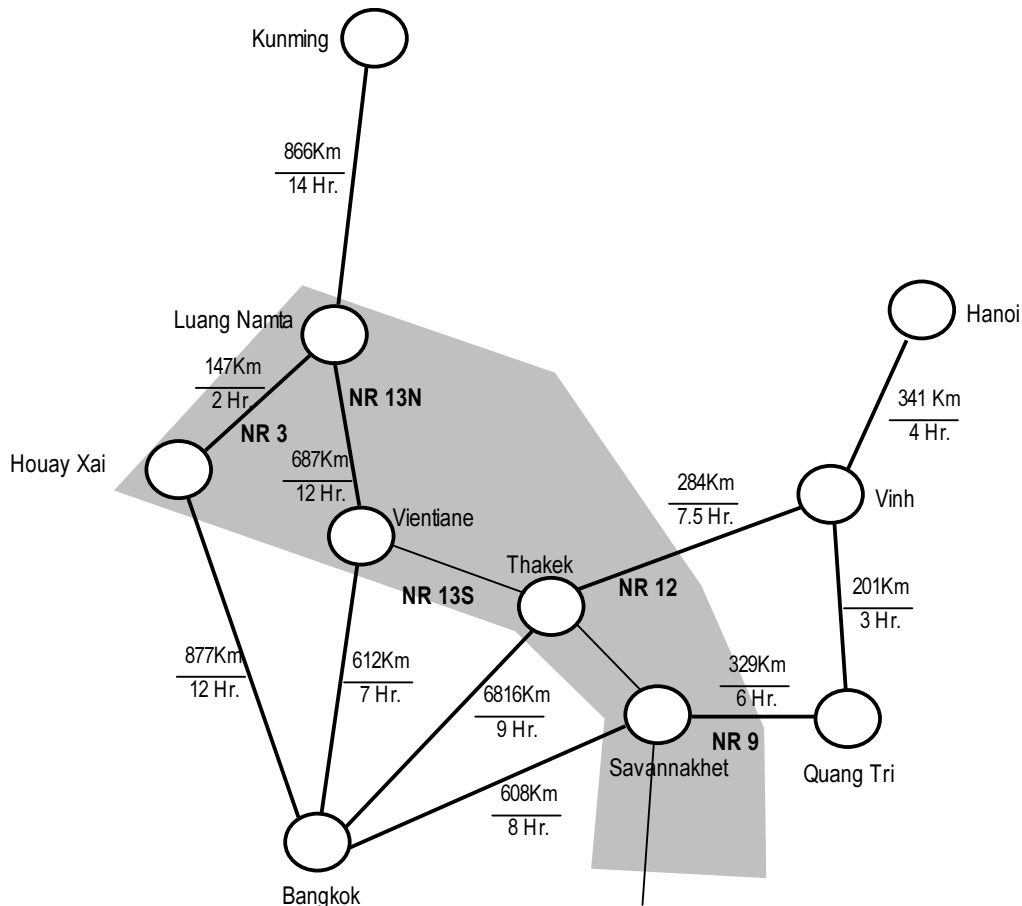
For this purpose, it might be beneficial for Lao PDR to consider two routes: one is the cargo flow in north-south direction connecting Thailand (Bangkok and surrounding area), northern Laos and Yunnan (Kunming) of China; and the other is the cargo flow in east-west direction connecting Thailand (Bangkok and surrounding area), central Laos and northern Vietnam. There are some alternative routes in the both directions. The north-south direction has two major alternative routes, namely: the route via NR-3 and the route via NR-13N. The east-west direction also has two major alternative routes, namely: the route via NR-9 and the route via NR-12. Table 6.4.1 and Figure 6.4.1 show distance and time-distance of the alternative routes in each direction. These tables and figures clearly show that the NR-13N route in the north-south direction covers a longer distance and is more time-consuming due to poor road condition in mountainous sections. Meanwhile, these tables and figures also clearly indicate that the NR-12 route in the east-west direction covers a shorter distance but is more time-consuming due to poor road condition in mountainous sections, compared to the NR-9 route.

**Table 6.4.1 Distance and Time on North-South and East-West Corridors in GMS**

OD	Route in Lao PDR	Distance (km)	Time (hours)
North-South Corridor (Bangkok to Kunming)	Via Huoixai and NR-3	1,890	28
	Via Vientiane and NR-13N	2,165	33
East-West Corridor (Bangkok to Hanoi)	Via Thakhek and NR-12	1,306	20
	Via Savannakhet and NR-9	1,479	21

Source: JICA Study Team





Source: JICA Study Team

Figure 6.4.1 Times and Distances on North-South and East-West Corridors in GMS

## (2) Conditions to achieve “Integration of Cargo Flow”

In order to collect more cargo onto the NR-13N in the north-south direction as well as the NR-9 in the east-west direction, it is essential for Lao PDR to offer special incentives to the cargo and/or forwarders. For this purpose, it is indispensable to achieve the following situations as soon as possible.

- Competitive or better level of service in transport can be provided at NR-13N and NR-9 by improving infrastructure.
- Higher level of transport efficiency is realized by larger capacity of truck per trip and more consolidation cargo.
- Value added is expected to pass through NR-13N and NR-9, which will be distributive processing provided along NR-13N and NR-9.

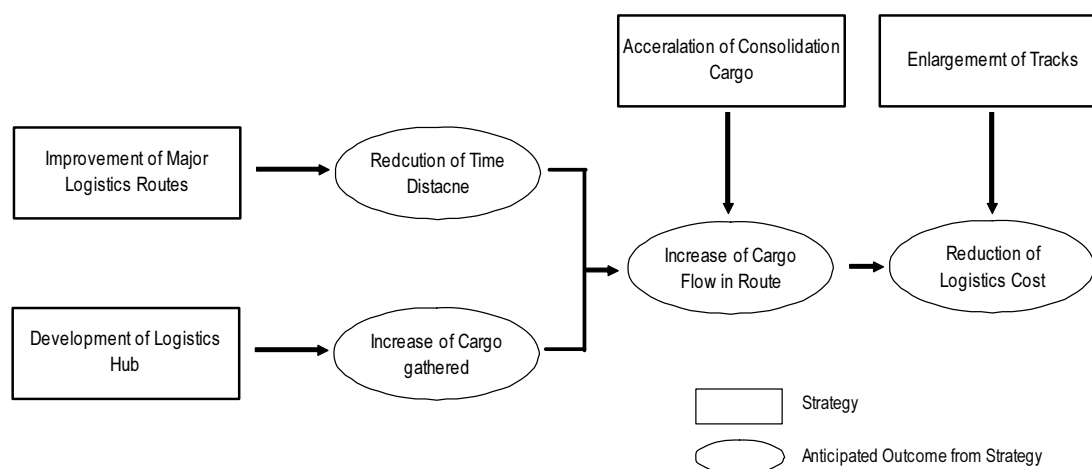
Logistics hub and link system should be effectively realized to gather more cargo to and from into hubs with improving links to be passed on by larger trucks. So, target cargo should not limited to the transit cargo but also import/export cargo and domestic distribution cargo with an aim of balancing cargo to and from on one hand and generating merits of scale on the other hand.

Accordingly, this strategy should breakdown into the following 3 actions:

- Development of Logistics Hub

- Improvement of Major Logistics Routes
- Improvement of Transport Efficiency

With the strategies, the time-distances along the major logistics routes in Lao PDR in particular NR-13N and NR-9 shall improve; shortening the travel time along the routes. At the same time, logistics hubs shall also be developed to generate nodes to gather more cargo including transit, export/import and domestic distribution. Better conditions on the routes and increased volume of cargo at hubs shall increase cargo flow volume along the routes. Receiving logistics service at the VLP and the SLP would be a sort of incentive or value added to select NR-13N and NR 9, too. These efforts will result in reduced logistics cost along those routes through reduction of empty return haulage and vehicle operation costs. Reduced cost is expected to contribute to increased cargo flow.



Source: JICA Study Team

Figure 6.4.2 Structure of Strategy 1

## 6.4.2 Development of Logistics Hub

### (1) General

Logistics hubs developed under this strategy shall be divided into the following types:

- International Hub
- Regional Hub
- Logistics Hub for Specific Products

#### 1) International Hub

International hub is a transport node which acts as the interface between domestic transport and international transport and serving mainly transit cargo and import and export cargo. The international hubs shall be located along the NR-13N and NR-9 to integrate cargo flow of transit cargo and import/export cargo. In addition to that, logistics park is a pace maker to encourage distributive processing which is expected to be a sort of value added of selecting NR-13N and NR-9.

## 2) Regional Hub

Regional hub is a transport node to carry out mainly trans-shipment of domestic cargo between trunk and area transport. The domestic routes especially along NR-13N and NR-9 are used as both routes for international transit and routes for domestic truck routes, such that regional hubs shall support integration of more cargo flow along the routes by adding domestic cargo onto the transit cargo.

On the other hand, some regional hubs may have unique potential. In accordance with population and economic growth in both Lao PDR and Thailand, in particular border areas, goods distribution volume may gradually increase. It results in requiring logistics with lower cost and more stable system to serve the border area. Utilizing low labor, land and construction cost advantages in Lao PDR under increased logistics demand, there is potential to attract inventory and storage function to Lao PDR to serve the border areas along Mekong River including Thai side at lower cost.

## 3) Logistics Hub for Specific Product

Logistic hubs for specific products have unique characteristics appropriate to certain cargo. The hubs shall be transport nodes to deal with certain strategic cargo for mainly transit, import/export. To materialize the several levels of logistics hubs, the following actions should be taken into account.

### (2) Actions

#### 1) International Logistics Parks Development Project (P111)

This program aims at developing international interface facility in logistics in Lao PDR. The facility, namely “logistics park” is to act as a sort of one-stop service integrating necessary services at border, which has benefits to reduce transport time and logistics costs for integration of cargo flow. The program consists of the following projects such as:

- Vientiane Logistics Park Development Project
- Savannakhet Logistics Park Development Project
- Luangnamtha Logistics Park Development Project

**Table 6.4.2 International Logistics Hub**

Logistics Park	Major Road	Anticipated Handling Volume (tons/year) in 2025	Functions and Roles
Vientiane Logistics Park	NR-13N, NR-13S	Import: 2,384,000 Export: 281,000 Domestic: 2,817,000 Transit:	<ul style="list-style-type: none"> <li>• Interface with Thailand for import/export and transit cargo</li> <li>• Integration of cargo flow along NR-13N including domestic, transit and import/export to reduce empty return haulage</li> <li>• Trans-shipment and Consolidation</li> <li>• Distribution</li> <li>• Inventory and storage service for the areas along Mekong River including Thai side</li> </ul>
Savannakhet Logistics Park	NR-9, NR-13S	Import: 1,186,000 Export: 736,000 Domestic: 845,000	<ul style="list-style-type: none"> <li>• Interface with China for import/export and transit cargo</li> <li>• Integration of cargo flow along NR-13N including domestic, transit and import/export to compete against</li> </ul>

Logistics Park	Major Road	Anticipated Handling Volume (tons/year) in 2025	Functions and Roles
		Transit:	NR-3 route to reduce empty return haulage <ul style="list-style-type: none"> <li>• Trans-shipment and Consolidation</li> <li>• Distribution</li> <li>• Inventory and storage service for the areas along Mekong River including Thai side</li> </ul>
Luangnamtha Logistics Park	NR-13 N, NR-3	Import: 77,000 Export: 33,000 Domestic:217,000 Transit:	<ul style="list-style-type: none"> <li>• Interface with China for import/export and transit cargo</li> <li>• Integration of cargo flow along NR-13N including domestic, transit and import/export</li> <li>• Trans-shipment and Consolidation</li> </ul>

Source: JICA Study Team

### 1) Regional Logistics Parks Development Project (P112)

This program aims at improving efficiency of regional logistics system by creating hierarchical logistics network under hubs and spokes. Regional logistics parks, consisting of inventory base and trans-shipment facility, are expected to regionally supply services and facilities. The regional network will be key in securing goods supply whenever it is needed in its influencing zones. These influencing zones are not limited to the cities in Lao PDR but also include the border areas of Thailand along Mekong River.

To this end, the program consists of the following projects:

- Luangprabang Logistics Park Project
- Thakhek Logistics Park Project
- Champasack Logistics Park Project
- Muangxai Logistics Park Project (to be carried out after 2025)
- Huoixai Logistics Park Project (to be carried out after 2025)

**Table 6.4.3 Hubs and their Functions**

Logistics Park	Major Road	Anticipated Handling Volume (tons/year) in 2025	Functions and Roles
Luangprabang Logistics Park	NR-13N	Import: 77,000 Export: 33,000 Domestic:217,000 Transit:	<ul style="list-style-type: none"> <li>• Integration of cargo to and from the surrounding provinces</li> <li>• Support integration of cargo flow to reduce empty return haulage</li> <li>• Trans-shipment and Consolidation</li> </ul>
Thakhek Logistics Park	NR-13S, NR-12	Import: 77,000 Export: 33,000 Domestic:217,000 Transit:	<ul style="list-style-type: none"> <li>• Interface with Thailand for import/export cargo and transit cargo between Thailand and Vietnam</li> <li>• Integration of cargo to and from the surrounding provinces</li> <li>• Inventory and storage service for the areas along Mekong River including Thai side</li> <li>• Trans-shipment and Consolidation</li> </ul>
Champasack Logistics Park	NR-13S, NR-16, NR-14	Import: 77,000 Export: 33,000 Domestic:217,000 Transit:	<ul style="list-style-type: none"> <li>• Interface with Thailand for import/export</li> <li>• Integration of cargo to and from the surrounding provinces</li> <li>• Inventory and storage service for the areas along Mekong River including Thai side</li> <li>• Distribution</li> <li>• Stock and transport center for agricultural products</li> <li>• Trans-shipment and Consolidation</li> </ul>

Note: Logistics Parks at Muangxai and Huoixai are subject to discuss in detail after 2025.

Source: JICA Study Team

## 2) Specific Logistics Hubs Development Project (P113)

Logistic hub for specific products shall be attached to the international and regional logistics parks in their functions. The following 3 projects are identified:

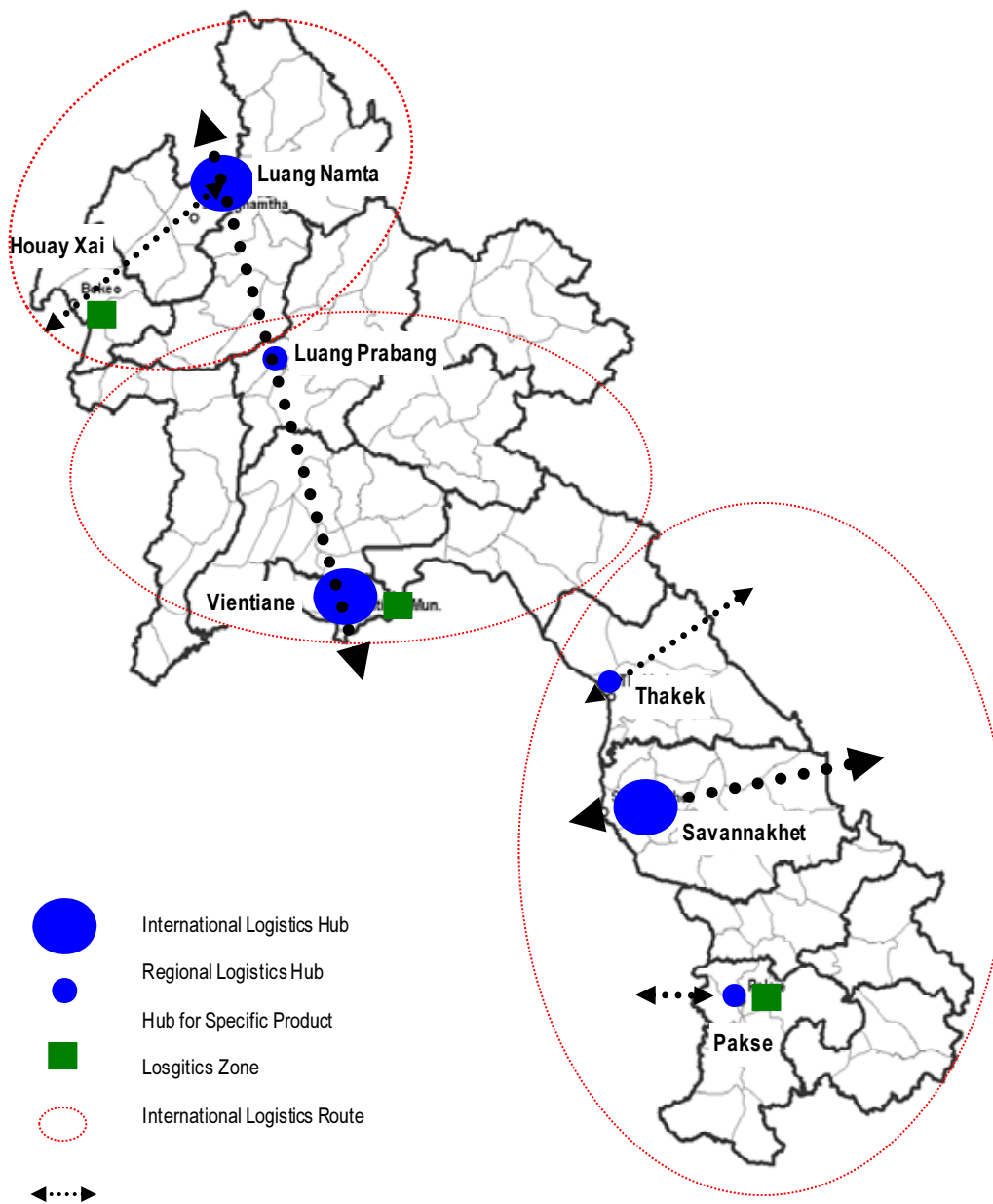
- Energy storage and transfer station in Huoixai
- Petroleum storage at Vientiane
- Agro products cold storage in Pakse

**Table 6.4.4 Hubs and their Functions**

Logistics Park	Major Road	Specific Cargo	Functions and Roles
Huoixai Logistics Park	NR-3	<ul style="list-style-type: none"> <li>• Petroleum Products (from Thailand to China)</li> <li>• Vegetables and flowers (from China to Thailand)</li> </ul>	<ul style="list-style-type: none"> <li>• Storage</li> <li>• Cold storage</li> <li>• Trans-shipment</li> </ul>
Vientiane Logistics Park	NR-9, NR-13S	<ul style="list-style-type: none"> <li>• Petroleum Products (from Thailand to Lao PDR)</li> </ul>	<ul style="list-style-type: none"> <li>• Storage</li> <li>• Trans-shipment</li> </ul>
Champasack Logistics Park	NR-13 N, NR-3	<ul style="list-style-type: none"> <li>• Coffee (from Lao PDR to Thailand)</li> <li>• Vegetables and fruits (from Lao PDR to Thailand)</li> </ul>	<ul style="list-style-type: none"> <li>• Storage</li> <li>• Cold Storage</li> <li>• Trans-shipment</li> </ul>

Source: JICA Study Team

The logistics parks identified above are illustrated in Figure 6.4.3.



Source: JICA Study Team

Figure 6.4.3 Locations of Logistics Parks

### 6.4.3 Improvement of Major Logistics Routes

#### (1) General

Road network has drastically improved since the last decade in Lao PDR, the national road network in particular. Most of national roads and provincial roads have been paved, such that basic requirements from traffic and transport have been satisfied. However, it is necessary to improve major roads used as major logistics routes to integrate more cargo flow following logistics development strategy. The basic policies of further improvement of road network are in response

to the requirements arising from:

- Shortening of transport time
- Enlargement of trucks
- Flexibility of transport

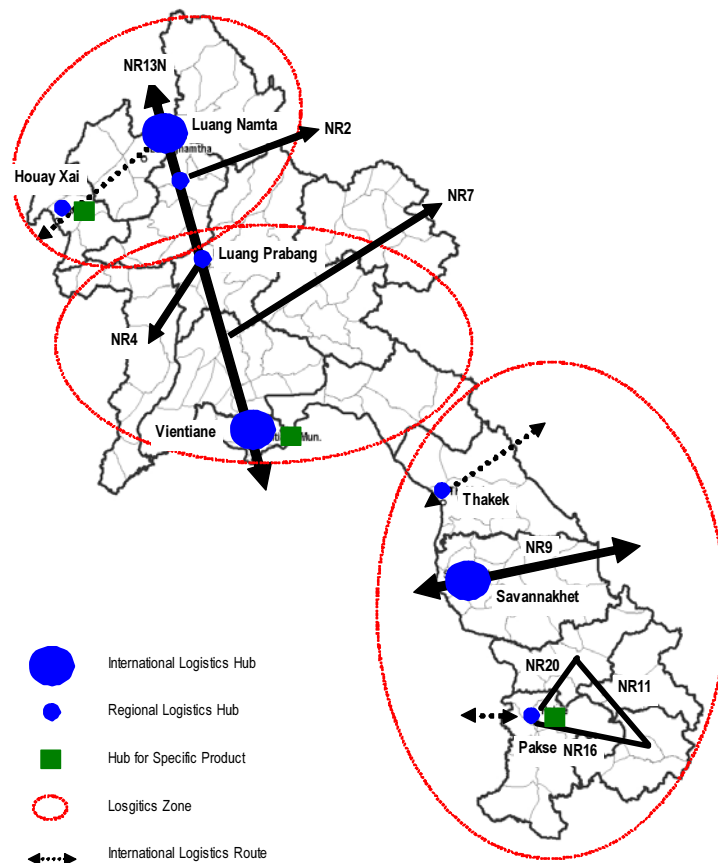
To achieve these requirements, the following actions should be considered.

**(2) Actions**

**1) International Transport Routes Improvement Project (P121)**

This program aims at improving international logistics routes to speed up travel time of bigger vehicles such as trailers at the first stage; improving the road structure to withstand heavier truck loading at the second stage; and finally improving road facilities to enable night driving. Focus is given basically to NR-13N and NR-9, which shall be strategic logistics corridors to integrate cargo flow in Lao PDR. The projects are:

- Road Improvement of NR-13N
- Road Improvement of NR-9



Source: JICA Study Team

**Figure 6.4.4 Logistics Routes to be Improved under the Strategy**

## **2) Regional Transport Improvement Project (P122)**

This program aims at providing better regional networks in order to vary connections among cities in GMS. It may contribute to increased potential for cargo flow to be integrated into the NR-13N and NR-9 by promoting more various movements of peoples and goods in GMS. Focus is given basically to the following roads:

- Road Improvement of NR-4 and NR-7 and NR-6 to form Northeastern Economic Corridor
- Road Improvement of NR-2E to Dien Bien Phu
- Road Improvement of NR-12
- Road Improvement of NR-16E, NR-20, NR-11

### **6.4.4 Improvement of Transport Efficiency**

#### **(1) General**

Transport efficiency is one of the significant factors affecting logistics cost. It is a factor that can be potentially affected by certain government intervention. Transport efficiency can be improved by increasing transport volume per trip by truck as well as by minimizing transport costs by using different transport modes, i.e. multi-modal transport. The transport volume per trip by truck can be increased in 2 ways: one is to make trucks bigger; the other is to improve loading rate by encouraging consolidation trucks. As for the multi-modal transport, the use of railway is important. It is, accordingly, necessary to take certain actions which can materialize the following basic policies:

- Enlargement of trucks to increase transport volumes per trip
- Improvement of load factor by consolidation
- Multi-modal transport to facilitate use of rail freight transport

To achieve these requirements, the following actions should be considered.

#### **(2) Actions**

##### **1) Truck Enlargement Program (P131)**

At present, most Lao truck companies use old trucks, which are recognized as one of the constraints to their participation in the logistics market in the GMS; hence, it is important to accelerate the replacement of old trucks of Lao truck companies with new larger trucks. This program aims at assisting this replacement process to increase transport volume per truck trip and reduce travel times. Public support shall be taken into account in replacement of old trucks with new larger trucks. Although it is essential for authority handling logistics administration to delineate scheme and financial source in details, the following supporting schemes could be potential measures:

- Reduction of vehicle tax on new large trucks
- Soft loan for logistics companies
- Introduction of guarantee association to provide loans to the logistics companies



## **2) Consolidation Promotion Program (P132)**

Consolidation is one way of improving loading rate of trucks in general. Logistics parks and transport alliance shall be key in promoting consolidation. The Logistics park has a function of gathering cargo as a transport hub, where it will be presented with the opportunity to combine cargo. On the other hand, transport alliance is a key direction in facilitating joint works among transport companies in the logistics park including LCL services. Transport alliance will share information on cargo as well as transport works such as combining cargo among the alliance companies. It would also be necessary to keep same service level among the alliance companies. The public sector shall support it with the following actions:

- Assistance to prepare standard contract format
- Establishment of cargo liability insurance
- Human resource development
- Logistics park development and facilitation of use of the logistics park

## **3) Inter-modality Improvement Project (P133)**

Railway extension project will commence in late 2010 from Thanaleng Station to Vientiane Central Station. China will provide technical assistant to carry out study on railway project connecting Kunming of Yunnan and Vientiane. The actuality of the project is ambiguous thus far, but it is important to understand that road transport is the dominant mode at present and will continue to be the leading mode in future as well. However inter-modal transport or combination of road transport with rail transport is strongly expected to vary options/alternatives in transport modes. For this purpose, it is important to integrate railway CY function into Vientiane Logistics and coordinate both transport modes such that they work efficiently and in tandem.

