Chapter 6

Infrastructure Development in Lao PDR

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Chapter 6: Infrastructure Development in Lao PDR

Syviengxay Oraboune

Abstract

Being a land-locked country with poor infrastructure has put a constraint to the socio-economic development of Lao PDR. In view of this, the Government of Lao PDR has introduced a "land-linked" strategy parallel to regional and sub-regional infrastructure development trends, especially in the frameworks of, among others, the ASEAN, Greater Mekong Sub-region, and Triangle Development Area. The strategy addresses the importance of infrastructure development, particularly the road/transport sector, as the means to achieve the 2020 vision for the country to graduate from the list of less developed countries (LDCs) and to eradicate mass poverty by 2010. Infrastructure development has been identified as significant both for poverty reduction and private sector development because of the following reasons. One, focusing on farm-to-market road construction with proper mechanism to link rural farmers to the growing demand within the country and in the region is significant for poverty reduction. Two, improvement of logistic infrastructure, particularly factory-to-port transportation, is critical in enhancing business performance, export development and economic growth. And three, widening choices for logistic transportation in the longer term of the infrastructure development strategy of the country will greatly boost growth and assist in the poverty reduction program.

INTRODUCTION

Lao People's Democratic Republic (Lao PDR) is the only land-locked country in the Southeast Asian region. This situation where there is no direct access to the sea and where poor infrastructure exists has served as a bottleneck to the development of this small domestic market of only about 5.6 million people (as of 2005) especially in the process of regional and international integration.However, because the country is located in the heart of the Indochina peninsula and is surrounded by approximately 246 million people from five countries, namely, Viet Nam (82) in the East, Cambodia (12) in the South, Thailand (61) in the West, Myanmar (48) in the Northwest, and China's Yunnan Province (43) in the North, its potential for development has emerged.

The Government of Lao PDR (GOL) launched the new economic mechanism (NEM) policy and introduced a market-oriented system for the country in 1986 in order to induce the socio-economic development of the country. After 1992 and 1997, with the country's participation in the Greater Mekong Sub-region (GMS) and the Association of Southeast Asian Nations (ASEAN), respectively, the process of economic integration of the country hasbeen dynamically assimilated within the region. The country has further raised its effort to be integrated at the international level with its current negotiation to access to the World Trade Organization (WTO). In view of this, the development of an efficient transport system is of paramount importance for the regional/international integration and socio-economic development of the country.

Private sector development is recognized as important in the process of economic integration but poor infrastructure has become an obstacle in the development of the

private sector as well as in the improvement of competitiveness of the country. The poor infrastructure system, together with the absence of the necessary logistics and the non-unification of the transportation system with neighboring countries, serves as a critical problem in the development of the private sector since it raises the cost of transportation, thereupon reducing the price competitiveness of Lao export products. This directly impacts on the overall development of the country.

Under regional and sub-regional cooperation schemes, therefore, the government of Lao PDR has decided to launch a so-called "land-linked" strategy by developing a domestic road