## **4) Attraction of Distributive Processing (P141)**

Distributive Processing is one of key function to integrate cargo along the route NR13N and NR 9 by providing attractive value added on the route. Logistics parks in particular Vientiane Logistics Park (VLP) and Savannakhet Logistics Park (SLP) are the candidate site to gather distributive processing activities based on the cargo terminal function along the NR 13N and NR 9. Some incentives are also very helpful for VLP and SLP to gather more cargo for distributive processing.

## **6.5 Development Strategy 2: Business Stimulation**

### **6.5.1 Basic Concept**

Lao PDR has few logistics companies. These are located in Vientiane and engage mainly in domestic transport activities pertaining to import/export and transit cargo in Lao territory under foreign logistics companies (forwarders). The size of the companies is absolutely small compared to the foreign logistics companies and they engage in the contract-out works under the foreign companies. Accordingly, it is hard for the Lao companies to accumulate capital and know-how to compete against foreign logistics companies.

On the other hand, the other logistics companies are very small truck companies or individual owner drivers. There is limited transport demand targeting local consignees and vendors in local logistics market except for Vientiane. With those many small companies and individual owner drivers, the market has an over-supply of logistics companies relative to the existing demand. The over-competition without roles results in lower profits and lower quality of transport services in domestic transport in Lao PDR.

Under such circumstances, it is difficult for the local logistics companies to obtain necessary funds for capital and equipment investment (such as buying new trucks, constructing truck facility, introducing IT etc.) from banks, such that the local logistics companies are not properly equipped to respond to requirements from clients. The approach to use under which sufficient logistics services in Lao PDR are provided, especially along the major logistics routes of NR-13N and NR-9 is a critical issue.

This situation is not only exacerbated by the fact that local companies would not be able to respond to increased logistics demand arising out of economic development, urbanization and population growth in the near future, but also by the loose industrial and agricultural development opportunities without proper transport modes in Lao PDR to harness them. In particular, it is a problem to provide appropriate logistics companies to offer the services along NR-13 N and NR-9 which are designated as a main international routes for integrating cargo flow in Lao PDR.

It is accordingly essential for Lao PDR to emphasise the stimulation of logistics business in Lao PDR.

In cognizance of the above, the strategy of “ Business Stimulation” aims to stimulate logistics businesses in Lao PDR to serve increased volume of land transport as well as to serve expanded market in GMS. An important problem pertaining to the Lao logistics businesses is therefore how to provide sufficient logistics services. In this regard, it is of great importance for Lao PDR to uphold the principle that the market should be liberalized as much as possible without public intervention. It means creation of free and competitive market circumstance in logistics for both foreign and domestic logistics businesses in Lao PDR. The competitive logistics market in Lao PDR shall be opened up to both local and foreign logistics providers; hence, the Lao Government is required to liberalize participation in logistics market in Lao PDR. For this purpose, promotion of foreign logistics business is important to up-lift quality of logistics services available in Lao PDR while the strengthening of local logistics providers is essential from an industrial development policy point of view.

- In consideration of current local providers, the foreign providers should participate in the logistics market in Lao PDR in order to provide qualified services as well as to induce local providers to upgrade their capacity through partnership or other cooperation framework.
- It is an important issue from domestic industry development policy point of view in order to improve competitiveness of local providers in terms of service level, business management and administration.

The logistics businesses in Lao PDR will target the cargo to and from Lao PDR in short time and gradually expand to target the cargo moving in the GMS, even that between third-party countries in the medium to long term. Acceleration of foreign investment in logistics as well as fostering domestic logistics business competitiveness would be taken into account at the same time. Accordingly, this strategy should break-down into the following 3 actions:

- Attraction of Foreign Logistics Business
- Strengthening of Domestic Logistics Business
- Strengthening of Logistics Administration
- Business Supports

## 6.5.2 Attraction of Foreign Logistics Business

### (1) General

Attraction of foreign logistics businesses into Lao PDR is to provide sufficient logistics service in Lao PDR as well as to make local providers upgrade their capacity through competition and collaboration among the businesses. Influence on promoting logistics industry is not only limited to the logistics industry itself. Customers (demand side) can receive large benefits from availability of qualified and lower cost service, which will be an incentive for business expansion toward region and global market.

### (2) Actions

#### 1) Foreign Investment and Partnership Promotion Program (P211)

This program aims to promote foreign direct investment from international transport companies. Active foreign business entry is profitable for users in Lao PDR and GMS as well as for further logistics development along the proposed strategy. However, some negative impacts may be anticipated in local logistics businesses. Partnerships and other forms of cooperation are a useful method for local providers to upgrade their business quality. The following incentives should be considered:

- Tax incentives
- Investment incentives
- Incentives for vehicle registration

#### 2) Logistics Business Deregulation Program (P212)

This program aims at improving logistics service quality available in Lao PDR through generating competition in the market. Prior to commencing cabotage policy, Lao PDR should be in a leading position in the deregulation of transport sector in GMS to attract foreign investment in logistics businesses. Basic direction of deregulation is to open /freely enter domestic logistics market of Lao PDR as well as to generate liberalized market with minimum public intervention such as:

- Deregulation of business entry
- Deregulation of towing tractor (described in details in section 6.5.2)
- Deregulation on license, permission and notification regarding logistics businesses

### **6.5.3 Strengthening of Domestic Logistics Business**

#### **(1) General**

This strategy aims to foster local logistics businesses competitiveness against foreign logistics businesses. Basic policy can be divided into 2 directions: one is to restructure logistics sector to be more competitive and the other is to make business facilitation.

#### **(2) Actions**

##### **1) Leading Company Cultivation Program (P221)**

This program aims at cultivating leading logistics companies in Lao PDR to participate in international logistics business in GMS. Logistics companies in Lao are small businesses with limited capacity in management, marketing capacity and capital, accordingly suffering loss in business opportunities. To avoid leakage of benefits of logistics development in Lao PDR, it is of great importance to cultivate larger logistics companies in Lao PDR which can provide competitive services against foreign logistics companies. To this end, it is essential that specialized logistics companies serve specific logistics market segment with the following projects such as:

- Grading of local logistics companies size and type of services
- Revision of qualification of registration of logistics companies
- Subsidy and incentive system by the grade mentioned above

##### **2) New Business Incubation Program (P222)**

This program aims at incubating new logistics related businesses at logistics parks. In accordance with increase in logistics volume of transit, import and export cargo, new services in newly developed international and regional logistics parks should be taken into account. In this regard, the program consists of the following projects such as:

- Support to participate in Inventory management business for import and export products at Vientiane, Savannakhet and Champasack Logistics Parks
- Support to exploiting Integration of inventory service and transport service in domestic logistics market at regional and provincial logistics parks

##### **3) Business Matching and Information Service Program (P223)**

Local logistics businesses in Lao PDR are unable to improve business exercises due to not only financial weakness but also shortage of management skills, business network and capability of staffs. This program aims to assist private logistics businesses by providing the following business information service:

- Business (cargo transport) inquiry information
- Coordination of joint works such as transport, vacant space, truck repair garage, purchase of parts, oil etc among local logistic companies
- Regular dialogue between private and public sector in logistics

#### **4) Guarantee Association Development Program (P224)**

ASEAN and GMS agreements stipulate the establishment of guarantee associations in their protocols. In Lao PDR, LIFFA is nominated as a guarantee association. Although it is required that each country establishes a guarantee association, there is no such association in practice at the moment. Besides, there hasn't been any discussion on the method for effective cooperation among associations. Local logistics businesses will require guarantee to participate in cross-border services. However, local logistics businesses have very limited financial and managerial capacity to get guarantee such that it is necessary for Lao PDR to actively establish guarantee association as soon as possible. For this purpose, it is important to take following 2 steps:

- First step; Realizing guarantee association headed by LIFFA with support from MPWT
- 2nd step; Promoting cooperation among country's associations, led by Lao PDR

#### **5) Cargo Liability Development Program (P225)**

A poor insurance system for transport has been pointed out for long time as one of the problems facing local logistics businesses in Lao PDR. A majority of general operators are small scaled or owner-drivers, such that they are unlikely to be familiar with cargo liability system, which is a critical disadvantage in light of the global standard of logistics businesses. Currently, situation is gradually changing with a couple of foreign affiliated insurance companies established in Lao PDR. Taking this opportunity, it is of great importance to improve both cargo liability insurance systems for cargo security. Basic policies of cargo liability insurance are:

- Development of standard cargo liability system (clause)
- Adoption for compulsory participation into cargo liability system
- Adoption for qualified trucks (which is effective for reducing cargo damage)

#### **6) Capacity Development Program (P226)**

For the last decades, Lao PDR has received significant inflows of technical cooperation, much of which aimed at supporting institutional development and building the legal framework. While these changes have been accomplished, there still remain problems, which lead to lag behind the targeted outcome. Most problems identified in the empirical studies were raised from lack of capacity i.e.: lack of human and financial resources, lack of accountability, and lack of law enforcement.

In the logistics filed, an important problem pertaining to the Lao logistics business is the shortage of capital and knowledge and competency of own business. Logistics-related issues were raised in the interview with the private sector and much of them were directed towards the capacity of the local forwarding companies, in terms of reliability and efficiency of freight service.

The logistics sector in Lao PDR is characterized by high cost, low quality services due to various reasons including poor infrastructure; inadequate institutional arrangements which are not consistent to create conducive climate for investment; inadequate capacity in human and financial resources; and lack of law enforcement.

The deteriorated state of the logistics sector coupled with unsatisfactory operational performance signifies fundamental characteristic of this sector. As discussed in Chapter 2 of this report, persistent weaknesses in the development and management of the logistics sector have been identified and include:

- Lack of (or Non-existence of) coherent policy guidance from those concerned with the planning and development of the logistics infrastructure;
- Inadequate coordination and consultation among stakeholders;
- Shortage of trained and experienced personnel in the logistics industry; and
- Lack of regulatory regimes equipped to enhance competition and fair operational practices.

Accordingly, capacity development, which covers a broad concept from human resource development to institutional development, should be a focal issue discussed to address the institutional and individual deficits in the logistics sector.

In this regard, the following actions should be taken into account to carry out the strategy:

- Institutional and organizational level: Creation of the integrated body to govern logistics
- Industry level: Strengthening of management and quality of operation
- Individual level: Capacity building for employees in logistics industry

#### **6.5.4 Strengthening of Logistics Administration**

##### **(1) General**

Logistics strategy proposed here should be appropriately carried out as an important political agenda to realize status of “Land-linked country”. Since the private sector in Lao PDR especially logistics businesses is a very weak industry in Lao PDR with little competitiveness and growth potential, there is need to make certain public intervention in the market to support immature logistics businesses in Lao PDR by carrying out certain actions proposed here. Likewise, logistics administration in public sector still has a lot of room for improvement to make sufficient and effective public intervention.

##### **(2) Actions**

###### **1) Program on Establishment of Office responsible for Logistics (P241)**

Jurisdiction among the concerned ministries is fragmented and over-lapping. There is no sole agency which creates logistics policy guidelines. For example, under the Ministry of Public Works and Transport, a National Transport Committee was established to facilitate cross-border transport between neighboring countries. The Ministry of Industry and Commerce works separately to develop a trade facilitation policy and is expected to create a National Trade Committee. Another example can be shown in the inland depot (or public warehouse). The concerned agencies, for planning and developing the inland depot, are numerous and include the Ministry of Finance, Industry and Commerce, Public Security and Public Works and Transport. However, there are no clear-cut responsibilities amongst these ministries when planning and developing the inland depot.

Ideally, a single ministry will work at the regulatory level, an authority, under the ministry, will work at the planning level and several logistics agencies will work at the management and control level. Practically, there may be difficulty in integrating and establishing one giant ministry of logistics. Thus, the institutional and organizational arrangement should aim at setting up a sole authority for planning and developing logistics infrastructure and system.

To this end, the program should be developed in the following time schedule:

- 1<sup>st</sup> stage: Establishment of new office responsible for planning and administration in logistics in Lao PDR and GMS
- 2<sup>nd</sup> stage: Establishment of individual logistics agencies, e.g., Vientiane Logistics Park Agency and board of management in national level (e.g., National Transport and Trade Committee)
- 3<sup>rd</sup> stage: Establishment of logistics office at provincial level

## **2) LIFFA Strengthening Program (P242)**

Logistics businesses in Lao PDR will require institutional, financial and technical support to survive in the market or to obtain new business opportunities. Since the typical logistics business entity in Lao PDR is a rather small firm, certain supports are indispensable until they are able to compete with each other in the logistics market in Lao PDR and GMS. There is necessity to introduce business guarantee system and cargo liability insurance system to enter GMS market as well as a necessity to provide financial support to replace trucks and facilities in the future. Since individual logistics companies have very limited capacity, there is a great need to organize group/ association to jointly share risks and opportunities. There is Lao International Freight Forwarders Association (LIFFA) which consists of relatively large freight forwarding companies in Lao PDR. However LIFFA has very limited functions due to poor capacity in finance and human resources. To strengthen LIFFA, the following functions should be considered:

- Mutual support and cooperation among the member logistics businesses
- Share of risks and costs of business
- Counterpart/ representative to Government for dialogue and coordination of public support

On the other hand, it is also necessary to delineate method to strengthen financial basis of LIFFA to expand its activities and independency from certain companies and public sector.

## **6.6 Development Strategy 3: Market Expansion**

### **6.6.1 Basic Concept**

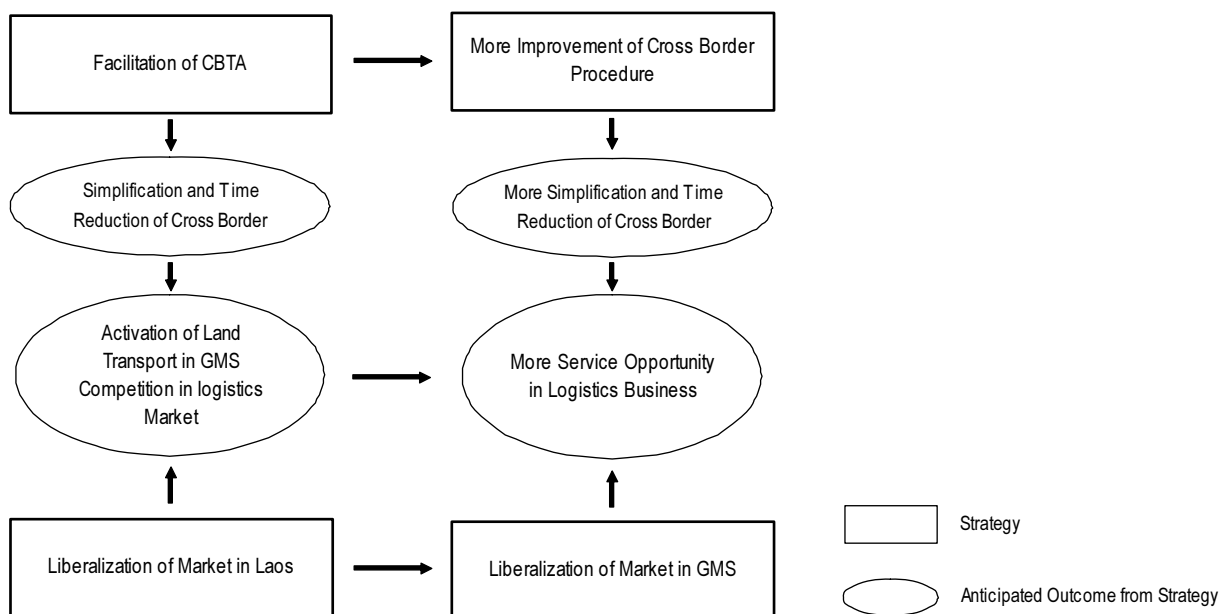
Market accessibility is a key issue in creating business opportunities and 'competition' that can lead to good services provided to customers. Liberalizing market accessibility can boost the business participants.

This strategy aims at expanding logistics market to be served by logistics businesses in Lao PDR. The logistics businesses in Lao PDR mainly target import, export and transit cargo confined to Lao PDR's logistics market. However the logistics market in Lao PDR is limited in size due to limited

population and economic size and it holds little promise of significant expansion in the future compared to the surrounding countries, in spite of increase in logistics volume from current level. Instead of the logistics market in Lao PDR, there is a promising large market in the vicinity of Lao PDR; the GMS market. Lao PDR is a top runner in leading seamless cross-border transport among GMS countries with CBTA and bi-lateral transport agreements with all surrounding countries except Myanmar.

Utilizing this advantageous position in cross-border transport, Lao PDR should basically formulate 2 policies: one is to realize more seamless cross-border transport; and the other is to pursue further liberalization and integration of the logistics market into one market in GMS. Lao PDR shall continue to lead more barrier-free cross-border transport targeting all inter-city transport in the GMS. At the same time, Lao PDR should open up its own logistics market to trigger the opening up of the GMS market. Accordingly, this strategy should break-down into the following 3 actions:

- Facilitation of CBTA
- More Improvement of Cross-Border Procedures
- Liberalization of Logistics Market



Source: JICA Study Team

Figure 6.6.1 Structure of Strategy 1

CBTA and bilateral and multi-lateral agreements have been concluded among GMS countries; however, there is limited enforcement of the agreements at the moment. In the strategy, those agreements on cross-border issues should be further activated to realize real benefits of facilitation of cross-border transport such as simplification, time reduction, transparency of cross-border procedure and more business opportunities in transit transport along economic corridors in GMS. The benefits may greatly contribute to fostering of more seamless cross-border procedures and transport businesses. On the other hand, circumstances to enable variety of logistics services should be provided in Lao PDR and GMS to accommodate more volume and demand of logistics services. In this regard, liberalization or deregulation of logistics market is key to generating more logistics services through competitive market in Lao PDR and GMS. Lao PDR shall play a leading role in liberalizing logistics market by opening up its own logistics market;



inducing the other GMS countries to follow suit. The final goal is to deregulate “cabotage service” of transport, which can allow transport between two third-party countries in GMS. This significantly expands logistics market accessible to logistics business in any of the GMS countries including logistics businesses in Lao PDR.

As the benefits of Lao PDR from this strategy, global logistics services targeting whole GMS are expected to be realized; the logistics businesses in Lao PDR can participate in them. This will reduce incidence of empty haulage by increasing flexibility in transport services along the corridors, with the added advantage of logistics hubs (logistics parks) gathering more cargo as well.

## **6.6.2 Facilitation of CBTA**

### **(1) General**

Lao PDR has finalized CBTA and several bi-lateral and multi-lateral agreements on cross-border transport with surrounding countries. Some level of implementation has been observed, but the progress is not satisfactory even a long time after finalization of agreements: this has resulted in realization of very limited visible benefits from the agreements at the moment. It is of great importance to appropriately practice the agreements as they are at the border points along the target corridors. For this purpose, it is necessary to develop cross-border capacity in terms of facilities and human resources as well as to monitor current status of the agreements to identify the reasons why they aren't actively implemented by:

- Monitoring of CBTA implementation
- Common control area development

### **(2) Actions**

#### **1) CBTA Implementation Monitoring Program (P311)**

Lao PDR has concluded CBTA and bi-lateral and multi-lateral agreements on cross-border transport with surrounding GMS countries. This program aims to advance implementation of the agreements by clarifying concrete actions to be taken so as to activate the agreements in the respective countries based on clarification of constraints to implementation of the agreements. Lao Government should take initiative to set up consultation meeting among GMS countries to jointly review current status of the agreements and to refine the road map to implementation of the agreements among GMS countries.

- Consultation Meeting on CBTA and bi-lateral/ multi-lateral agreements among GMS countries/ countries concerned
- Development of revised milestones

#### **2) Common Control Area Development Project (P312)**

ADB has led GMS countries to facilitate the cross-border procedure through setting up the single stop and single window inspection in cross-border procedure in order to eliminate the physical barriers and to harmonize inspection procedure. Common Control Area is the designated area to carry out this single window single stop service. Delay in developing common control areas (CCAs) seems to be an obstacle to carry out the agreements at this

moment. Accordingly, this program aims at accelerating functioning of CCAs through:

- Development of Common Control Area at Huoixai and Thakhek
- Standardization of operation of each CCA
- Capacity development program for staff at CCAs (e.g., training of the staff, provision of manual, information provision to freight operators).

### **3) Cross-Border Checkpoints Standardization Program (P313)**

It is unfortunately pointed out that current cross-border procedures largely reflect local conditions at any border point, such that it seems that they are not standardized in Lao PDR. According to the GMS meeting held in June 2009 at Kunming, many complaints from business proprietors were targeted at customs operations and included complaints about operation time, unscheduled early closing, long lunch breaks, overtime permission and weekend operation. It is of great importance that Lao PDR offers more standardized cross-border operations to ensure service reliability at border crossings in Lao PDR. In this regard, the program should focus on the following aspects:

- Standardization of customs opening time
- Standardization of procedure
- Standardization and upgrade of border facilities
- Improving pre-notice system for over-time customs operation

### **4) Tractor Head Exchange System Promotion Program (P314)**

Trans-shipment styles are largely categorized as the following 3 types: (a) Bag to Bag, (b) Container intact and (c) Tractor changing. Ultimately, the type (c) is most attractive because there is no need for trans-shipment operation or specific equipment for trans-loading; hence, it is the lowest cost option. Lao logistics providers are currently eager to adopt this method. In practice, switching the tractor head system is the most conventional way to introduce tractor change system. For this purpose, facilities for changing tractor heads are necessary. Deregulation is also necessary to allow domestic tractors to tow foreign semi-trailers and foreign tractors to tow domestic semi-trailers in each country. Additionally, it is also necessary to allow driving foreign tractors/semi-trailer combination in the domestic territory. It is summarized as follows:

- Logistics park to provide adequate space for switching tractor head system
- Deregulation of towing tractor
- Support to introduce tractor head equipment in Lao transport companies
- Business matching information system at logistics park

## **6.6.3 More Improvement of Cross-Border Points**

### **(1) General**

Continuous efforts should be made to ease cross-border procedures in order to attain further reductions in cost and travel time for land transport in GMS. Contingent upon the success or

accrued benefits from cross-border facilitation actions under 6.5.2., further facilitation or improvement of cross-border procedures is spread over cross-border points so as to contribute to increased integration of cargo along NR-13N and NR-9 as well as to improve cross-border procedures. From these points of view; the following programs shall be considered:

- Cross-border points development
- National Single Window and ASEAN Single Window System Acceleration
- Trade Facilitation

## **(2) Actions**

### **1) Cross-Border Points Development Project (P321)**

This program aims to increase cross-border points to further facilitate land transport. The project is mainly to upgrade and improve existing local cross-border points into international cross-border points for transit transport in GMS. Focus will be given to the points which can contribute to cargo flow integration, i.e., those that can contribute to increased transport volume along NR-13N and NR-9. The candidate cross-border points are:

- Muang Mai of NR-4 connecting to Dien Bien Phu, Vietnam,
- Nong Het of NR-7 connecting to Vinh, and
- Muang Ham of NR-1 connecting to Hanoi via Hua Binh.

### **2) Customs Facilitation Program (P322)**

This program aims to promote external trade by facilitating customs of Lao PDR in the short term. For this purpose, it is important to provide quicker customs procedure with more simplified and transparent procedure by measures such as:

- Standardization of customs services
- Decentralization of task responsibility to site office
- Introduction of green channel system
- Quality control of customs broker by introducing license system
- Capacity Development of customs staffs

### **3) National Single Window Acceleration Program (P323)**

ASEAN Single Window is the project to integrate cross-border information into single national system then to connect them among ASEAN countries to quickly exchange necessary information for several inspections at cross-border points such as CIQ and others with formatted information. This would foster quicker and more stable and transparent CIQ and other cross-border inspections in ASEAN countries. The member countries are firstly required to develop their own national single window systems: after which, the systems are then connected to each other to allow data exchange under an ASEAN Single Window system acting as a bridge system connecting the separate national systems.

ASEAN Single Window was scheduled to be completed by Thailand, Indonesia, Philippines, Singapore and Malaysia in 2008, followed by other ASEAN countries including Lao PDR in

2012. Lao PDR has just started discussions on introducing ASYCUDA System as a tool of E-customs; therefore, it is still a long way from developing a national single window system to later integrate into the umbrella system in ASEAN.

Given such current conditions, this program aims to promote the National Single Window in Lao PDR so as to foster easier, quicker, stable and transparent cross-border and trade procedures in Lao PDR. For this purpose, it is important to take the following measures:

- Development ASYCUDA system as a central tool of National Single Window
- Electrification of other cross-border documentation such as EDI and connect to ASYCUDA System

## **6.6.4 Liberalization in Logistics Market**

### **(1) General**

Lao PDR has a very limited logistics market due to limited population and economic size and the market will remain limited compared to logistics markets in other GMS countries such as Thailand, Vietnam and China despite anticipated growth in demand in the future. Assuming accessibility of the GMS market, Lao PDR shall be greatly attractive for logistics businesses due to its central location in GMS as well as advanced bi-lateral and multi-lateral agreements in cross-border transport with surrounding countries. Free access to logistics markets in other GMS countries shall be a target of the future and any GMS country has basic policy to integrate markets to form single liberalized market in GMS. Accordingly, it is of great importance for Lao Government to realize free participation in the market. Lao PDR has a good geographic and political position in promoting liberalization of logistics market in GMS.

Liberalization or deregulation of logistics market is key to enabling more logistics services through competitive market in Lao PDR and GMS. Lao PDR shall play a leading role in liberalizing logistics market of GMS by opening up its own logistics market.

### **(2) Actions**

#### **1) Domestic Logistics Market Deregulation Program (P331)**

Prior to the cabotage policy, Lao PDR should be a leader in deregulation of the transport sector in GMS so as to attract foreign investment in logistics businesses. The foreign businesses stationed in Lao PDR will target transit, and import and export services in the beginning, then gradually expand services to target GMS market from Lao PDR. Basic direction of deregulation is to open /freely enter domestic logistics market of Lao PDR as well as to generate competition among logistics businesses with minimum public intervention. In practice, it is important to implement the deregulation step-by-step with investigation of impacts to the domestic logistics businesses.

This program is the same as that under Strategy 2 in section 6.4.2.

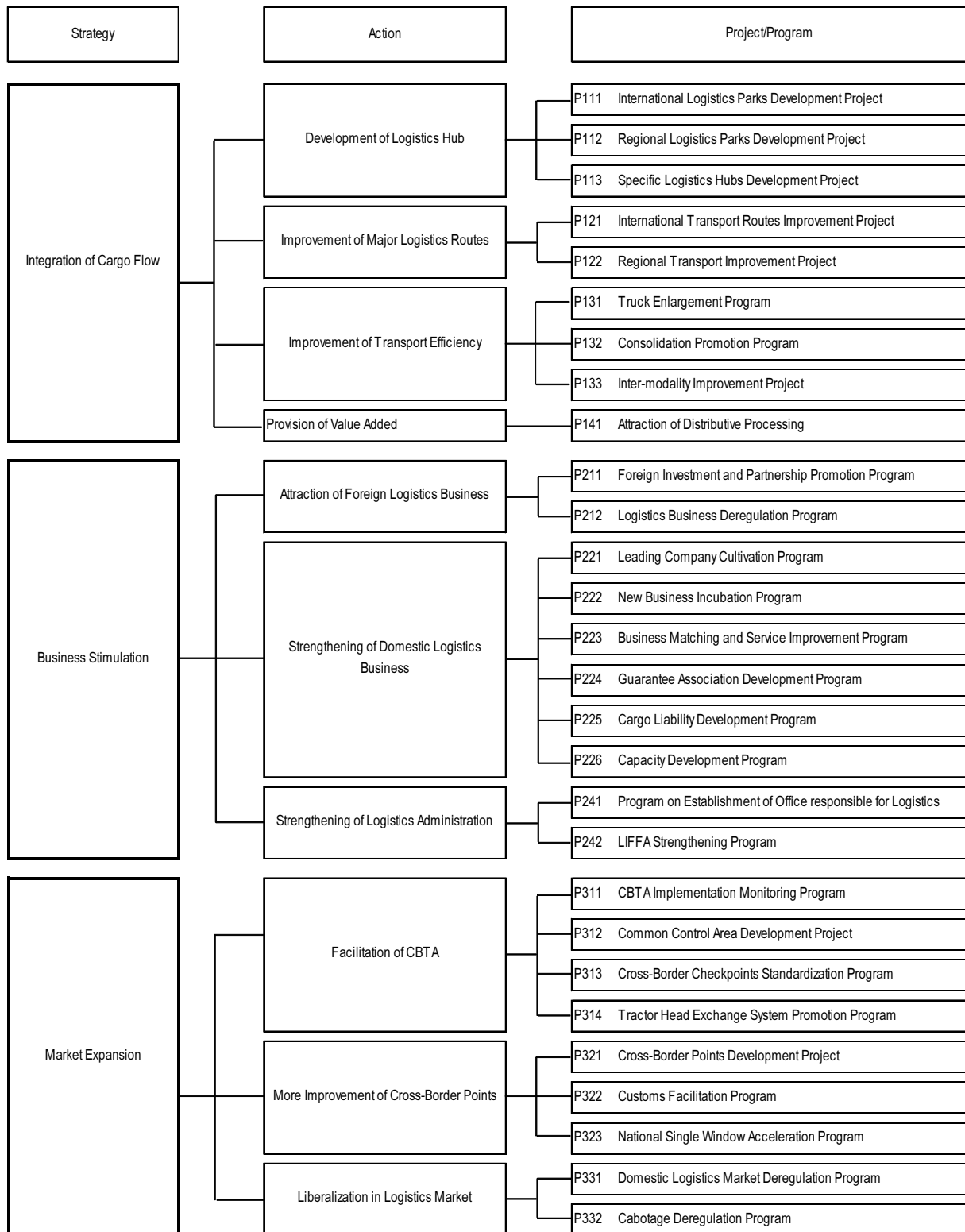
#### **2) Cabotage Deregulation in GMS (P332)**

ASEAN has adopted strict cabotage policy, which restricts transport service between third-party countries. It results in limited return haulage of transport, which is one of the critical

reasons for high transport costs in land transport in GMS, in particular transport costs for import, export and transit cargo. Cabotage deregulation can boost opportunities of accessing the big markets instead of facing the risk of entry of foreign competitors into domestic market of Lao PDR. It seems that the benefits from cabotage might be much larger than the negative impacts, such that cabotage should be pursued as a means of market expansion strategy.

## **6.7 Actions under Strategies**

All actions identified under the strategies are summarized in Figure 6.7.1.



Source: JICA Study Team

Figure 6.7.1 Actions under National Logistics Strategy

## CHAPTER 7 REGIONAL LOGISTICS STRATEGY

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### 7.1 Overall Strategy in Regional Core Cities

#### 7.1.1 Logistics Hub System

The National logistics strategy emphasizes the importance of logistics hubs to reduce logistics costs on land transport routes passing through Lao PDR by integration of cargo flow along major corridors of NR-13N and NR-9 in Lao PDR. It means that the hub and link system of freight transport network should be effectively formulated with neighboring countries to generate efficient inventory system in the country by adjusting cargo flow. A logistics hub is an essential facility in the formulation of the system. The national logistics strategy identifies the following logistics hubs:

- International logistics hub for land transport in GMS (in particular connecting Thailand with Viet Nam and Yunnan).
- Regional logistics hub to add domestic cargo and other cargo onto the major corridors as well as contributing to the improvement of trade and service, and quality of life in regional cities by properly distributing goods to remote areas.

On the other hand, the regional hub and link system should be developed in each region by specifying the influential zones, namely logistics zone, in parallel with the transport network development.

#### 7.1.2 Regional Core Cities

##### (1) Luangnamtha (Luangnamtha)

Luangnamtha is the provincial center of Luangnamtha province which is located in the northern region of Lao PDR bordering Yunnan of China and Myanmar. Trade and transport businesses in Luangnamtha are promising given the currently opened NR-3 connecting Yunnan with Thailand, which is designated as Indochina North-South Corridor. Transit transport volume has increased drastically of recent.

##### (2) Muangxai (Oudomxay)

Muangxai is the provincial center of Oudomxay province. It is also the largest city situated at a strategic location where the NR-13 to China intersects with the NR-4 to Viet Nam (Dien Bien Phu). Accordingly, Muangxai performs as a sub-regional center function of trade and transport in the northern Lao PDR covering Oudomxay, Luangnamtha and Phongsaly provinces.

**(3) Huoixai (Bokeo)**

Huoixai is the provincial center of Bokeo province which is located in the northern region of Lao PDR bordering Thailand and Myanmar. Huoixai has been developed as a Mekong river crossing point to Chiang Khong of Thailand. Currently Huoixai has NR-3 which is the Indochina North-South Corridor connecting Thailand with Yunnan of China. It also plans to build a new bridge across the Mekong River.

**(4) Luangprabang (Luangprabang)**

Luangprabang is the old capital of Lao PDR and center of administration and economic activities in northern Lao PDR. Luangprabang is in a strategic location where it can use the Mekong River as a transport route coupled with road links to surrounding provinces such as Xayabury, Xiengkhuang and Huaphanh.

**(5) Vientiane (Vientiane Capital)**

Vientiane is the capital of Lao PDR and center of administration and economic activities in the nation. Vientiane is the largest international gateway to Thailand across Mekong River by Friendship Bridge. Vientiane also has a railway connecting to Thailand. Vientiane is also the center of trunk highway system in the country with NR.1 and NR.13 to connect to the northern and southern regions.

**(6) Thakhek (Khammuane)**

Thakhek is the provincial center of Khammuane province which is located in central Lao PDR. Thakhek is in a strategic location in which it connects to Thailand and Viet Nam by the NR.8 and NR.12. Trade and transport businesses are expected to be activated in Thakhek by the construction of the Mekong Bridge.

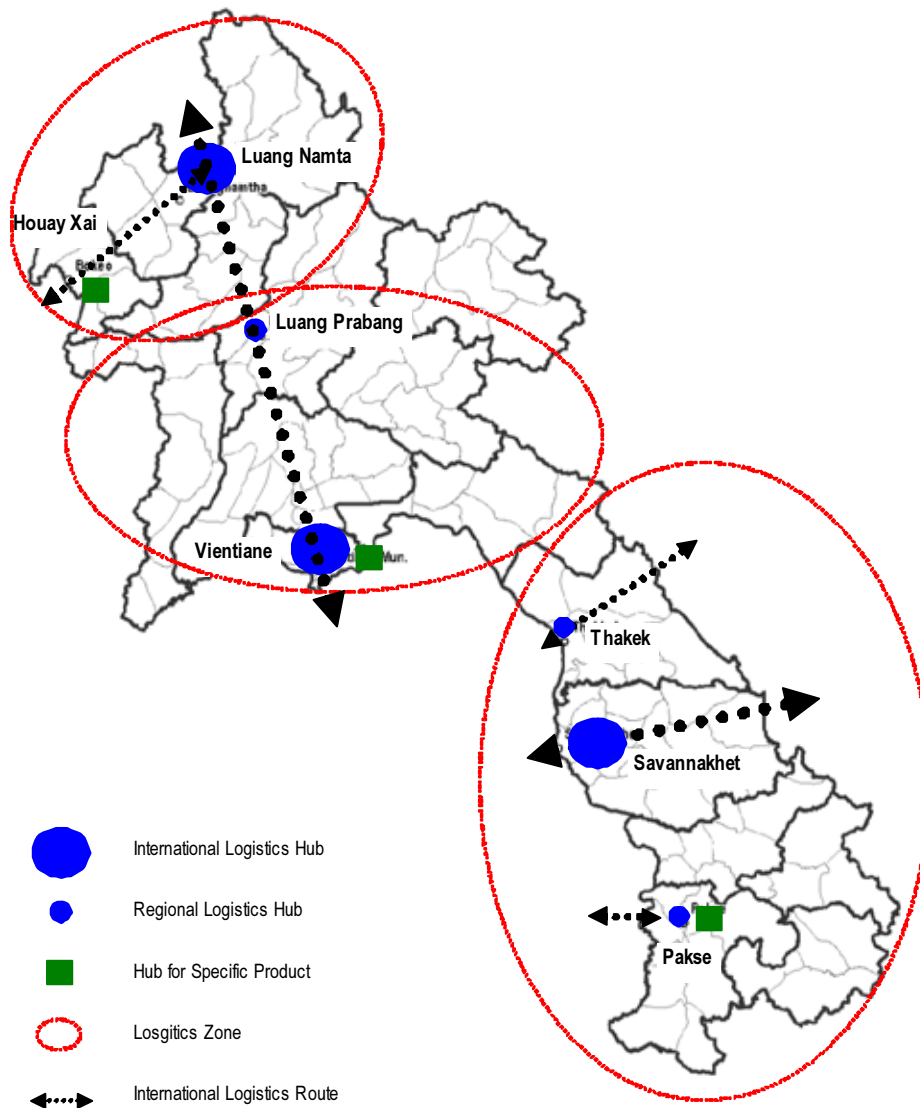
**(7) Savannakhet (Savannakhet)**

Savannakhet is the provincial center of Savannakhet province which is located in upper southern Lao PDR. Savannakhet occupies a very strategic location in which it can connect to Thailand and Viet Nam by the NR.9, which is designated as the Indochina East-West Corridor. Savannakhet is a center of economic activities in particular trade and transport in the upper southern region of Lao PDR.

**(8) Pakse (Champasack)**

Pakse is the provincial center of Champasack province which is located in lower southern Lao PDR. Pakse occupies a very strategic location at the intersection of NR.16 to Thailand, NR.18 to Viet Nam and NR.14 to Cambodia. Pakse is a center of trade and tourism in lower southern Lao PDR and is also a hub for agricultural products from Bolavens Plateau.





Source: JICA Study Team

Figure 7.1.1 Concept of Spatial Structure

## 7.2 Vientiane Capital

### 7.2.1 Current Economy and Future Development Plan

#### (1) Current Economic Conditions

Vientiane Capital is located at the center of Lao PDR. It shares a border with Nong Khai Province of Thailand along Mekong River. The total provincial area is the smallest in Lao PDR at 4,000 km<sup>2</sup>. Its population was recorded at 692,000 in 2005. The Vientiane Capital is bordered by Vientiane Province in the north, Borikhamxay Province in the east, and Nong Khai Province of Thailand in the south.

The city of Vientiane was established in 1560, and will celebrate its 450<sup>th</sup> anniversary in 2010. The

25<sup>th</sup> South East Asian Games (SEA Games) were held here in December 2009. In accordance with these big events, many projects are on-going. The 450<sup>th</sup> anniversary road connecting Vientiane City with the 1<sup>st</sup> Friendship Bridge will improve accessibility to Thailand. The sports stadium is being constructed in the northern part of Vientiane City along NR-13: the NR-13 is itself also being improved. In March 2009, the railway from Nong Khai to Thanaleng was connected through the 1<sup>st</sup> Mekong Bridge, while operations of passenger trains have started. The railway will be extended to the north, and Vientiane Station will be constructed in the near future.

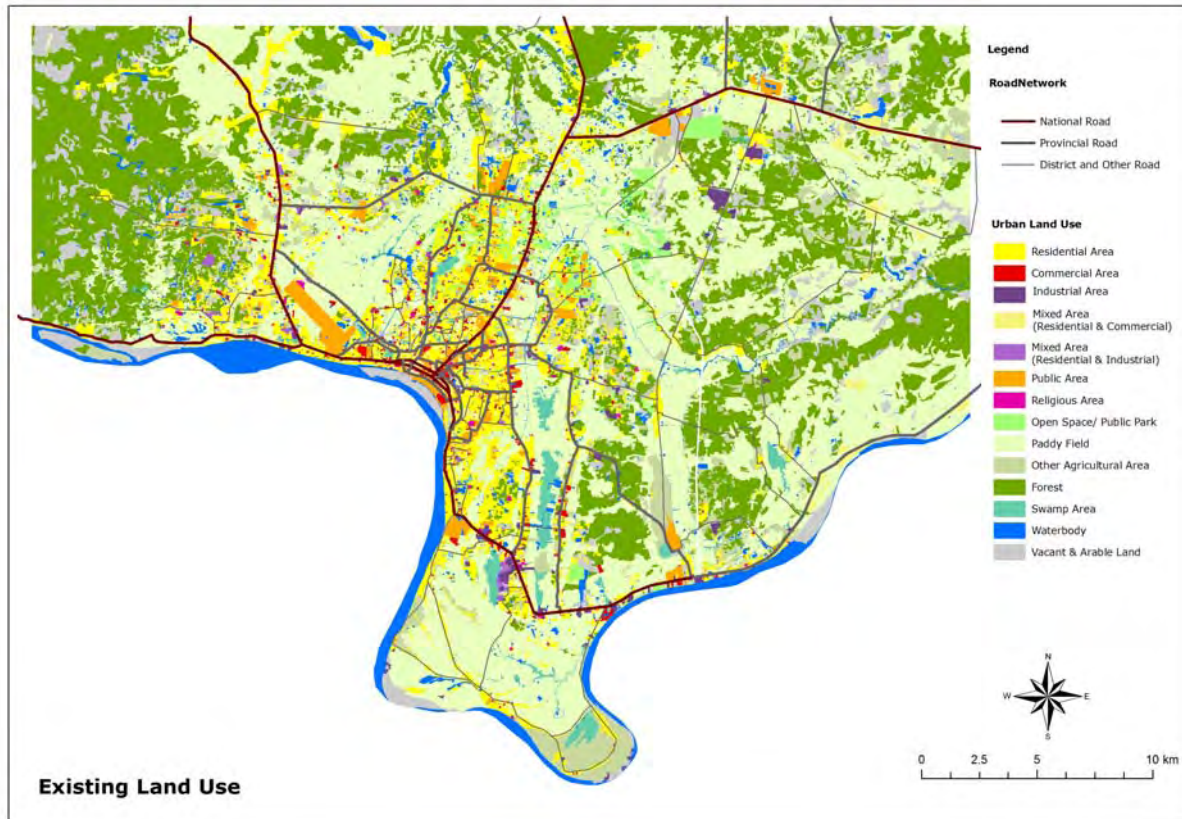
Vientiane Capital is a center of economic activities, and also plays an important role in agriculture. The area of rice fields in the province occupies 10% of total area. Rice production was 324,000 tons, which placed it in 2<sup>nd</sup> position behind Savannakhet Province. As regards, vegetables and beans, the production volume accounts for 16% of total production in Lao PDR, placing it in the 1<sup>st</sup> position among provinces in Lao PDR.

Economic activities in the secondary sector and the tertiary sector stand out from the other provinces. In the secondary sector, out of the 1263 companies in which the number of employees exceeds 50, 633 companies are located in Vientiane Capital. In addition to that, 135 FDI projects out of the 246 FDI projects in the secondary sector are carried out in Vientiane Capital. Due to easy access to infrastructure, information and labor force, primacy of Vientiane Capital will continue. The major manufacturing industry in Vientiane is garment and wood & wood processing. 53 garment factories export their products to foreign countries, mostly EU countries by use of General Special Preferences (GSP). The wood & wood processing industry produces more processed products such as furniture than other provinces such as Khammuane and Savannakhet. These products are exported to the surrounding countries. In the tertiary sector, commercial services and tourism are major activities. Vientiane is the biggest commercial center in Lao PDR, and it covers surrounding provinces and northern provinces in goods distribution. In terms of tourism, Vientiane Capital is a gateway to tourism in Lao PDR. The number of tourists was 500,000 while number of accommodations (hotels and guest houses) was 270 in 2008.

## **(2) Current Urban Structure and Transport Network**

Vientiane started up on the bank of Mekong River in front of Don Chang Island. This area still acts as downtown and city center for Vientiane with high concentration of business and commercial activities. However there aren't any high-rise buildings in downtown. The urban structure of Vientiane is based on the 3 main truck roads, namely: Tadua Road (Wattay International Airport to Santon district), inner ring road, and Langxan Avenue to NR-13 (President house ~ That Luang ~ Doean Nueang). The existing urbanized area is the area enclosed by Tadua road and the inner ring road. These roads radiate into surrounding provinces: NR-10, NR-11 and NR-13 (north) to Vientiane Province, NR-13 (south) to Borikhamxay and are connected to Nong Khai by the 1<sup>st</sup> Friendship Bridge.

Figure 7.2.1 conceptually shows urban structure of Vientiane with land use.



Source: JICA Study Team develops based on the Digital Map from Mapping Office

**Figure 7.2.1 Land use and Urban Structure of Vientiane**

### (3) Development Plan

#### 1) Socio-economic Development

In the latest socio-economic development plan, the 6th 5-year plan, the provincial government set the following development objectives.

- Enhance functions such as public administration, economy, businesses, culture and services,
- Ensure political stability and national security and increase and strengthen them comprehensively.
- Continue to promote industries in Vientiane Capital, emphasizing parallel development of economy and social aspects, with emphasis on sustainability of environment..
- Change the economic structure in progressive way by promoting industrial production and services with new technologies.

In order to achieve these development objectives, the following targets were set by the provincial government.

- Target GRDP growth rate will be no less than 9% per annum, and GRDP will be 11,130 billion Kip in 2010. Target GRDP per capita in the same year will be USD 1,300. In regard to sectoral growth, growth rates for agriculture, industry and service will be 7.8%, 12.5%

and 11.3% respectively, while sectoral composition will be 17% for agriculture, 55% for industry and 28% for service.

- Provincial population will increase to 838,000 persons in 2010. Develop qualified skilled human resources who will be engaged in science and technology, etc.
- Achieve 100% enrollment of compulsory education in rural areas, and complete construction of upper secondary schools. Improvement accessibility to public health services so as to prop up the average life expectancy to reach 68 years old.
- Secure enough volume of rice and foodstuff.
- Development of basic social economic infrastructure
- Promote FDI projects in Vientiane Capital having identified 12 projects as priorities to be incorporated.
- Maintain the beautiful cultural heritages as the characteristics of Vientiane Capital, and development of clean and green districts by district governments.

Urbanization proceeds along these 3 axes; north and south direction along Mekong river and Tadua road and eastern direction along NR-13 (President house ~ That Luang ~ Doean Nueang). The areas surrounding these urbanized/urbanised areas are lower intensive land use areas used for agriculture and forestry. Two areas are currently designated as industrial areas, namely: Thanaleng area and the eastern area; however, only a few factories are located in these areas.

The urbanized area of Vientiane City will extend to the eastern side of the existing City Centre. The area is currently designated as an industrial area, and a Chinese investor is planning urban development projects consisting of residences, a university and commercial facilities south of SEA Games Stadium and That Luang Swamp, etc.

## **2) Urban Development**

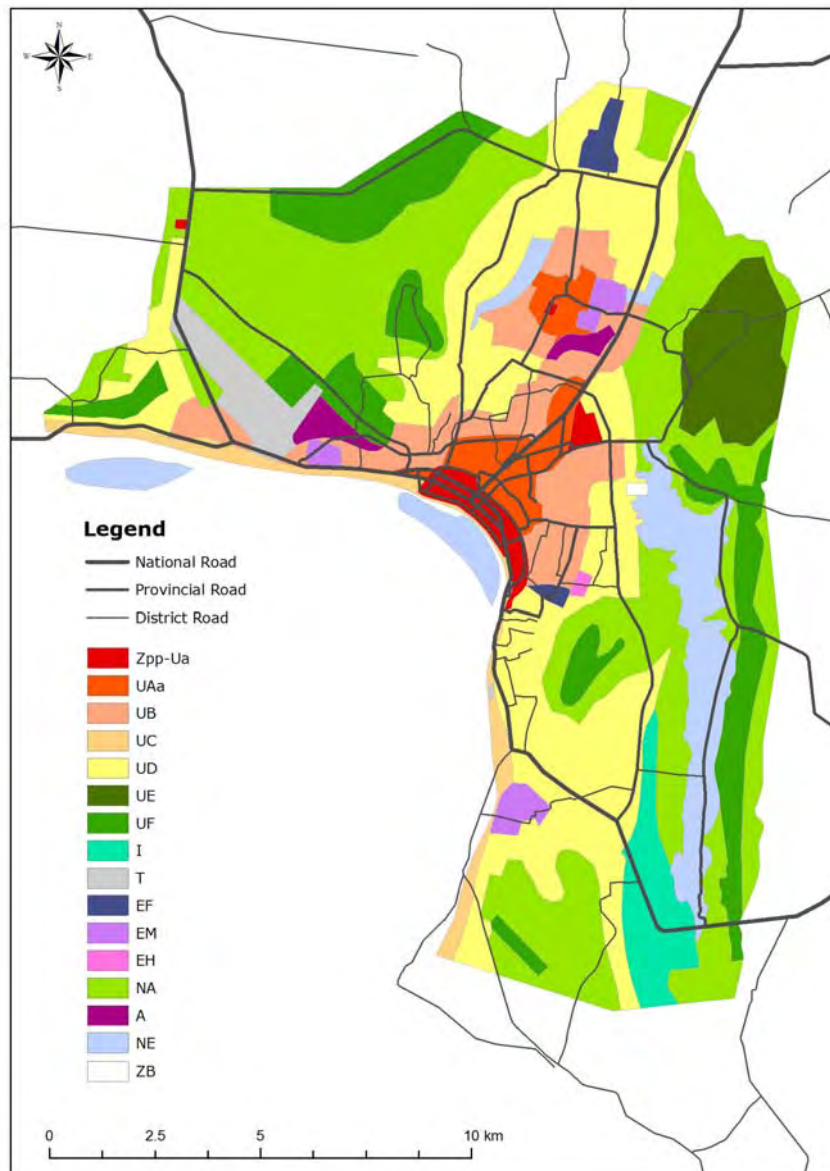
The Vientiane urban plan aims to reform Vientiane into a multi-core urban structure. The plan limits expansion of the existing downtown within the inner ring road while the other areas will be maintained as low intensive use areas such as paddy fields, up-land crop land or forest areas. Satellite towns and economic zones are simultaneously designated with limited urban core area in suburban Vientiane. Thanaleng area is designated as an industrial zone, so that location of logistics center meets urban plan. However, there is Dongphosy forest reserve in Thanaleng which is located along the railway: special permission procedure is required to develop it.

The urban road network basically consists of ring and radius systems. As a ring system, the inner ring road is planned to extend to Wattay Airport while the outer ring road is planned to connect Thanaleng to the north and north-west, and also act as a by-pass road.

New railway, namely Nong Khai – Vientiane Railway, which is now under construction from the border to Thanaleng, is planned to extend to Vientiane.

In the land use plan, 26% of total urban planning area is designated as urban use area, agricultural use is 42 % of total area while mixed land use between urban use and agriculture is 26%. The urban use area is designated along NR-13 and Mekong River within the inner outer ring road, which follows current urbanization directions. Dongphosy Forest Reserve and

Thanaleng area lie outside the urban planning area. The land use plan is shown in Figure 7.2.2.



Source: JICA Study Team

**Figure 7.2.2 Network and Land Use Concept in Vientiane Urban Planning**

### 7.2.2 Logistics in Vientianes

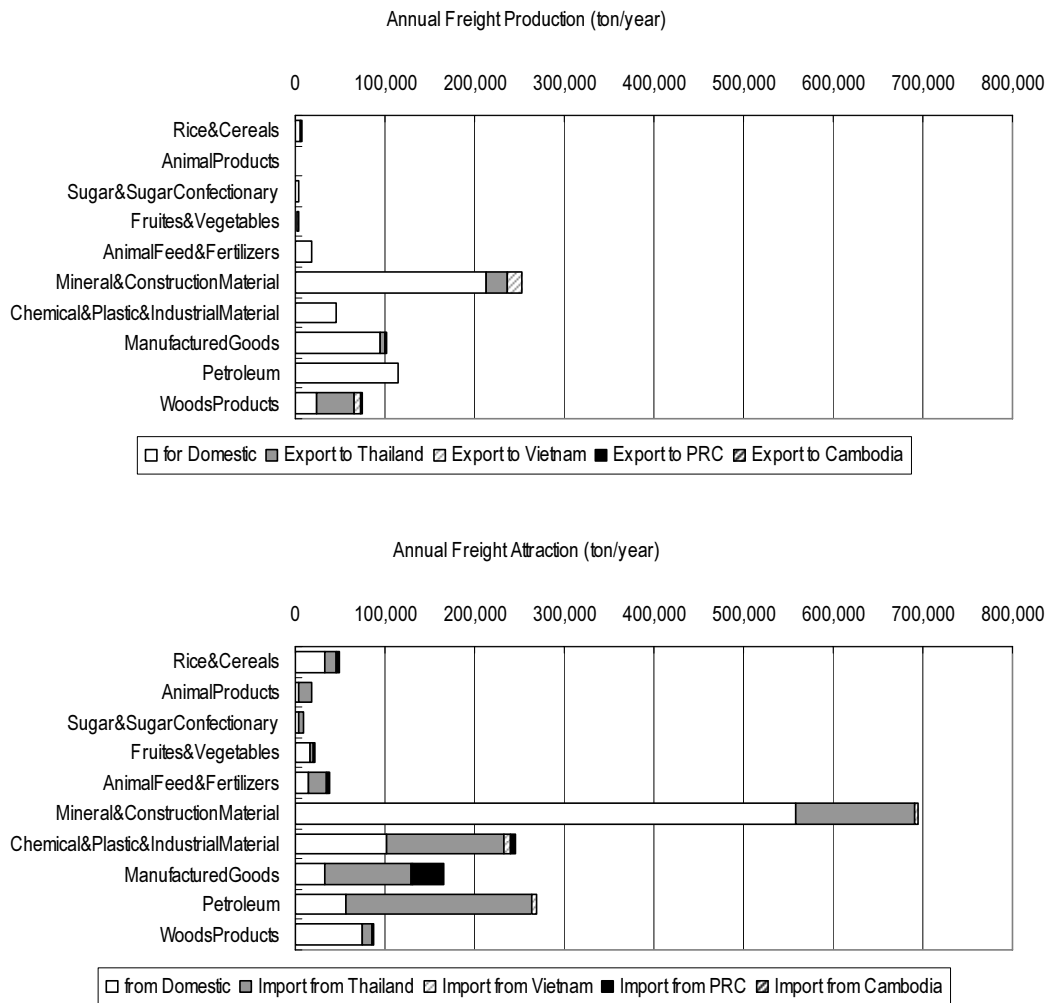
In Vientiane Capital, current freight attraction volume which consists of imports and trans-shipments from other provinces in Lao PDR was estimated to be about 623,000 tons per year. Current freight production which consists of exports and trans-shipments to other provinces is about 1,597,000 tons per year. Transit freight relevant to Vientiane Capital is less than 5,000 tons per year and is dominated by manufactured goods, vegetables and fruits from Thailand.

Major commodities of freight attraction by weight are minerals and construction material, petrol, various industrial materials and manufactured goods as shown in Figure 7.2.3. Mineral and construction materials include cement and articles of cement, asphalt, tiles etc. Manufactured

goods include vehicles.

Major freight production in Vientiane Capital includes minerals such as copper ores for export, construction materials such as cement products and structural steels for domestic use, petrol and manufactured goods such as foodstuffs and beverages.

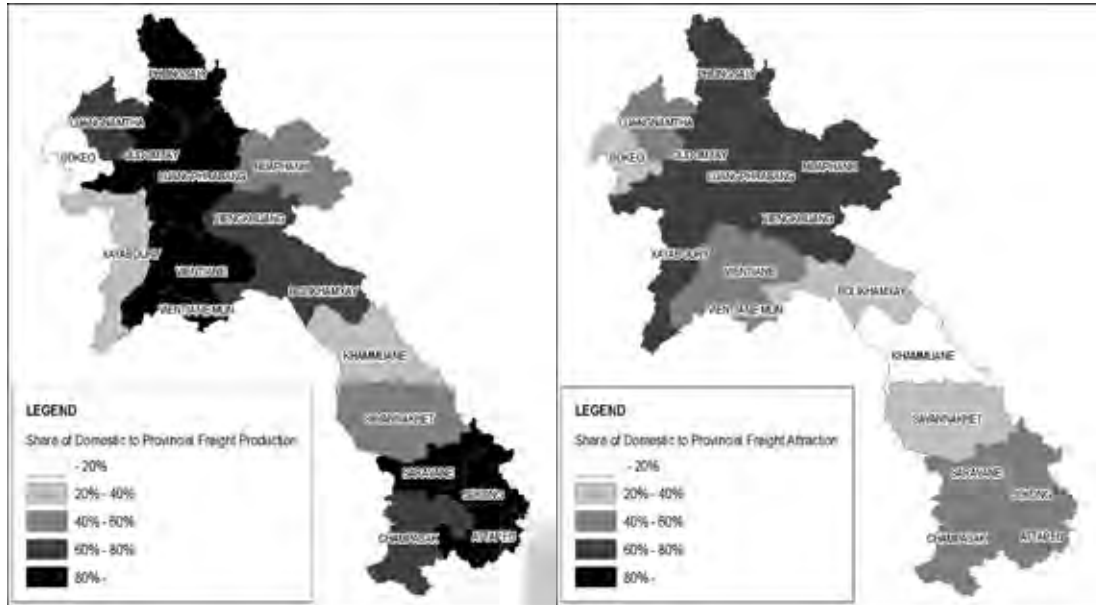
The major trading partner of Vientiane Capital is Thailand which contributes to 90% of imports and 70% of exports.



Source: JICA Study Team

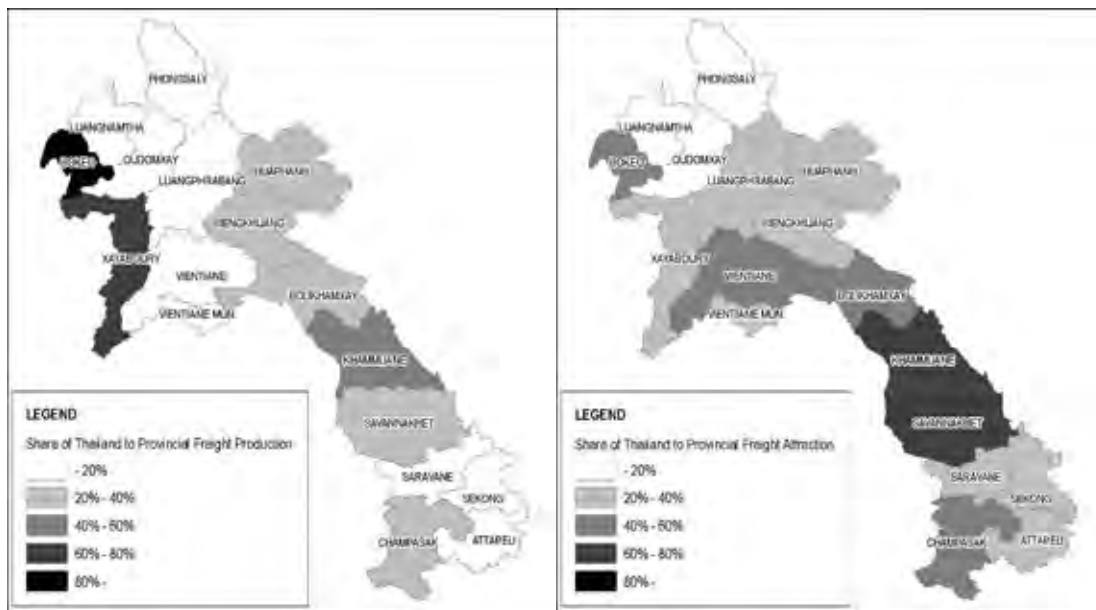
**Figure 7.2.3 Current Freight Generation Volume**

As shown in Figure 7.2.4, more than 80% of freight production from Vientiane Capital is domestic freight mainly transported to other provinces in Lao PDR. On the other hand, freight from other provinces in Lao PDR to Vientiane is only 56% of total freight attraction volume in Vientiane Capital, with 40% from Thailand.



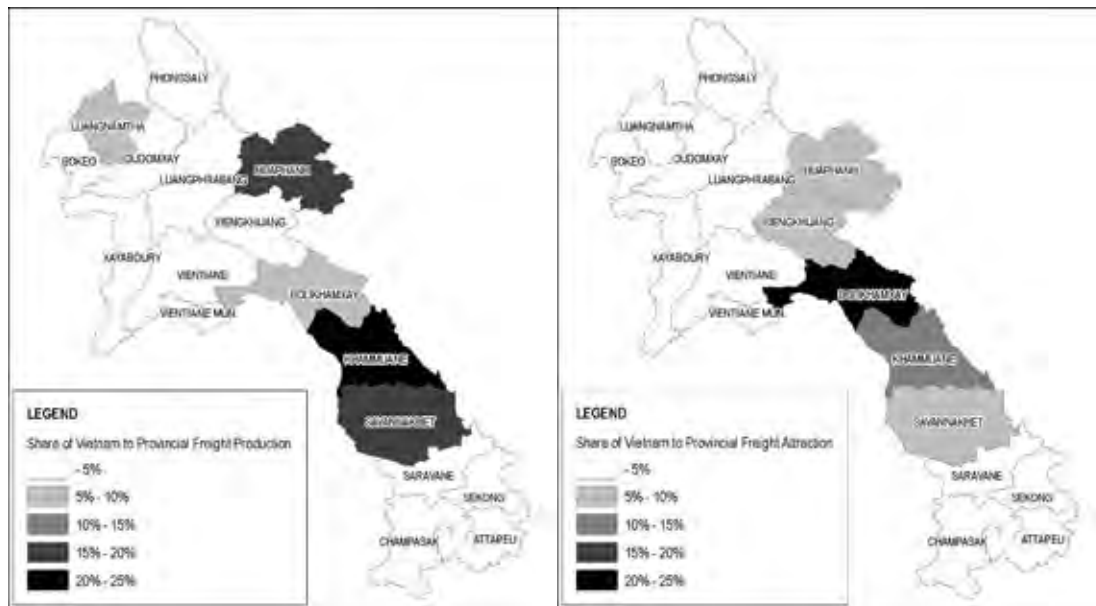
Source: JICA Study Team

Figure 7.2.4 Contribution of Domestic Cargo to Provincial Freight Production (left) and Attraction (right)



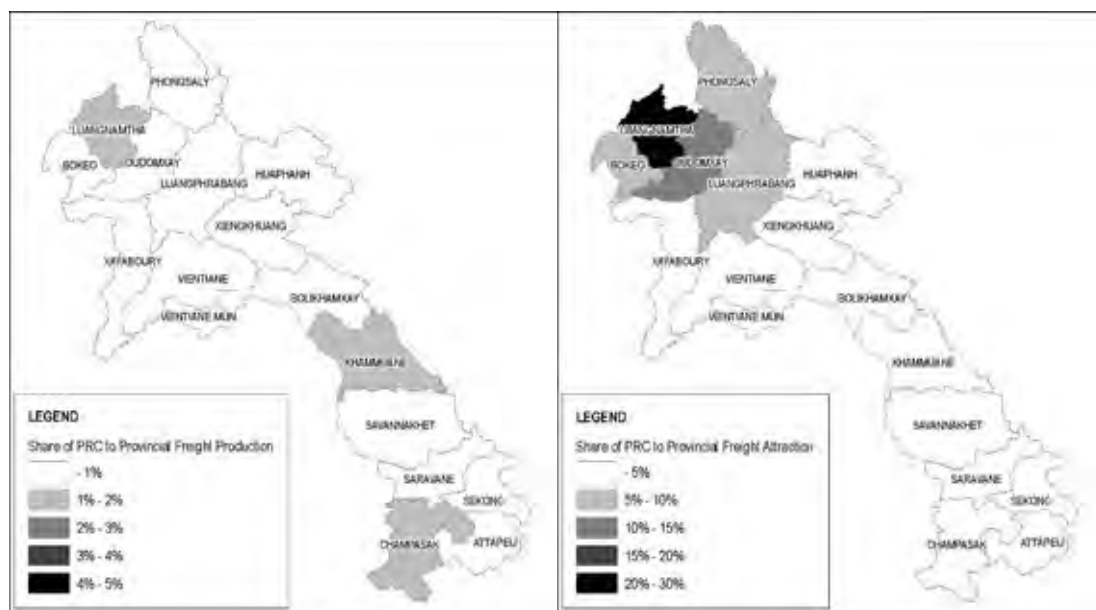
Source: JICA Study Team

Figure 7.2.5 Proportion of Trade with Thailand in Provincial Freight Production (left) and Attraction (right)



Source: JICA Study Team

Figure 7.2.6 Proportion of Trade with Vietnam in Provincial Freight Production (left) and Attraction (right)

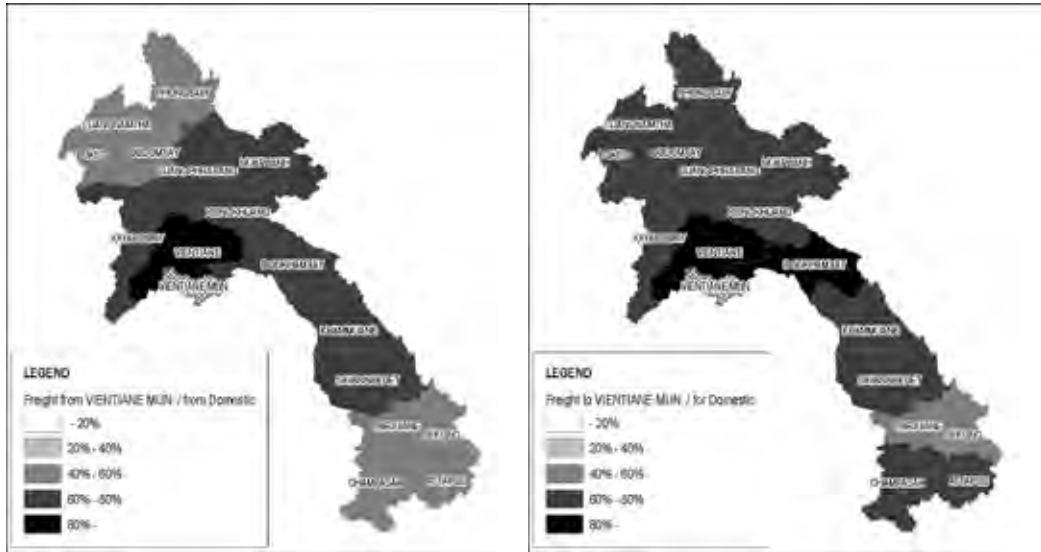


Source: JICA Study Team

Figure 7.2.7 Proportion of Trade with PRC in Provincial Freight Production (left) and Attraction (right)

Figure 7.2.8 shows the ratio of freight volume from / to Vientiane Capital against domestic freight generation of each province. In Vientiane Province, freight from / to Vientiane Capital takes up more than 80% of domestic freight volume.



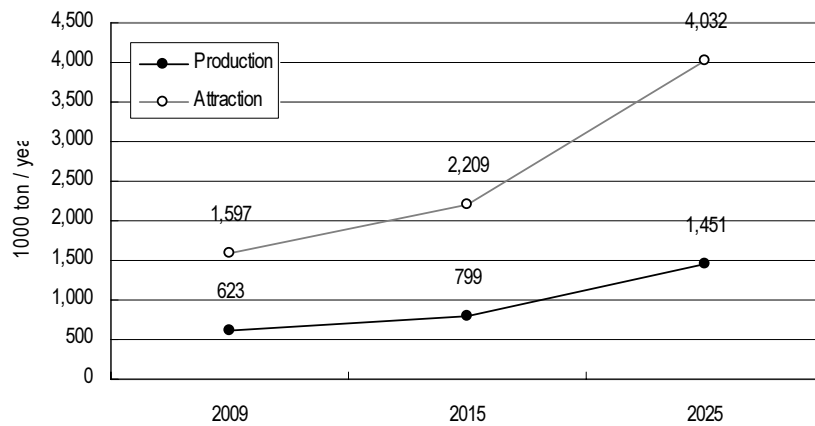


Source: JICA Study Team

**Figure 7.2.8 Current Share of Freight from / to Vientiane Capital in Domestic Generation**

**7.2.3 Freight Demand Forecast**

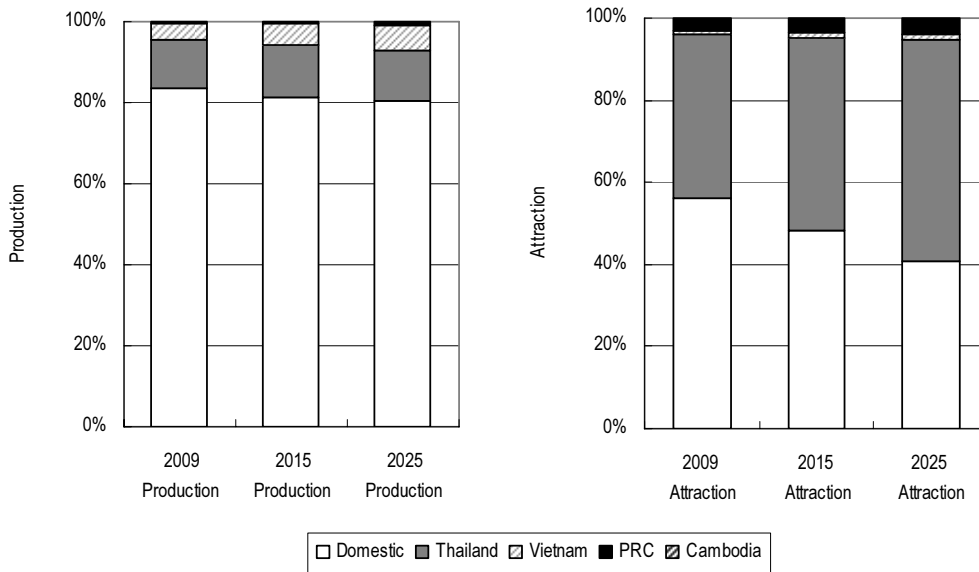
Future freight production and attraction volumes relevant to Vientiane Capital are, as shown in Figure 7.2.9, expected to reach 1.5 and 4.0 million tons /year respectively.



Source: JICA Study Team

**Figure 7.2.9 Forecasted Freight Generation in Vientiane Capital**

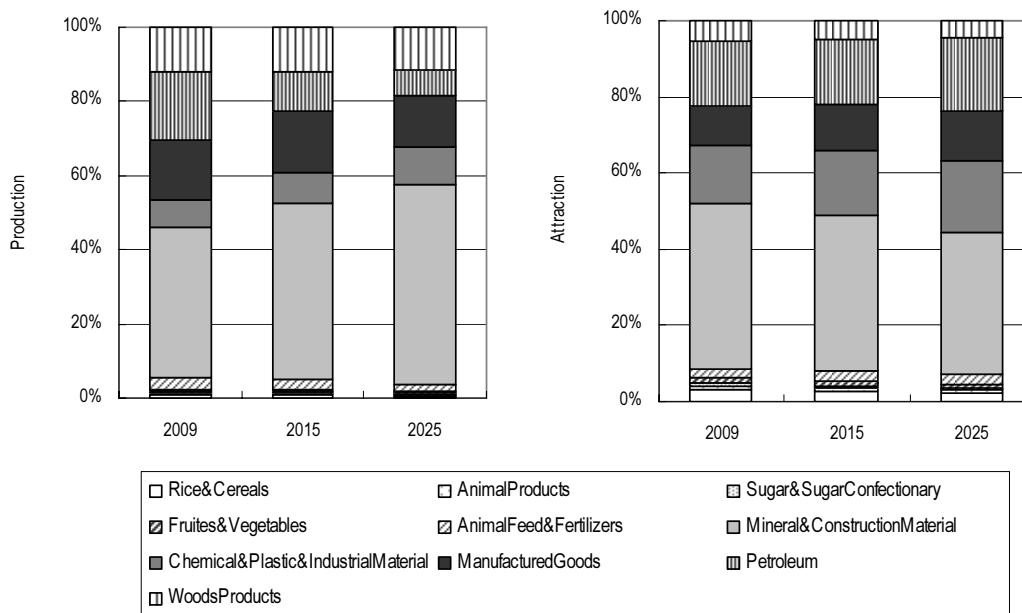
Figure 7.2.10 shows composition of freight production and attraction by direction. The shares of freight attraction from Thailand, i.e. imports from Thailand, are expected to increase in the future.



Source: JICA Study Team

Figure 7.2.10 Forecasted Freight Composition in Vientiane Capital

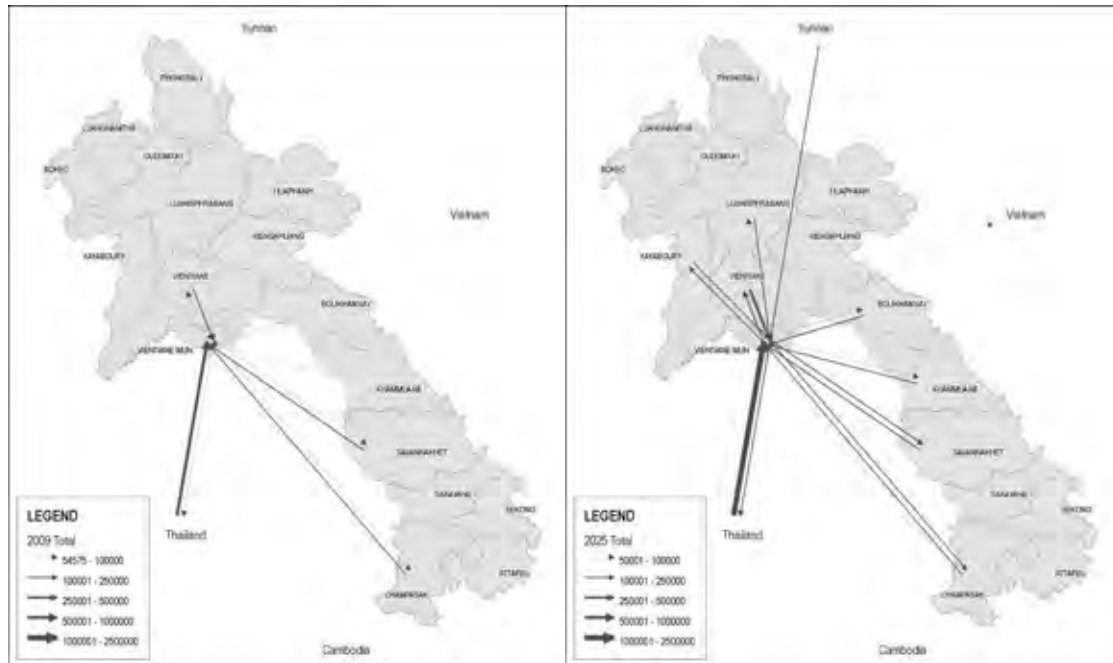
Figure 7.2.11 shows future commodity composition of freight produced in or attracted to Vientiane Capital.



Source: JICA Study Team

Figure 7.2.11 Forecasted Freight Commodity Apportionment in Vientiane Capital

Figure 7.2.12 shows current and future freight distribution of all commodities relevant to Vientiane Capital.



Source: JICA Study Team

Figure 7.2.12 Forecasted Freight Distribution

## 7.2.4 Logistics Development Strategy

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

As proposed in Chapter 6 of this report, logistics development in Lao PDR can be achieved by the following 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, (iii) Market Expansion. To realize these strategies, Vientiane is expected to become a core of 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 Thailand and Vientiane. Vientiane Logistics Park (VLP) is a key facility in handling transit cargo, import/export cargo with Thailand and domestic cargo as a center of domestic distribution and distributive processing such as labeling and packaging of consumer products in Lao PDR.

### (2) Logistics Facility Development Strategy in Vientiane

As described above, Vientiane is required to perform as a center of trans-shipment and distributive processing. The activities are expected to be concentrated in one place to attain higher efficiency and convenience of operations. Tax incentives will be provided by designating special economic zone. In this regard, it is necessary to develop the international logistics parks (Detailed in Action No. P111 of the National Logistics Strategy). VLP is also an international interface facility in logistics in Lao PDR. Vientiane is also expected to develop specific logistics hubs (Detailed in Action P113) for specific products as part of functions of the international logistics park. These specific products in Vientiane include petroleum products, mainly delivered from Thailand and distributed to central and northern Lao PDR.

## **7.2.5 Vientiane Logistics Park**

### **(1) Location**

The alternative project sites of Vientiane Logistics Park were shortlisted by the following criteria: The project site should be located at the area where/with;

- Less urbanized and less populated
- Easy access to the trunk road and railway
- The freight vehicles have less adverse impact on urban activities and urban transport
- No future development plan
- Infrastructure can be easily developed
- Less environmental adverse impact

Accordingly, the following 4 alternative project sites were identified.

- Alternative A: South-west side of Thanaleng Station
- Alternative B: Around Thanaleng Station
- Alternative C: Vientiane Station
- Alternative D: Inside planned Industrial Park

As discussed in the separate volume of this report the 4 alternative sites were tested and the optimum solution for development of the logistics park was proposed, considering several engineering and environment factors: topography, land use, accessibility to the transport network, consistency with the urban development plan, flexibility for future development, social and natural environment impacts and cost. Alternative B was selected as the most optimum solution among the 4 alternative options.



Source: JICA Study Team

Figure 7.2.13 Alternative Options for Development of Vientiane Logistics Park

## (2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the VLP is expected to handle mainly import and export cargo from Thailand. Due to its geographic advantages, it is also expected to become a trans-shipment centre for transit cargo between Yunnan and Thailand in the future. Also, using the trunk road network connecting with Vientiane, the VLP is expected to function as the distribution centre for the northern and central 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 and transit cargo
- Integration of cargo flow along NR-13N to reduce empty return haulage
- Trans-shipment and Consolidation
- Inventory and storage service for the areas along Mekong River including Thai side
- Distributive processing for goods imported from Thailand in the short term, goods in-transit from China to Thailand in the short and medium-term, and then parts and semi-products inventory center in the medium to long term.

## (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 VLP was estimated for target

years 2015 and 2025 and summarized in Table 7.2.1. It should be noted that the significant feature of the VLP is the ongoing railway extension project between Thanaleng and Vientiane: half of the cargo to be handled at the VLP is expected to be carried by the railway. The freight demand forecast of the VLP was detailed in a separate volume of the feasibility study report (see the Appendix of this report).

**Table 7.2.1 Daily Cargo Demand in VIP (Unit: tons/day)**

Mode of Transport	Truck			Rail		
	2009	2015	2025	2009	2015	2025
Import Cargo						
Petroleum Freight	0	0	0	0	92	515
Heavy Bulk	250	396	759	0	37	206
General Cargo	469	700	1,137	0	68	315
Container	99	141	386	0	59	571
Export Cargo						
Petroleum Freight	0	0	0	0	0	0
Heavy Bulk	0	18	81	0	18	89
General Cargo	0	3	12	0	3	10
Container	0	1	8	0	2	18
VIP cargo						
Container	0	37	176	0	9	689
Total	818	1,297	2,559	0	288	2,412

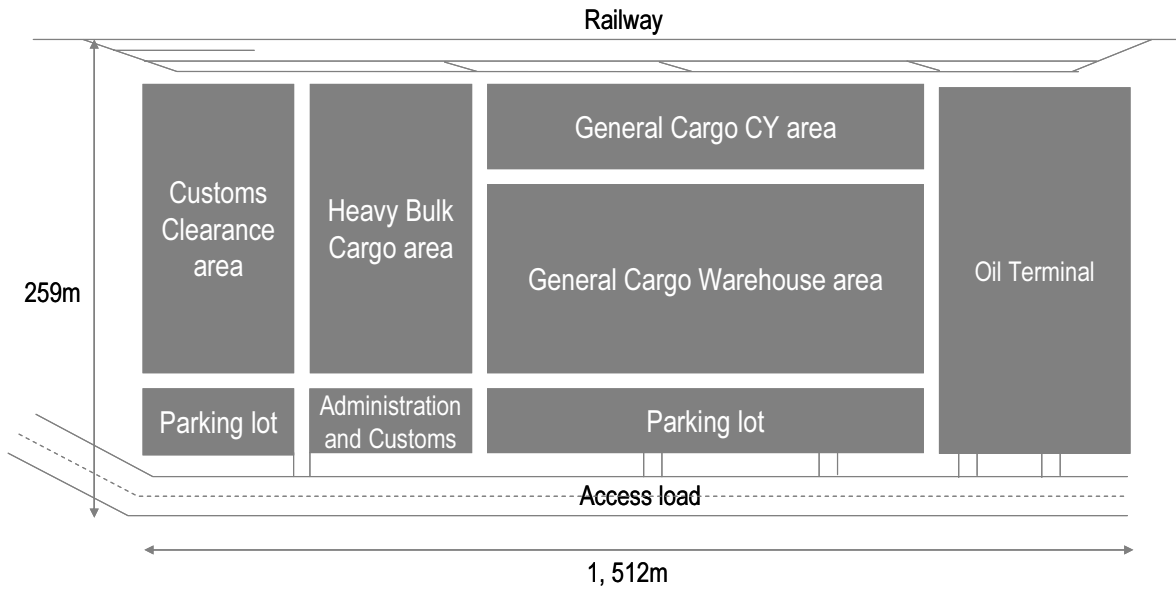
Daily cargo demand was estimated assuming 260 working days for trucks and 310 working days for railway.

Source: JICA Study Team

#### (4) Facility Plan

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

The facilities proposed at the VLP 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. Unlike the logistics parks in other cities, the VLP also has railway siding and oil terminal area. The area required for the VLP was calculated as 34.9 ha, including oil terminal area.



Source: JICA Study Team

Figure 7.2.14 Layout Plan of VLP

Table 7.2.1 Summary of Total Area required for VLP

Facilities	Area (m <sup>2</sup> )	Remarks
Customs Clearance area	20,500	
Heavy bulk Cargo area	32,500	
General Cargo CY area	39,900	CY area includes CY, container pool, chassis pool and container washing area.
General Cargo warehouse area	76,200	Warehouse includes warehouse and warehouse office.
Parking Lots	20,900	Aisle is shared by heavy bulk and general cargo area
Administration and Customs office	5,800	
Operator Office	9,300	
Maintenance shop	4,000	
Gate and Weight Station	7,700	
Buffer area	17,000	
Road in VLP	24,500	
VLP access road	10,200	
Siding line of railway	17,100	
Others	9,100	
Oil Terminal area	53,600	
Total area	348,600	
Total area, excluding oil terminal area	295,000	

Source: JICA Study Team

### (5) Anticipated Project Cost

Project cost of the VLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at USD 32 million (as of November 2009). The detailed project cost of the VLP is separately discussed in the feasibility study report (see Appendix).

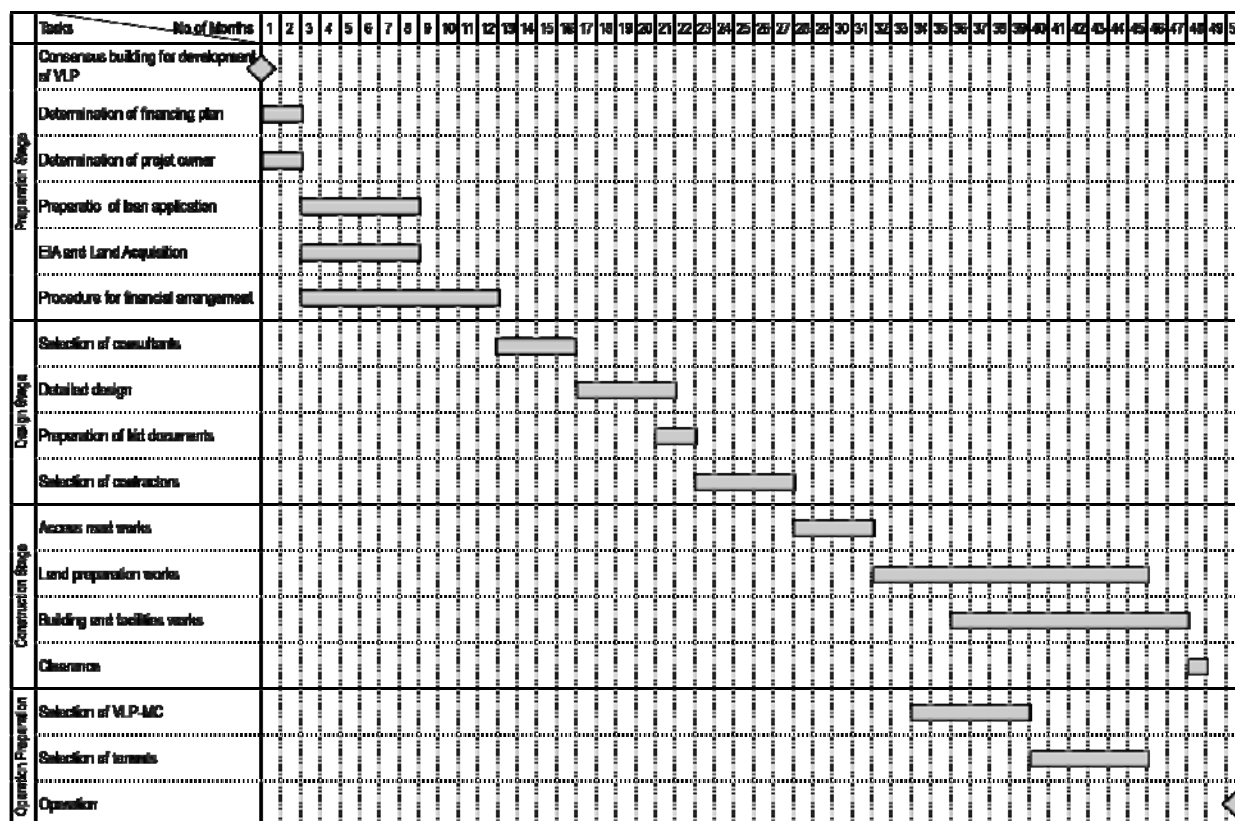
Table 7.2.2 VLP Project Cost

Items	Total Cost (USD)	Remarks
1 Land Preparation Works	12,326,195	
2 Building Works	8,384,640	
3 Railway Works	3,324,202	
4 Access Road Works	2,546,050	
5 Total Construction Cost	26,581,087	1+2+3+4
6 Administration Cost	797,432	3% of 5
7 Consultant Cost	1,860,676	7% of 5
8 Contingency	2,844,176	10% of 5+7
9 Total Project Cost	32,083,371	5+6+7+8

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 takes 50 months to complete VLP as indicated in Figure 7.2.15. The detailed implementation plan of the VLP is separately discussed in the feasibility study report (see Appendix).



Source: JICA Study Team

Figure 7.2.15 Implementation Schedule



## 7.3 Luangnamtha

### 7.3.1 Current Economy and Future Development Plan

#### (1) Current Economic Conditions

Luangnamtha Province is located in the northwestern end of Lao PDR together with Bokeo Province. Provincial area is 9,000 km<sup>2</sup> and its population was recorded as 145,000 persons in 2005. There are 17 ethnic minority groups in the province, and 70% of total provincial population is occupied by these ethnic minority groups. There are 5 districts available, and Luangnamtha town, capital town had a population of 45,000 in 2005. 30% of the provincial population is settled in Luangnamtha town. The province shares national borders with China (northeast) and Myanmar (northwest). It is bordered by Oudomxay Province in the south east and Bokeo Province in the south west.

Rubber cultivation is a major economic activity in Luangnamtha Province. Agriculture takes up 60% of the economy with rubber cultivation accounting for 50% of agriculture, according to DPI. Other agriculture activities are cultivation of sugarcane, maize and farming of pigs. Rubber cultivation experienced a boom over the previous years; however, there's currently a dip in rubber cultivation. One reason is the fallen price of natural rubber after the global financial crisis. The second reason is the rapid expansion of rubber producing villages. Rubber tree cultivation was started as a measure to promote the shift from slash and burn farming to settled agriculture. There are too many villages participating in rubber tree cultivation after the small successes in the pilot villages. Another major industry is tourism. Backpackers from western countries stay in Luangnamtha town, and then trek to ethnic minority villages. Annual tourist arrivals including Thai tourists going to Yunnan Province are 400,000 to 500,000 per year.

At Boten Village, on the national border with China, a Special Economic Zone was established in 2002. The area is 1,640 ha and a 30 year concession was awarded to a private company. Casino, hotel and small shops were constructed: Chinese tourists visit these facilities. And it is said that more than 10,000 Chinese and 200-300 Lao work there.

There are 54 investment projects, and most of them are FDI projects as of July 2009. The 54 projects are agriculture development projects, with 20 of them rubber plantation projects invested into by Chinese investors. However, new investment in rubber plantation is decreasing as stated before. Other investment projects are latex factories, tobacco factories, a hotel, etc.

A DPI official recognizes that exchange of personnel and goods between Thailand and Yunnan Province is increasing due to improvement of NR-3; however, Lao people have not participated in the activities yet. DPI intends to promote investment in agriculture sector other than rubber plantations (for example, agro-processing). However, it has not set target products as yet. Since Lao people are not interested in, and cannot carry out investment in agriculture, the province will rely on investment from foreign investors.

#### (2) Transport Network

NR-3 runs through Luangnamtha town, from the southwest to northeast and connects it with Huoixai, capital town of Bokeo. The other main road is the NR-17 which runs through the northern section of NR-3. Muangsing, the second town of Luangnamtha Province is located along the NR-17, and is connected to Luangnamtha town by NR-17. Luangnamtha has a domestic airport

connecting with Vientiane Capital 3 days per week.

### **(3) Development Plan**

#### **1) Socio-economic Development**

In the on-going 5-year Socio-economic Development Plan, the following goals were set.

Goals: Building-up conditions for sustainable economic growth at a rate of 7.5 to 8% per annum; Diversify the economy by use of market mechanism; Promote private sector development to support industrialization and poverty reduction.

Based on the development goals mentioned above, the following macro targets were set:

- GRDP growth rate at 7 to 8% per annum during 2006 and 2010.
- Production growth rate of agriculture at 6%, and accounting for 68.6% of GRDP by 2010.
- Production growth rate of industry at 13.5%, and accounting for 15.2% of GRDP by 2010.
- Production growth rate of service at 11%, and accounting for 16.2% of GRDP by 2010.
- GRDP per capita to be USD500 by 2010.
- Population to reach 162,747 persons by 2010, with an annual growth rate of 2.4%.
- Provincial government set 11 action plans and 111 government priority projects. Necessary investment amount during the period will be 421.4 billion Kip in total. 248,1 billion Kip will be disbursed by government, 65.1 billion Kip by international donors and 108.2 billion Kip by private sector, respectively.

#### **2) Urban Development**

Existing urban area of Luangnamtha is very limited. Luangnamtha Town is almost the only urbanized area in the province. Luangnamtha Town is located and developed along the NR-3, which is currently designated as North-south Corridor. The urbanized area is very limited due to limited industry and population.

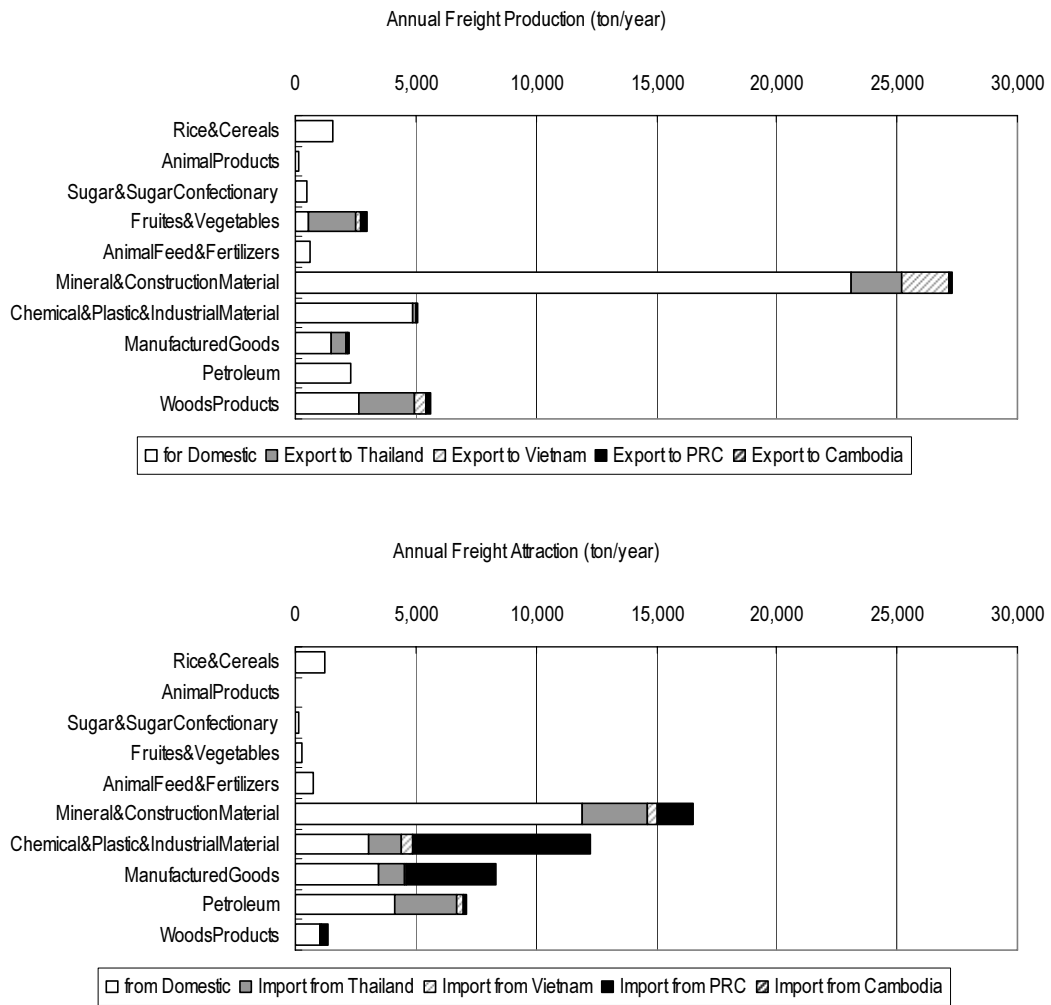
Public Work and Transport Institute (PTI) has developed an urban master plan for Luangnamtha. According to the plan, the urbanized area is designated to expand along NR-3.

#### **7.3.2 Logistics in Luangnamtha**

Current freight production and attraction in Luangnamtha is 48,000 tons per year respectively. Besides, transit freight from China to Thailand, which is dominated by fabric, electrical machinery and equipment, is about 3,000 tons per year, while transit freight from Thailand to China, which is dominated by petrol, natural gum and resins, is about 2,000 tons per year.

Minerals and construction material from Luangnamtha include worked stone and ores such as lead, zinc and tin. Transported construction material to Luangnamtha includes cement and ceramic products.

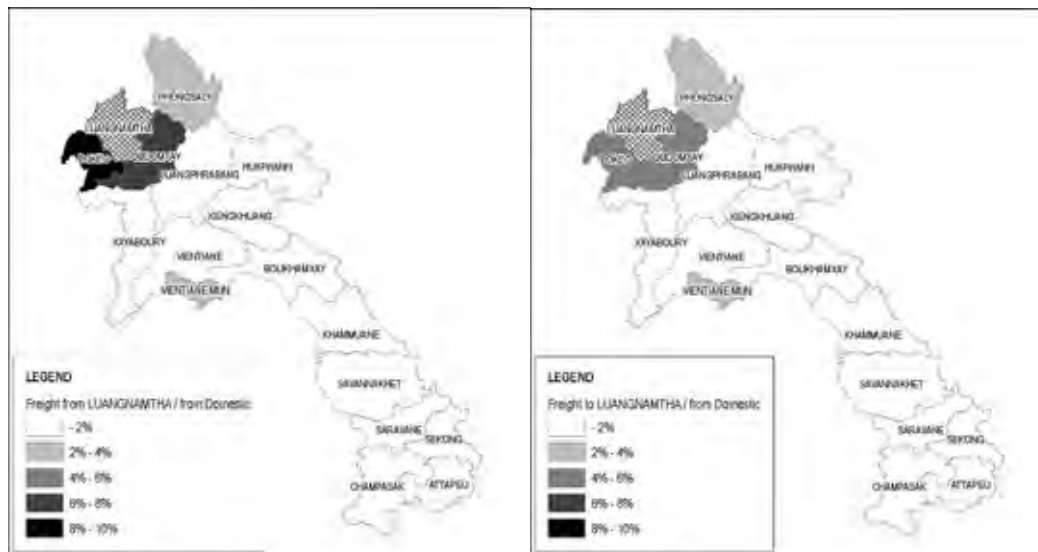
27% of the freight attraction volume in Luangnamtha is imported from China and includes commodities such as industrial material which includes steel and machinery parts.



Source: JICA Study Team

**Figure 7.3.1 Current Freight Generation Volume**

As shown in Figure 7.3.2, domestic freight relevant to Luangnamtha is mainly from/to neighboring provinces and Vientiane Capital.

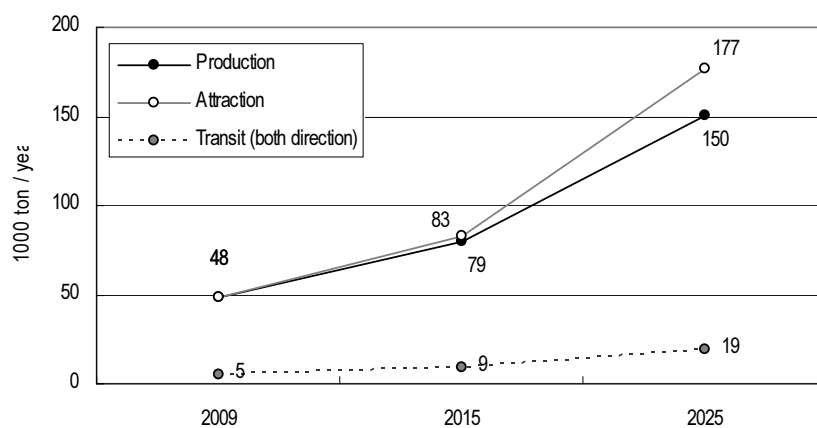


Source: JICA Study Team

Figure 7.3.2 Current Share of Domestic Freight Generated from / to Luangnamtha

### 7.3.3 Freight Demand Forecast

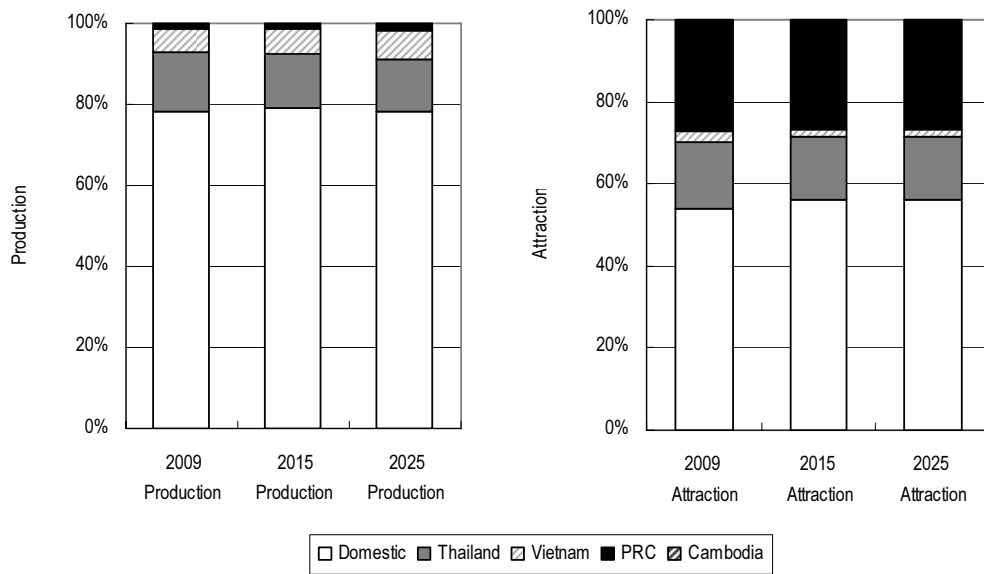
Future freight demand in Luangnamtha is forecasted as shown in Figure 7.3.3. Freight attraction in 2025 is expected to be 177,000 tons per year while Freight production in the same year is expected to reach 150,000 tons per year.



Source: JICA Study Team

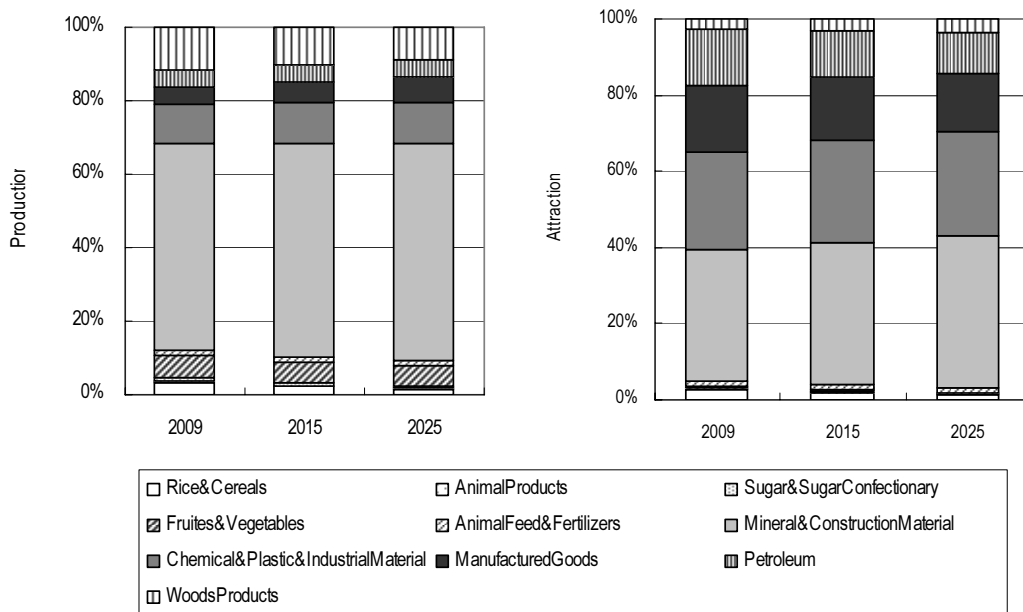
Figure 7.3.3 Forecasted Freight Generation in Luangnamtha

As shown in Figure 7.3.4 and 7.3.5, component ratio of direction and commodity is expected to maintain current situation.



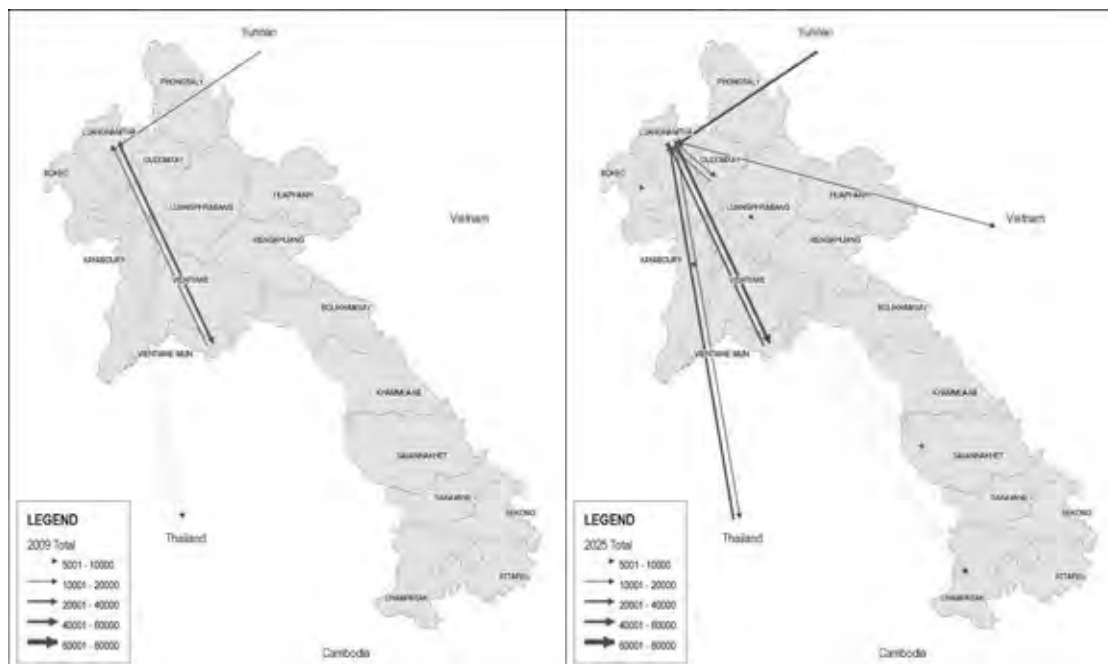
Source: JICA Study Team

Figure 7.3.4 Forecasted Freight Composition in Luangnamtha



Source: JICA Study Team

Figure 7.3.5 Forecasted Freight Commodity Apportionment in Luangnamtha



Source: JICA Study Team

Figure 7.3.6 Forecasted Freight Distribution

### 7.3.4 Logistics Development Strategy

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

Luangnamtha is designated as one of international logistics hubs to facilitate land transport route along NR13N in the national logistics strategy. It is expected to function as an international gateway for imports and exports to/from China and for transit cargo and trans-shipment between China and Thailand. It will provide up-to-date logistics park and sufficient road infrastructure, and eventually integrate cargo flows to generate scale merits along NR-13N.

#### (2) Logistics Facility Development Strategy in Luangnamtha

Luangnamtha is required to perform as a center of trans-shipment and distributive processing in northern Lao PDR. The activities are expected to be concentrated in one place so as to attain higher efficiency of operations. Tax incentives will be provided by designating special economic zone. In this regard, it is necessary to develop the international logistics parks (Detailed in Action No. P111 of the National Logistics Strategy). Luangnamtha Logistics Park (LNLP) is also an international interface facility in logistics in Lao PDR.

### 7.3.5 Luangnamtha Logistics Park

#### (1) Location

LNLP is expected to function as an international gateway of Lao PDR to China as well as a transit place between China and Thailand along NR-3 (Indochina North-South Corridor). Accordingly, LNLP needs to be located in a place that meets the following criteria:

- Good accessibility to NR-3,

- Good accessibility to NR-13 or Boten Village (Lao-China border)
- Good accessibility to Luangnamtha City and NR-17
- Minimum disturbance to urban activities in Luangnamtha.

Considering the above, the south-eastern area along NR-3 is selected as a potential site for the LNLP, as indicated in Figure 7.3.7.



Source: JICA Study Team

**Figure 7.3.7 Location of the Logistics Park in Luangnamtha**

## (2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the Luangnamtha Logistics Park (LNLP) is expected to handle mainly import cargo from Thailand and China. Due to its geographic advantage, it is also expected to become a trans-shipment centre for the transit cargo between Yunnan and Thailand in the future. Also, using the trunk road network connecting with Luangnamtha, the LNLP is expected to function as the distribution centre of northern Lao PDR. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the LNLP is expected to provide following functions and services.

- Interface with China for import/export and transit cargo
- Integration of cargo flow along NR-13N including domestic, transit and import/export cargo
- Trans-shipment and Consolidation

- Integration of function of logistics parks at Muangxai and Houixai (until those logistics park will be independently developed with adequate freight volume)
- Distributive processing for goods imported from China in the short term, and then goods in-transit from China to Thailand in the medium term.

### (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 LNLP was estimated for the target year of 2025 and summarized in Table 7.3.1. It should be noted that as proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the LNLP is expected to be developed, integrating the neighboring provinces, such as Oudomxay and Huoixai. In this regard, the volume of cargo handled at the LNLP include the cargo generated from Oudomxay and Huoixai.

**Table 7.3.1 Annual Handling Volume in 2025**

Package Type	Unit: 000 tons	
	2025	
Container	28.6	
General Cargo	60.6	
Heavy Bulk	4.6	
Liquid Cargo	0.0	
Total	93.8	

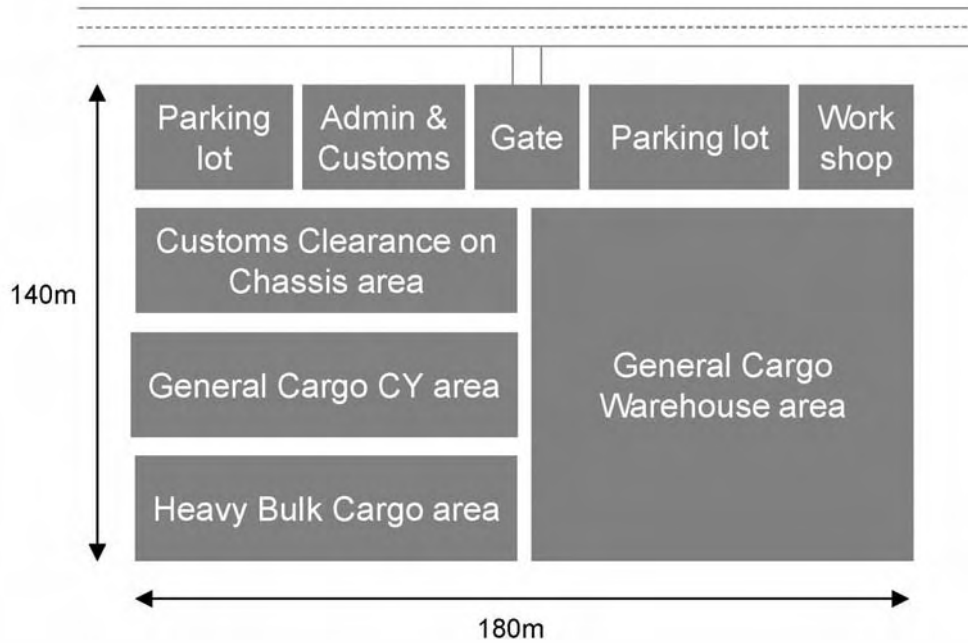
Source: JICA Study Team

### (4) Facility Plan

As discussed above, the functions and serviced provided at the LNLP include (i) Interface with China for import/export and transit cargo, (ii) Integration of cargo flow along NR-13N including domestic, transit and import/export cargo and (iii) Trans-shipment and Consolidation. In consideration of these functions and services, the types and sizes of logistic facilities at the LNLP were planned taking into account the future freight volumes. The layout plan of these facilities was prepared considering operational efficiency and security.

The facilities proposed at the LNLP 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 total area of the Champasack Logistics Park (CLP), the area required for the LNLP was estimated to be 2.5 ha.





Source: JICA Study Team

Figure 7.3.8 Layout Plan of LNLP

Table 7.3.2 Summary of Total Area required for LNLP

Facilities	Area (m <sup>2</sup> )
Customs Clearance on chassis	400
Heavy bulk Cargo area	300
General Cargo CY area	800
General Cargo FS area	2,700
Parking Lots	1,600
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	7,300
Total Floor area, excluding parking lots	5,700
Occupancy rate at CLP	23%
Total area of LP	25,000

Source: JICA Study Team

### (5) Anticipated Project Cost

Project cost of the LNLP consists of construction cost, administration cost, consultant cost and contingency and was estimated at 3.9 million USD (as of November 2009).

**Table 7.3.3 Summary Project Cost of LNL**

Items		Total Cost (USD)	Remarks
1	Land Preparation Works	1,127,635	
2	Building Works	1,462,377	
3	Access Road Works	643,506	
4	Total Construction Cost	3,233,517	1+2+3
5	Administration Cost	97,006	3% of 4
6	Consultant Cost	226,346	7% of 4
7	Contingency	345,986	10% of 4+6
8	Total Project Cost	3,902,855	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.

## 7.4 Muangxai

### 7.4.1 Current Economy and Future Development Plan

#### (1) Current Economic Conditions

Oudomxay province is located in the centre of the northern parts of Lao PDR with a total area of 15,370 km<sup>2</sup>. The area occupies 14% of the Northern provinces area, and 6.5% of the country. The province is bordered in the north by Phongsaly Province and China, in the east by Louangprabang Province, in the south by 4 northern districts of Phongsaly Province, and in the west by Luangnamtha and Bokeo Provinces. Muangxai is located 583 km north of Vientiane Capital along the NR-13N. Urban roads R2E and R2W connect it with Khua district in Phongsaly province, and Taichang, Vietnam and Pakbeng Port. Therefore, the route is the main inland transport route of the province after NR13N. The provincial road originates from km59 Namor district along NR-13N and then connecting with Meochay local checkpoint between Oudomxay province and Lah district (China), and also connecting with Bountai district in Phongsaly province. Oudomxay airport connects Oudomxay, Louang Prabang and Vientiane.

Muangxai consists of 7 districts: Xay District, La District, Namor District, Nga District, Beng District, Hoon District and Pakbeng District; and is divided into 70 zones with 587 villages and 10 focusing development zones. However, there are only 41 villages classified as urban areas (7%) in 2005. In the same year, 233 villages (40%) were classified as rural areas with access roads while 313 villages (53%) were classified as rural areas without access roads. There are 3 main ethnicities here; Khmu 60%, low-land 25% and Mhong 15% of the total inhabitants in the province.

As regards population, data of Census 2005 indicates that the number of households was 42,705, in 2005: it increased from 40,430 in 2000. The population was 262,779 in 2005, with 131,191 being female and 131,588 being male. It increased at an annual average growth rate of 2.1% since 2000.

The economy of the province has developed with a reducing share for the agriculture sector and an increasing one for industry and service. In 2008, GRDP of the province was recorded at LAK1,368 billion with composition of; 60.1% for agriculture and forestry, 21.0% for industry and 18.9% for service sector. GDP growth rate was 11.3%, and sectoral growth rates were; 8.1% for agriculture and forestry, 9.7% for industry and 13.8% for the service sector. As regards the population, working population was 134,017, which accounted for 51.0% of the total provincial population in 2005. The agriculture sector took up 117,935 persons, the industry sector 1,608 persons while the service sector took up 4,692 persons.

According to a survey on poverty in 2001, Oudomxay is one of the 8 poorest provinces in Lao PDR. The number of the poor families was 22,331 households, 54% of the total households. The percentages of poor households were recorded at 37.6% in Xay District and 37.5% in La District. These 2 districts were included in the 72 poor districts of the country. 5 other districts, Namor District (54.8%), Nga District (59.1%), Beng District (60.6%), Hoon District (57.0%) and Pakbeng District (85.6%) were included among the 46 poorest districts of the country.

The main difficulty these households face is the lack of basic needs such as foodstuffs, clothes, residence, medicine. They also do not receive public services such as education, transportation and health service. The number of the poor villages is 596 villages, which constitute 85.5% of the total villages in the province in 2001. In 2005, the number dropped to 441 villages.

## **(2) Transport Network**

NR-13N runs through Muangxai, from the southwest to the northeast and connects the province with Luangnamtha, the border with China in the north, and Luangpranbang/ Vientiane in the south. The other main road is NR-4 which connects Oudomxay with Phongsaly province and Dien Bien Phu of Vietnam. Muangxai has a domestic airport connecting with Vientiane 3 days per week.

## **(3) Development Plan**

### **1) Socio-economic Development**

In the latest 5-year development plan from 2006 to 2010, the provincial government set the following targets.

- In macro economy, target annual GRDP growth rate was set at 16.6% per year and includes: 1.5 times growth in agriculture, 28.8% growth in industry sector and 21.0% growth in service sector. GRDP will reach LAK 2,016.33 billion in 2010 and GRDP per capita will be USD 640. Composition of industries will be 45% for agriculture, 30% for industry and 25% for service by 2010. The composition percentages will decrease by 17% in agriculture, and increase by 11% in industry and 6% in service sector.
- Population will increase at a growth rate of 2.4% per annum, and the population will reach 295,626 persons with life expectancy of 66 years old by 2010. Target enrollment rate of children aged 6 to 10 years is 95%
- For the next five years, target percentage of investment in GRDP is 32%, and 12% of the investment in GRDP will come from public sector because Oudomxay is still an undeveloped province in Lao PDR and the role of the public sector is still important. Most of the public investment for next five years will still come from foreign sources, and priority is to improve or develop NR13N, Mekong Bridge, energy, water supply system, school and educational equipment, public health service, irrigation system and rural

development for poverty reduction, and urban development. Expected investment from foreign sources is about 70% while 30% is expected from domestic sources. Target percentage for stimulating and attracting investment in the other economic sectors is at least 20% of GDP.

## **2) Urban Development**

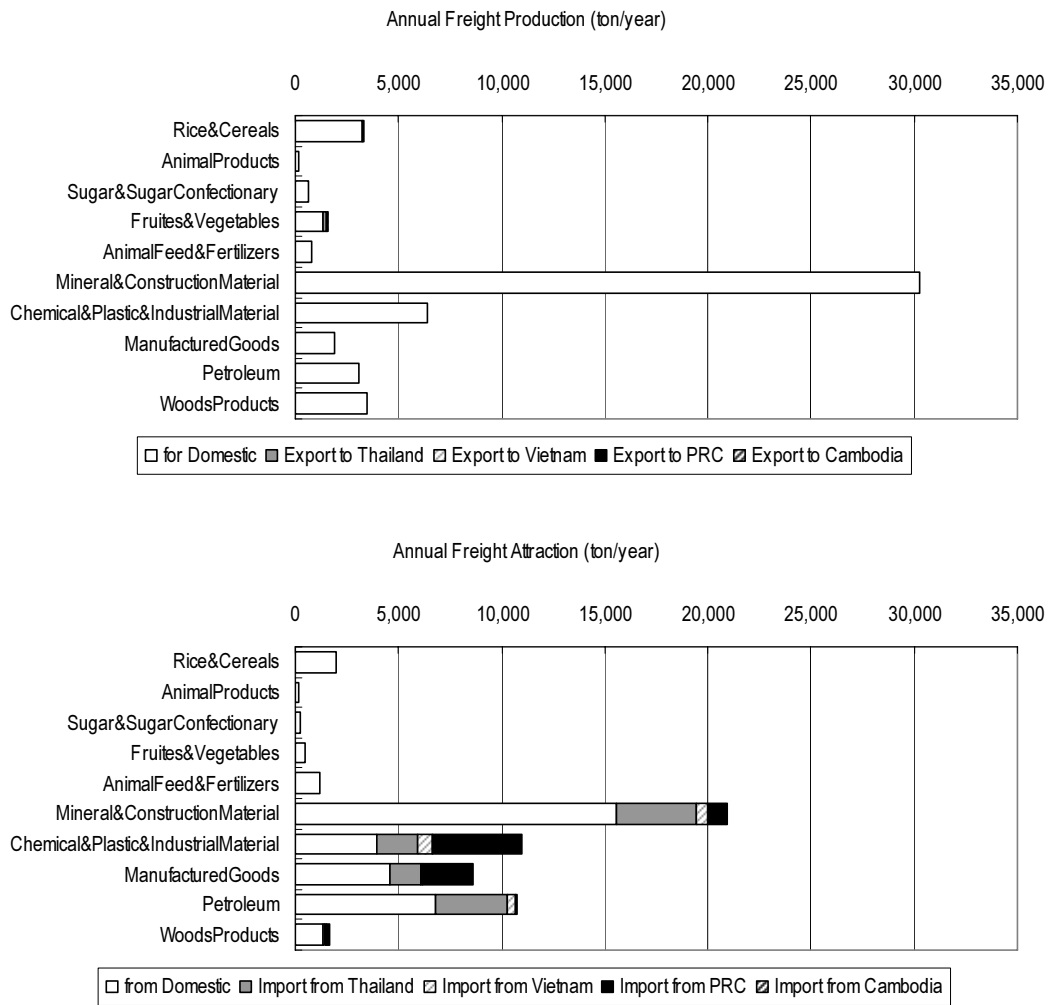
Existing urban area of Oudomxay province is very limited. Muangxai, a provincial center of Oudomxay province, is almost the only urbanized area in the province. Muangxai is located and developed along NR-13N. The urbanized area is spread along NR-13N but is very limited due to undersized industry and population.

PTI has developed urban master plan for Muangxai. According to the plan, urban area is designated to expand along NR-3.

### **7.4.2 Logistics in Oudomxay**

Freight production volume from Oudomxay is about 52,000 tons per year and about 99% of production is domestic. Freight attraction volume to Oudomxay is about 57,000 tons per year, with 64% from domestic sources, 19% from Thailand and 14% from China. Transit freight relevant to Oudomxay is only 16 tons per year.

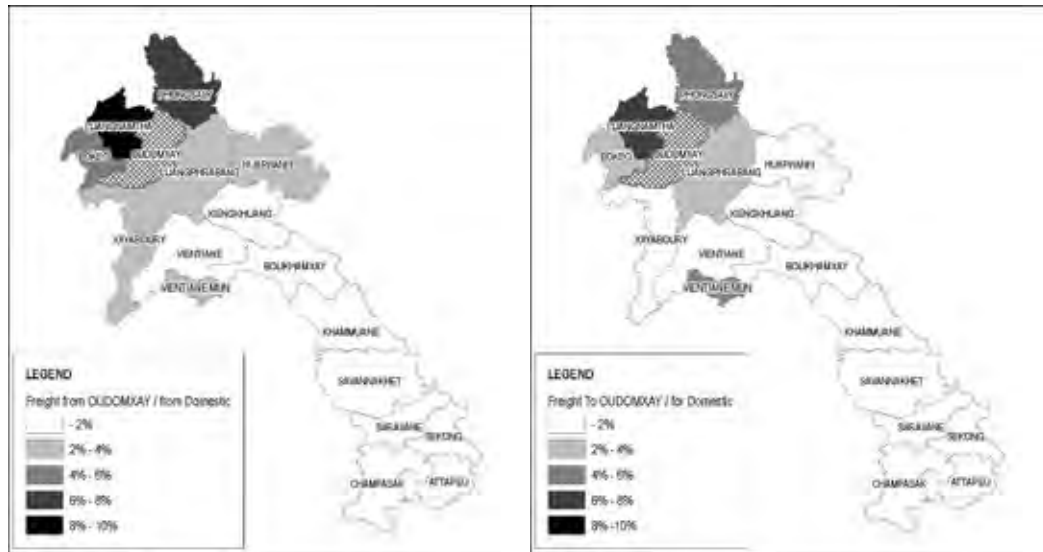
Major commodities transported to Oudomxay are construction materials including cement and ceramic products, industrial material including steel and machinery parts, petrol and manufactured goods such as foodstuffs, miscellaneous and electrical appliances.



Source: JICA Study Team

**Figure 7.4.1 Current Freight Generation Volume**

As shown in Figure 7.4.2, domestic freight distribution area relevant to Oudomxay is northern region of Luangprabang and Vientiane Capital.

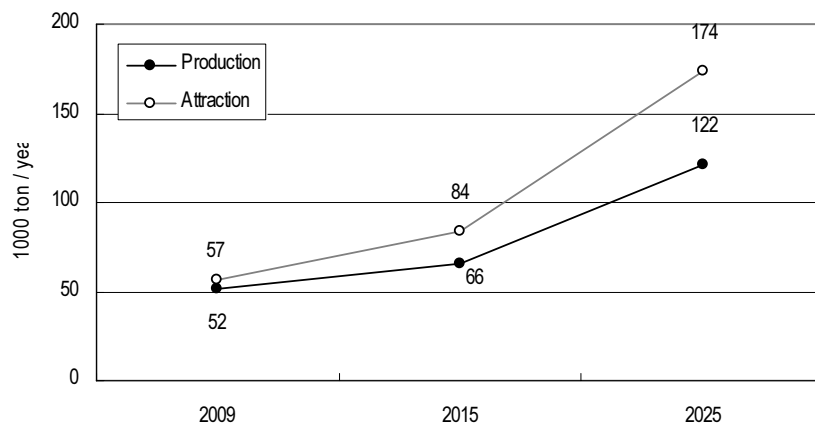


Source: JICA Study Team

Figure 7.4.2 Current Share of Freight from / to Oudomxay in Domestic Generation

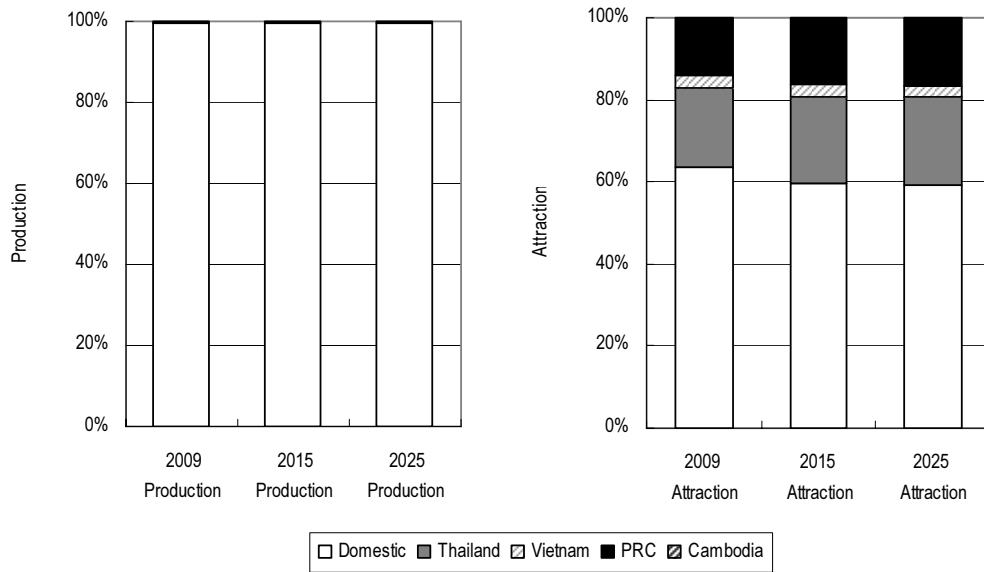
### 7.4.3 Freight Demand Forecast

Figure 7.4.3 shows forecasted freight demand in Luangnamtha. Freight attraction to Oudomxay in 2025 is expected to reach 174,000 tons per year while freight production is expected to reach 122,000 tons per year in the same year.



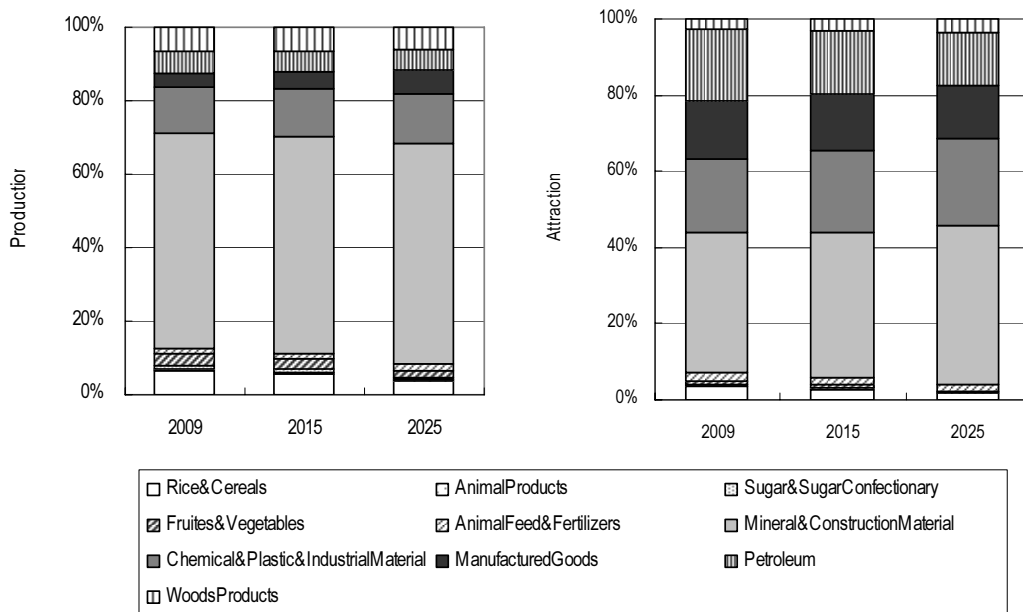
Source: JICA Study Team

Figure 7.4.3 Forecasted Freight Generation in Oudomxay



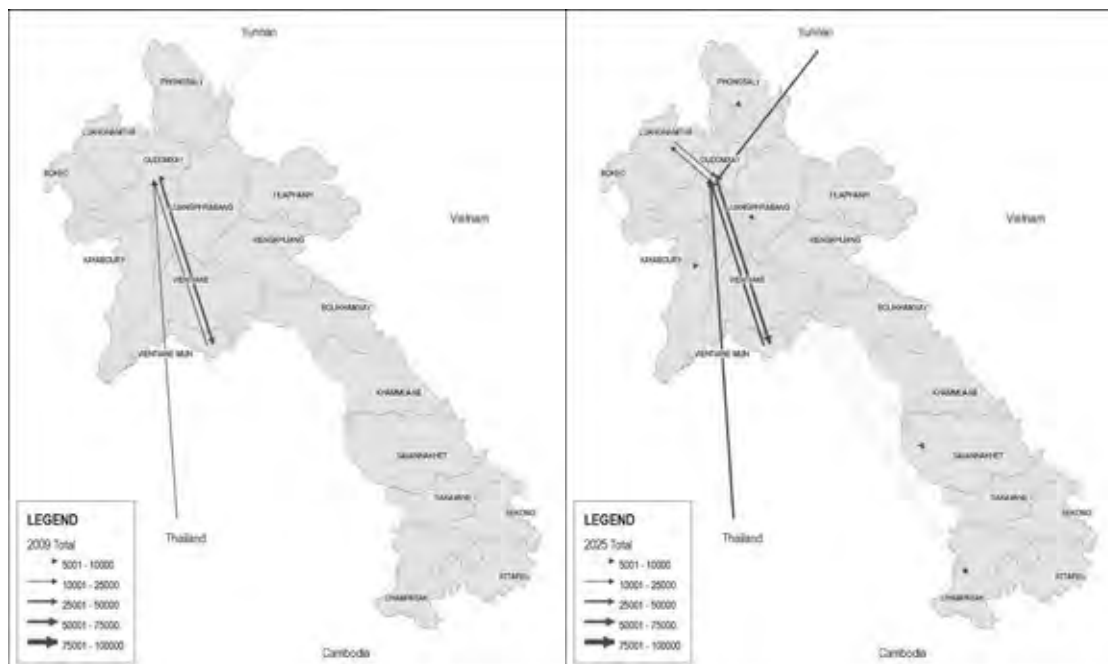
Source: JICA Study Team

Figure 7.4.4 Forecasted Freight Composition in Oudomxay



Source: JICA Study Team

Figure 7.4.5 Forecasted Freight Commodity Apportionment in Oudomxay



Source: JICA Study Team

Figure 7.4.6 Forecasted Freight Distribution

#### 7.4.4 Logistics Development Strategy

##### (1) Roles and Functions of Logistics of Oudomxay 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 establishment of the following 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, (iii) Market Expansion. To realize these strategies, Oudomxay is expected to become one of the regional 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 Oudomxay

As proposed in National Logistics Strategy, explored in Chapter 6 of this report, Oudomxay is expected to develop the regional logistics park (Detailed in Action No. P112 of the National Logistics Strategy) to improve efficiency of regional logistics system by creating hierarchical logistics network. Having said that, development of this regional logistics park in Oudomxay can be achieved in the long run, since the estimated volume of the cargo to be handled in this planned logistics park is relatively small. Consequently, the National Logistics Strategy, discussed in Chapter 6 of this report, proposes development of the integrated logistics park in Luangnamtha, instead of this facility in Oudomxay.

#### 7.4.5 Muangxai Logistics Park

##### (1) Location

Muangxai Logistics Park (MXLP) is expected to function as a regional logistics hub in northern Lao



PDR along NR-13N as well as a future export/import center targeting Vietnam along NR-4. Accordingly, MXLP needs to be located in a place that fulfills the following criteria:

- Good accessibility to NR-13,
- Good accessibility to NR-4
- Minimum disturbance to urban activities in Muangxai.

Considering the above, the south-eastern area along NR-13 was selected as a potential site for MXLP, as indicated in Figure 7.4.7.



Source: JICA Study Team

**Figure 7.4.7** Location of the Logistics Park in Muangxai

## (2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the Muangxai Logistics Park (MXLP) is expected to handle very minimal amount of import/export and transit cargo from/to China and Thailand. However, in the long run, due to its geographic advantage, it is expected to become a trans-shipment centre for the transit cargo between Yunnan and Thailand in the future. As proposed in the National Logistics Strategy, the MXLP is expected to provide 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 (in region and province) 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 handled at the MXLP was estimated for the target year of 2025 and summarized in Table 7.4.1.

**Table 7.4.1 Annual Handling Volume in 2025**

Unit: 000 tons

Package Type	2025
Container	0.7
General Cargo	1.5
Heavy Bulk	0.1
Liquid Cargo	0.0
Total	2.2

Source: JICA Study Team

### (4) Facility, Project Cost and Implementation Plan

It is foreseen that the MXLP will not be financially feasible within the planning period (before the year 2025). The necessary functions and volume to be handled by the MXLP shall be functionally integrated into the Luangnamtha Logistics Park (LNLP) up to the year 2025.

Accordingly, the detailed facility plan, project cost and implementation plan shall be subjected to discussion after 2025 or whenever the freight volume has increased enough to make the project financially feasible.

## 7.5 Huoixai

### 7.5.1 Current Economy and Future Development Plan

#### (1) Economic Conditions

Bokeo Province is located in the northeastern end of Lao PDR, sharing borders with Thailand and Myanmar. It's total area is 6,000km<sup>2</sup> (2<sup>nd</sup> smallest province next to Vientiane Capital), and its population was 145,000 in 2005. The ethnic minorities account for 70% of the total provincial population. Most of the provincial area is mountainous, with flatland very limited. That is why the population of Houixai, the provincial town was 56,000 in 2005: it accounted for 40% of the provincial population.

Major industries in Bokeo Province are agriculture and tourism. Major agriculture products are maize, soy beans and rice. Due to availability of quantitative restriction by the Central Government, the Forestry industry has not developed significantly. As regards tourism, there are 2 kinds of tourists that visit Bokeo Province. The first one is backpackers from western countries, crossing national border from Thailand and heading over to Luangprabang. The other one is Thai tourists visiting Yunnan Province (Xishuangbanna Dai Autonomous Prefecture). Following the

Improvement of NR-3, such tourist groups have increased as well as merchandise trade between Thailand and China. Huoixai and Chaing Khong will be connected by the 4<sup>th</sup> Mekong Bridge by 2015. The feasibility study of the project has already been completed, and construction work will start in the near future.

A Special Economic Zone has been developing at the national border with Thailand and Myanmar (what is called Golden Triangle) since 2007. A joint-venture among Myanmar, Lao PDR and a Macau investor is the construction of a tourism facility that includes a golf field, casino and hotel. Other facilities such as shopping mall will be developed in the future.

Bokeo Province receives most of FDI from China in agriculture. FDI from Thailand is limited. Investment in rubber plantation is not as big as Luangnamtha Province. Around 10 China investors received approvals for investment, but their actual investment amounts are limited. The provincial government isn't so keen to promote investment in rubber plantations.

In the on-going Socio-economic Plan, targets in economic development consist of (a) expansion of agriculture production, in particular, rice, and (b) expansion of tourism and tourism related industry. However, lack of land use planning is one of critical issues inhibiting agriculture development.

## **(2) Transport Network**

Huoixai developed as a river crossing of the Mekong River; as such, the transport network here is traditionally advanced. Huoixai is located in the southwestern section of the province, bordering Chiang Khong in the Chiang Rai Province. NR-3 runs through the southern part of the province in a southwest to north east direction and it takes 3 hours to travel from Huoixai to Boten Village, a border town with China. Currently, the 4<sup>th</sup> Mekong River Bridge Project along the NR-13 is on-going: it is expected to drastically improve convenience and efficiency of the north-south corridor. Huoixai has a domestic airport and it connects with Vientiane 3 days per week.

## **(3) Development Plan**

### **1) Socio-economic Development**

In the on-going Socio-economic Development Plan, the following targets were set:

- GRDP growth rate to increase to 7.5 to 8.0 percent per annum during 2006 to 2010.
- In 2010, composition of industrial sectors to be 53.8% for agriculture, 13.0% for industry and 33.2% for service, respectively.
- Fiscal revenue to increase to 2 to 25% per annum.
- Public investment to increase to 25 to 30% per annum, and take up 8 to 9% of GRDP.
- In 2010, provincial population to reach 154,494 persons with 78,516 females.
- Average income to reach USD 700 to 750 per capita in 2010.

### **2) Urban Development**

Existing urban areas in Bokeo province are very limited. Huoixai, a provincial center of Bokeo province, is almost the only urbanized area in the province. Huoixai is located and developed along the Mekong River. The city is an inter-modal point between river transport along Mekong River and land transport along NR-13N: it is also a cross-border point into Thailand.

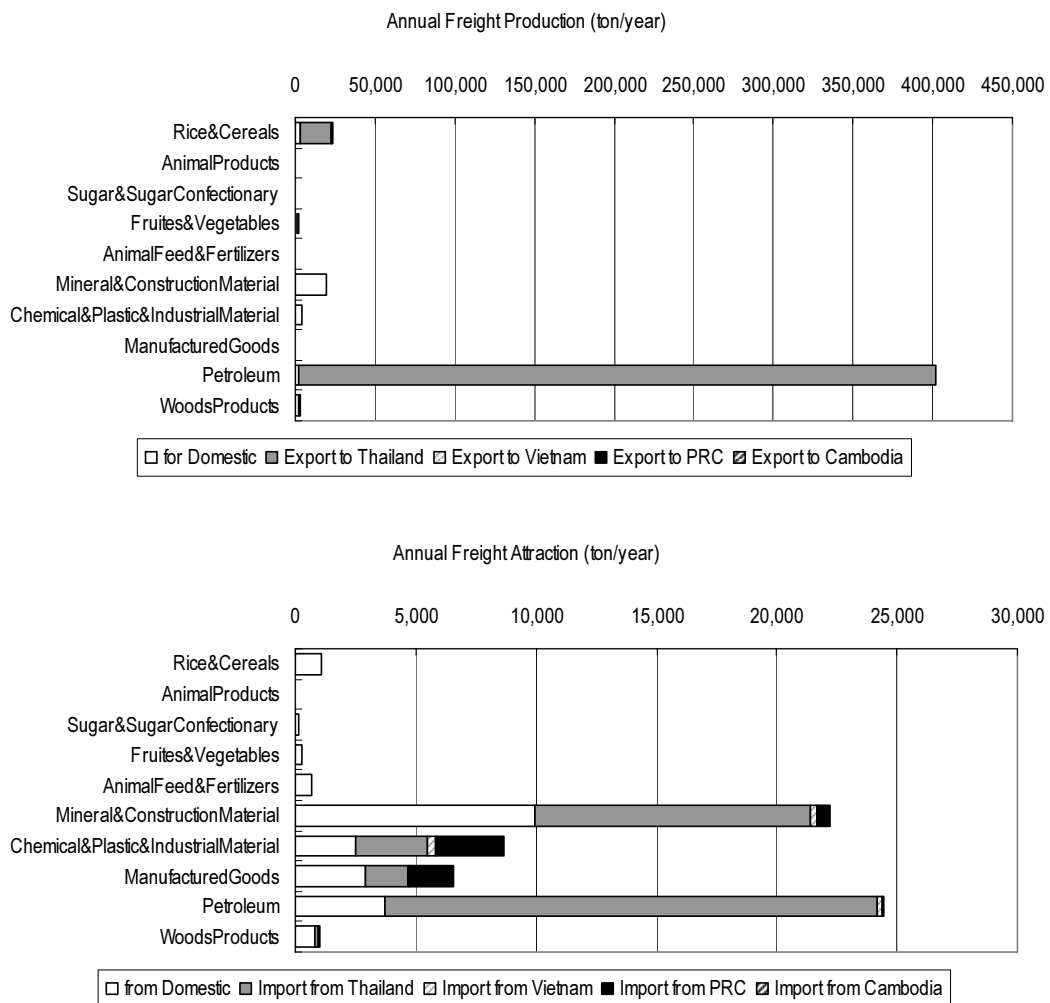
The Urbanized area is spread along the Mekong River: currently, it tends to expand to hilly hinterland of the city due to population increase.

PTI has developed urban master plan for Huoixai. According to the plan, urban area is designated to expand in a southern direction along the Mekong River.

### 7.5.2 Logistics in Bokeo

Freight production in Bokeo is dominated by coal which is exported to Thailand and is about 402,000 tons per year. Excluding coal, current freight production is 54,000 tons per year and it consists of maize, pebbles and macadam. Current freight attraction in Bokeo is about 65,000 tons per year and 56% of attraction volume are imports from Thailand such as petroleum, cement and articles of cement.

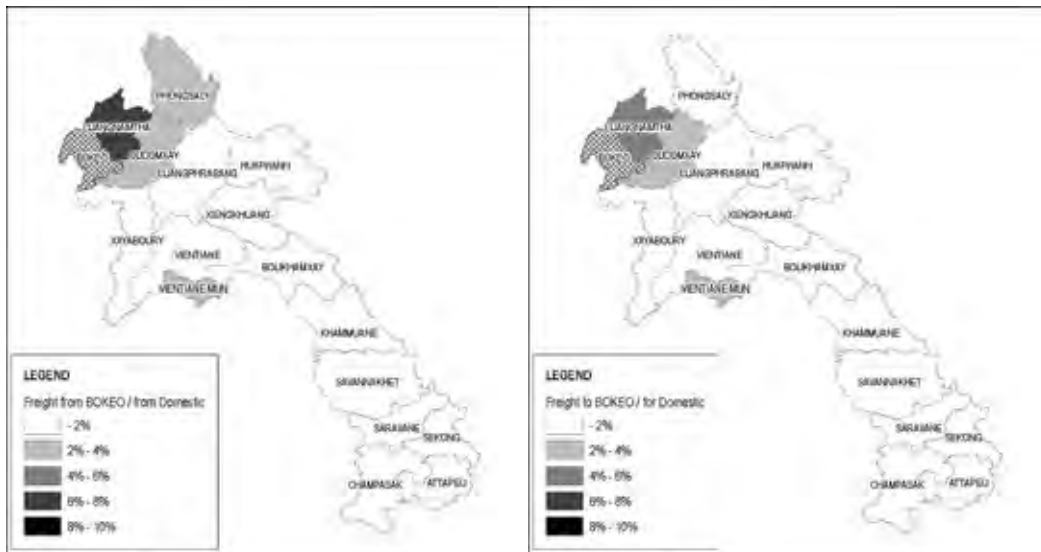
Transit freight between Thailand and China is about 5,000 tons per year. Transported commodities from Thailand to China through Bokeo amount to about 2,000 tons per year and are dominated by petroleum. Commodities from China to Thailand amount to about 3,000 tons per year and consist of fabric and electrical appliances.



Source: JICA Study Team

Figure 7.5.1 Current Freight Generation Volume

Domestic freight distribution area relevant to Bokeo is limited to neighboring provinces as shown in Figure 7.5.2.

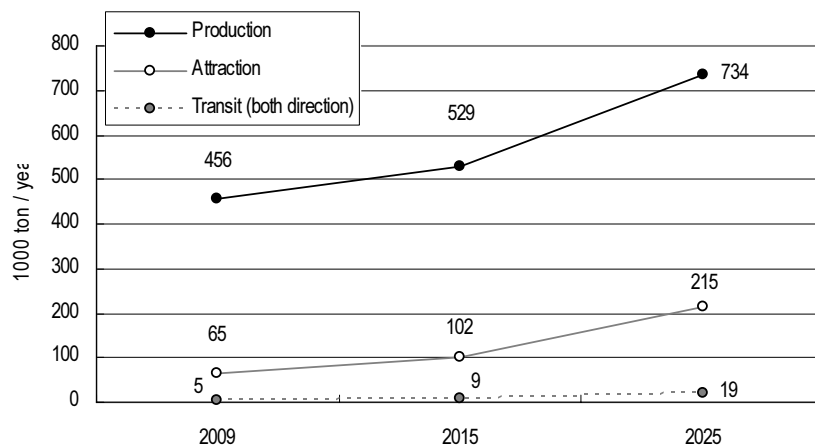


Source: JICA Study Team

Figure 7.5.2 Current Share of Freight from / to Bokeo in Domestic Generation

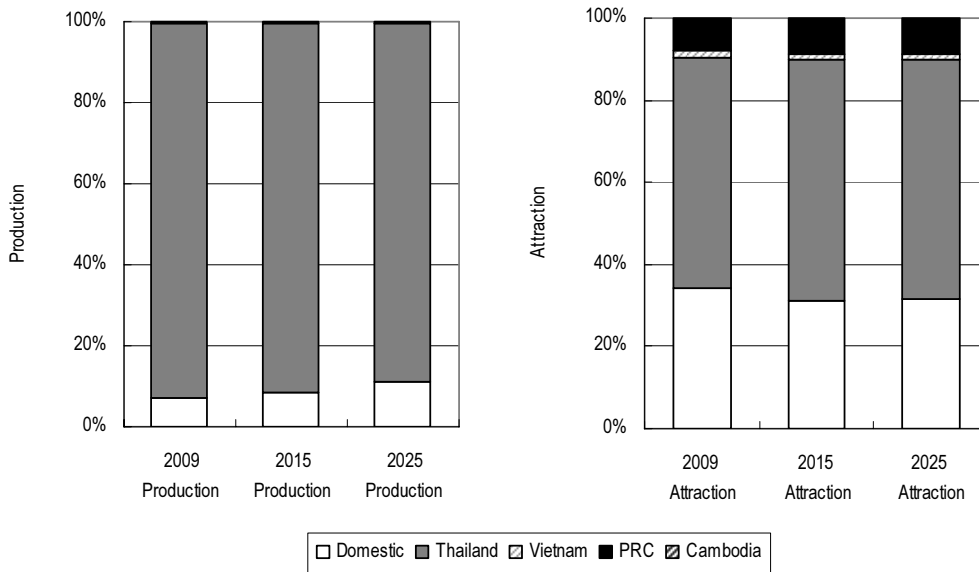
### 7.5.3 Freight Demand Forecast

In 2025, freight production of Bokeo is expected to reach 734,000 tons per year while attraction is expected to reach 215,000 tons per year. The share of coal exported to Thailand has decreased slightly, but it will dominate freight production in future.



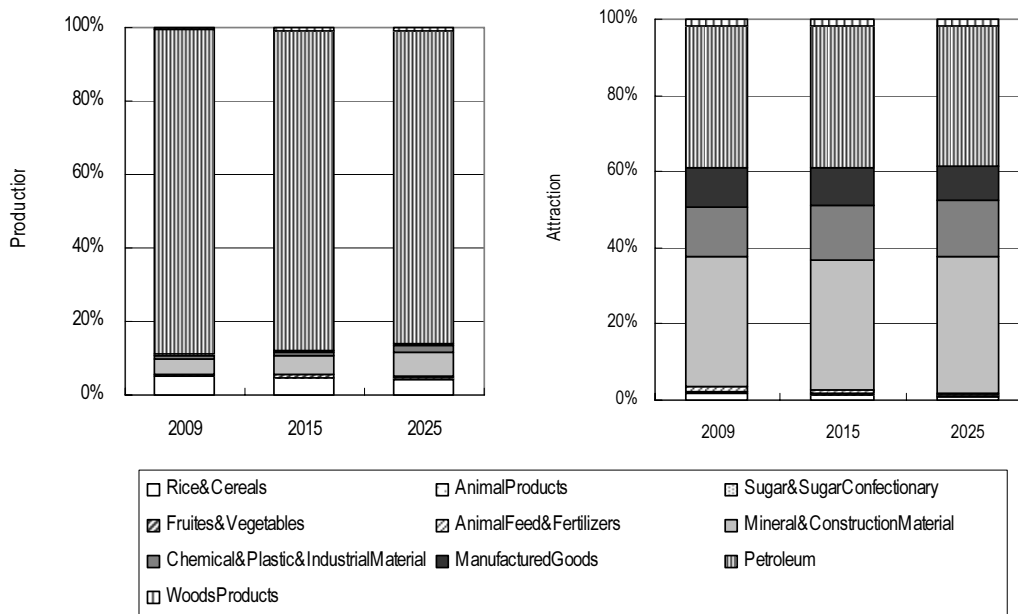
Source: JICA Study Team

Figure 7.5.3 Forecasted Freight Generation in Bokeo



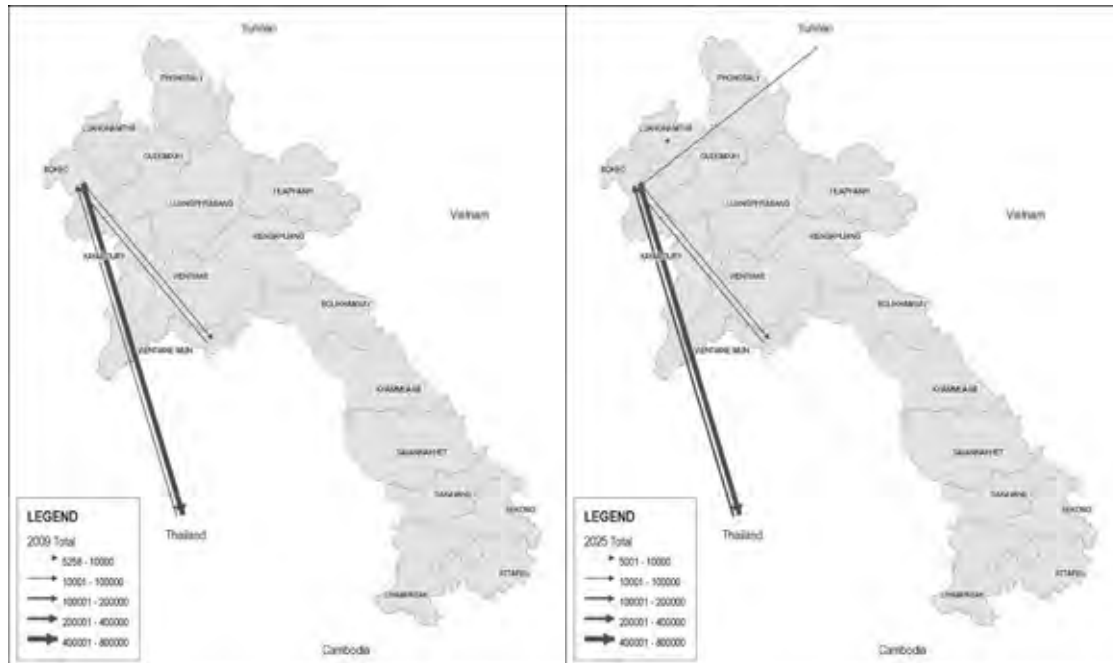
Source: JICA Study Team

**Figure 7.5.4 Forecasted Freight Composition in Bokeo**



Source: JICA Study Team

**Figure 7.5.5 Forecasted Freight Commodity Apportionment in Bokeo**



Source: JICA Study Team

Figure 7.5.6 Forecasted Freight Distribution

## 7.5.4 Logistics Development Strategy

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

Huoixai is designated as one of regional logistics hubs to facilitate the land transport route along NR13N in the national logistics strategy. It is expected to support more integration of cargo flow along the NR-13N by addition domestic cargo. The regional hub also serves important function of improving local logistics in province.

### (2) Logistics Facility Development Strategy in Huoixai

As proposed in the National Logistics Strategy, Huoixai is expected to have a regional logistics park in Bokeo to improve efficiency of regional logistics system by creating hierarchical logistics network. Huaixai is expected to be a local center of trans-shipment in northern Lao PDR. The activities are expected to be concentrated in one place so as to attain higher efficiency of operations as well as to attract foreign involvement in the project.

However, the Huoixai Logistics Park (HXLP) can be implemented in the long run since the estimated volume of the cargo to be handled is relatively small. Accordingly, necessary functions of HXLP are proposed to be integrated into functions of Luangnamtha Logistics Park until enough freight volume is projected at the HXLP.

## 7.5.5 Huoixai Logistics Park

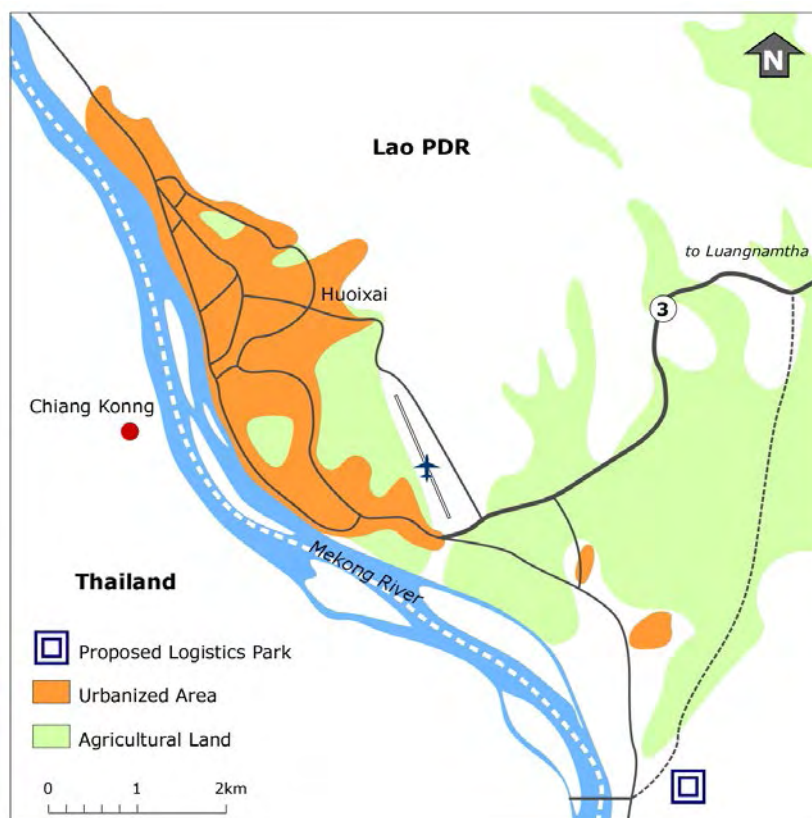
### (1) Location

Huoixai Logistics Park (HXLP) is expected to function as a regional logistics hub of northern Lao

PDR as a transit center between China and Thailand along NR-3. Accordingly, HXLP needs to be located in a place fulfilling the criteria below:

- Good accessibility to NR-3,
- Good accessibility to 4<sup>th</sup> Mekong Bridge
- Minimum disturbance to urban activities in Huoixai.

In consideration of the above, the south-eastern area along NR-3 was selected as a potential site of LNL, as indicated in Figure 7.5.7.



Source: JICA Study Team

Figure 7.5.7 Location of the Logistics Park in Huoixai

## (2) Functions and Services Provided

Through the comprehensive freight demand forecast, it was found that the Huoixai Logistics Park (HXLP) is expected to handle very minimal amount of import/export and transit cargo from/to China and Thailand. However, in the long run, due to its geographic advantage, it is expected to become a trans-shipment centre for the transit cargo between Yunnan and Thailand in the future. As proposed in the National Logistics Strategy, explored in Chapter 6 of this report, the HXLP is expected to provide following functions and services.

- Interface with Thailand for import/export and transit cargo between Thailand and China
- 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 handled at the HXLP was estimated for the target year of 2025 and summarized in Table 7.5.1.

**Table 7.5.1 Annual Handling Volume in 2025**

Package Type	Unit: 000 tons	
	2025	
Container	3.8	
General Cargo	8.0	
Heavy Bulk	0.4	
Liquid Cargo	0.0	
Total	12.3	

Source: JICA Study Team

### (4) Facility, Project Cost and Implementation Plan

It is foreseen that the HXLP will not be financially feasible within the planning period (before the year 2025). The necessary functions and volume of cargo to be handled by the HXLP shall be functionally integrated into the Luangnamtha Logistics Park (LNLP) up to the year 2025.

Accordingly, the detailed facility plan, project cost and implementation plan shall be subjected to discussion after the year 2025 or whenever the freight volume has increased enough to make the project financially feasible.

## 7.6 Luangprabang

### 7.6.1 Current Economy and Future Development Plan

#### (1) Current Economic Conditions

Luangprabang Province is located in the northern part of Lao PDR, and shares a border with Vietnam. The province is surrounded by Phongsaly (north), Dien Bien and Son La of Socialist Republic of Vietnam, (northesat), Houaphan (east), Xiengkhuang (southeast), Vientiane (south), Xayabury (southwest) and Oudomxay (west). Total provincial area is 17,000 km<sup>2</sup>, and provincial population was 407,000 in 2005. Luangprabang city, which is graded as 2<sup>nd</sup> tier city together with Savannakhet, Pakse and Thakhek, is located in the south western part of the province, and had 79,000 inhabitants in 2005.

The major economic activity in Luangprabang Province is tourism. The old city area of Luangprabang is registered on the World Heritage List. Around 400,000 international tourists have visited Luangprabang City in recent years, and hotels and guest houses in the province abound. They increased from 170 in 2005 to 200 in 2008.

Agriculture and industrial activity in Luangprabang Province have not developed greatly. Major agricultural products are maize and rice. Due to limited flatland, 54% of rice production is upland rice. Another major product is starchy roots. The production volume was recorded at 60,000 tons, the highest in Lao PDR. For industry, there is a gold mine north of Luangprabang City. The

reserved volume of gold is not as much as that in Sepon mine in Savannakhet Province and Phu Bia mine in Vientiane Province. However, production of gold from the mine will contribute to acceleration of economic growth in the province. A private company is in the process of acquiring concession for exploitation.

## **(2) Transport Network**

Luangprabang City has an international airport and it connects with Bangkok (5 days per week), Chiang Mai (4 days per week), Hanoi (everyday), Shem Reap (4 days per week), Udon Thani (2 days per week), Vientiane (everyday) and Pakse (3 days per week). NR-13 runs across the province from the north to the south, and then connecting Luangprabang City with Muangxay, (provincial capital of Oudomxay) and Phonhong (provincial capital of Vientiane). Luangprabang is also connected with Xayabury by NR-4 and Xamneua (provincial capital of Huaphanh) by NR-1C and NR-6.

## **(3) Development Plan**

### **1) Socio-economic Development**

In the on-going Socio-economic Development Plan, the following overall goal and macro targets were set.

Overall goal: Ensure the basic security of the province, strengthen the political system, ensure the expansion of economy and promote poverty reduction.

Macro targets: Reduction of slash and burn cultivation to 8,000 ha; Promotion of industrial and human resource development; Develop Luangprabang as natural, historical, cultural, tourism and service center linking to all northern provinces by road network.

Based on the overall target and macro target, the following socio-economic targets were set:

- GRDP growth rate to be 7% per annum during 2006 and 2010.
- Composition of industrial sectors in 2010 to be 48% for agriculture and forestry sector, 12% for industry and handicraft sector and 40% for service sector, respectively.
- GRDP per capita to increase from USD 378 in 2006 to USD 650 in 2010.
- Fiscal revenue to be 9 to 10% of GRDP during the period.
- Population to increase at a rate of 1.7% annually, and reach 417,320 persons in 2010.
- Enrollment rate of elementary schools to reach 97% in 2010
- Total investment amount including public investment, grant aids, private investment to amount to USD 76.5 million (803 billion Kip) during the period.

### **2) Urban Development**

Luangprabang is the old capital of Lao PDR. It developed along Mekong River. Luangprabang Town is a provincial center of Luangprabang province and is almost the only urbanized area in the province. It is currently experiencing many tourism developments such as development of hotels, restaurants and shops in the city of Luangprabang. The city is an inter-modal point between river transport along Mekong River and land transport along NR-13N.

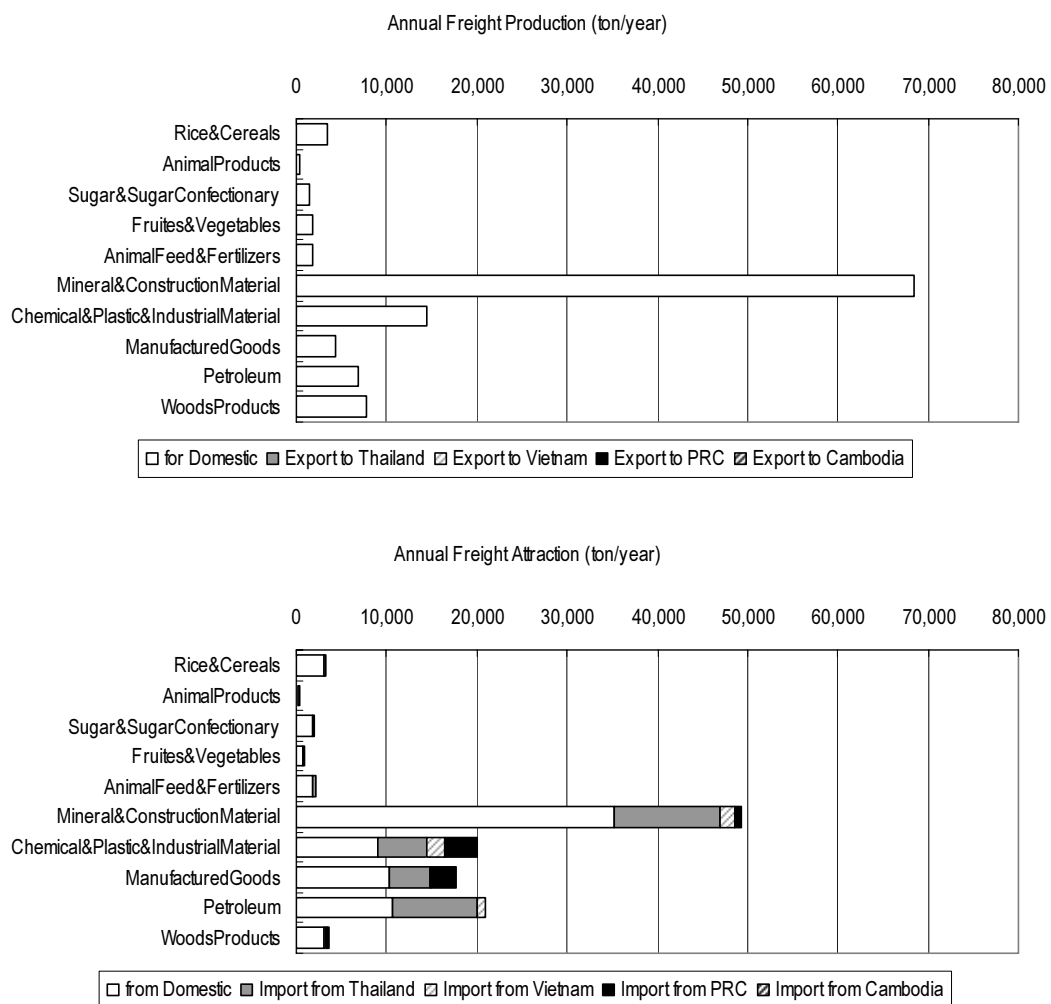
The Urbanized area is spread along the Mekong River and currently expands along the NR-13N and on the other side of the river due to limited flat lands.

According to the urban master plan developed by PTI and UNESCO, central area of the city is strictly designated as the conservation area due to the World Heritage, such that new urban area will expand in a southern direction along the NR-13N and on the other side of the river.

### 7.6.2 Logistics in Luangprabang

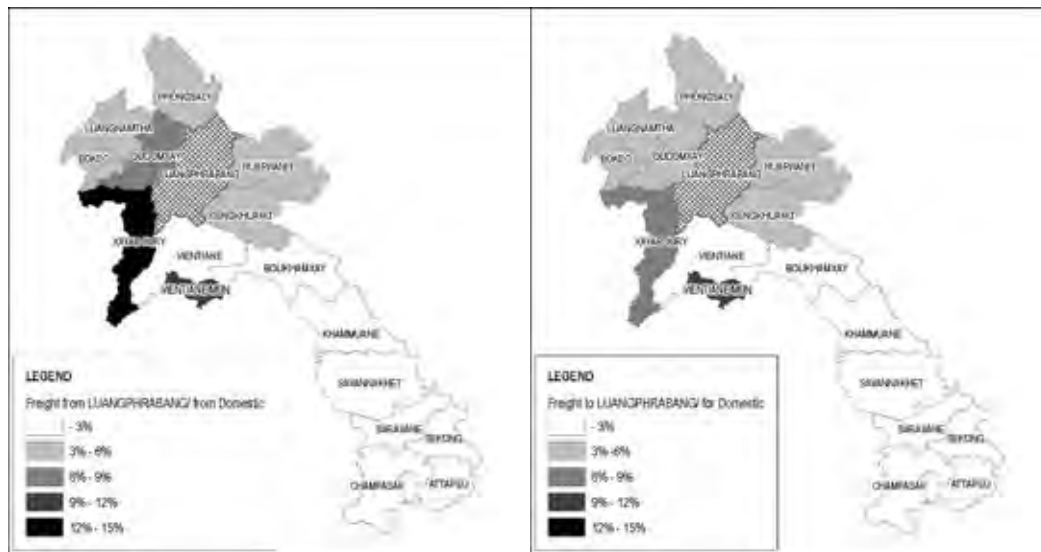
Current freight production and attraction relevant to Luangprabang is 147,000 and 181,000 tons per year respectively.

Luangprabang is a center of the northern region, with a special relationship with Xayabury province.



Source: JICA Study Team

Figure 7.6.1 Current Freight Generation Volume

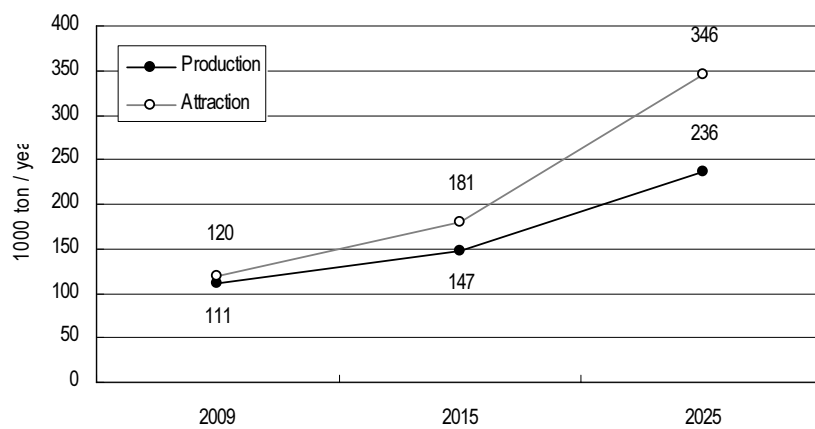


Source: JICA Study Team

Figure 7.6.2 Current Share of Freight from / to Luangprabang in Domestic Generation

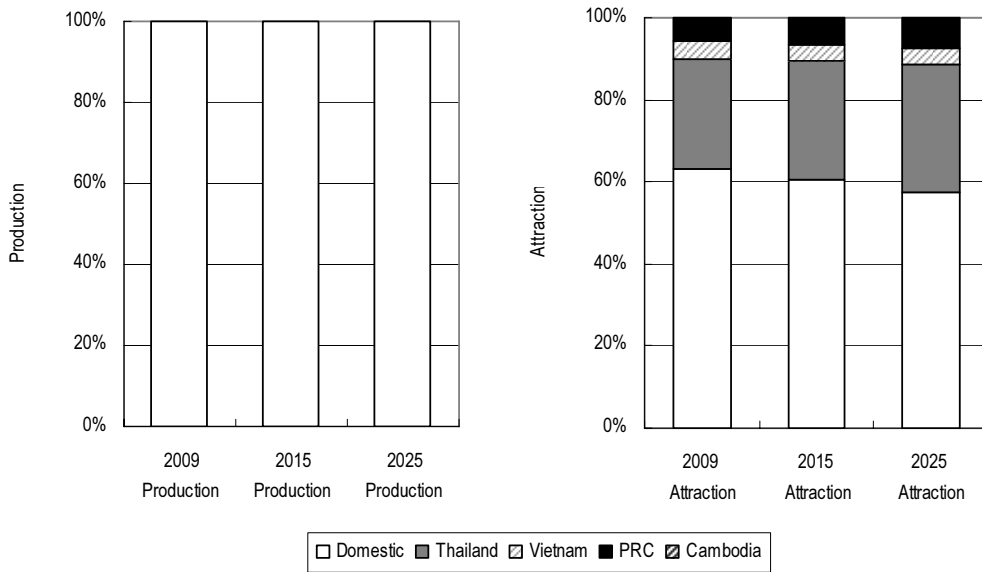
### 7.6.3 Freight Demand Forecast

Future freight production and attraction in Luangprabang is, as shown in Figure 7.6.3, expected to reach 236,000 and 346,000 tons per year respectively.



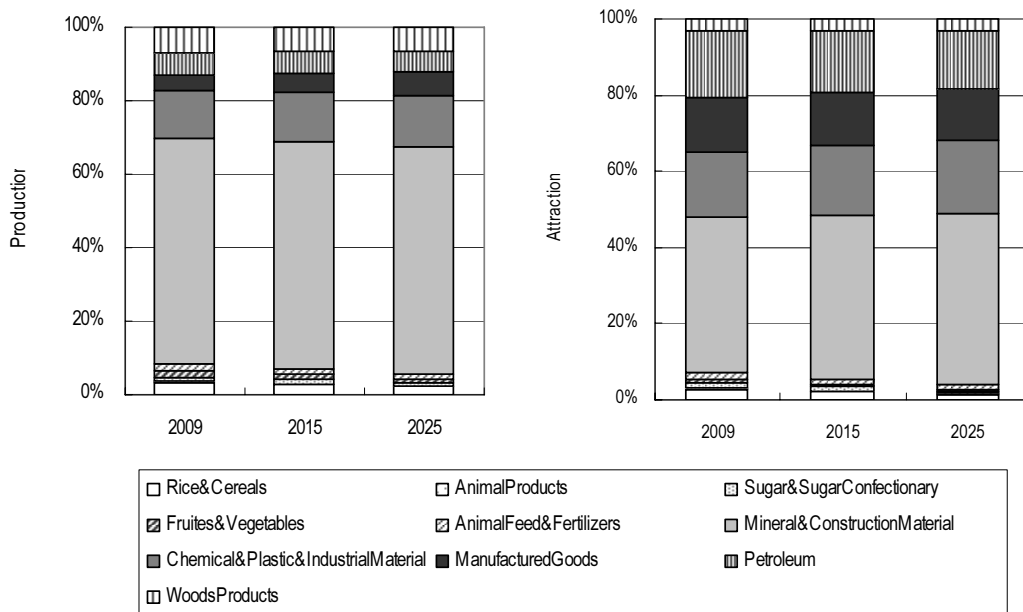
Source: JICA Study Team

Figure 7.6.3 Forecasted Freight Generation in Luangprabang



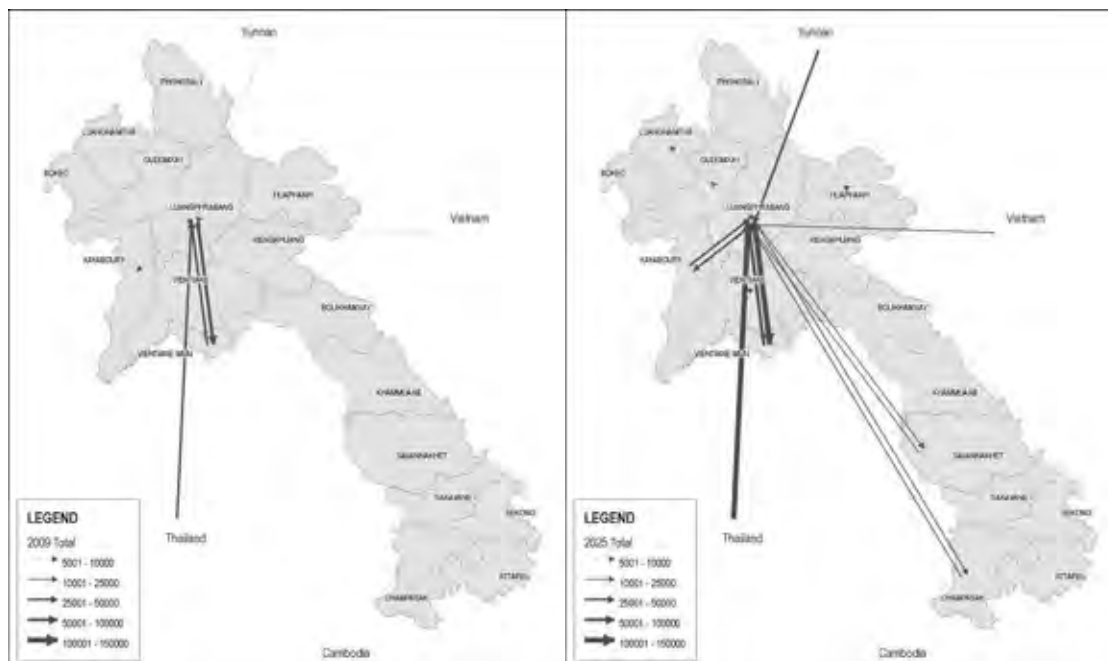
Source: JICA Study Team

Figure 7.6.4 Forecasted Freight Composition in Luangprabang



Source: JICA Study Team

Figure 7.6.5 Forecasted Freight Commodity Apportionment in Luangprabang



Source: JICA Study Team

Figure 7.6.6 Forecasted Freight Distribution

## 7.6.4 Logistics Development Strategy

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

As proposed in Chapter 6 of this report, logistics development in Lao PDR can be achieved by the following 3 key strategies: (i) Integration of Cargo Flow, (ii) Business Stimulation, (iii) Market Expansion. To realize these strategies, Luangprabang is expected to be a regional core of logistics system in northern Lao PDR, providing up-to-date logistics park to support integration of cargo flows on the NR-13N to generate scale merits for Lao PDR by adding consolidation cargo to/from the influencing zone of Luangprabang.

### (2) Logistics Facility Development Strategy in Luangprabang

As described above, Luangprabang is required to perform as a regional center of trans-shipment. The activities are expected to be concentrated in one place so as to attain higher efficiency and convenience of operations. Tax incentives will be provided by designating the logistics facility as a special economic zone. In this regard, it is necessary to develop the international logistics parks (Detailed in Action No. P112 of the National Logistics Strategy) to improve regional logistics system by creating hierarchical logistics network. Luangprabang and surrounding provinces are also expected to develop international and regional transport routes (detained in Action P121 and P122) to speed up travel time of the large vehicles and improve road structure to accommodate larger truck loading: they are also expected to install road safety facilities.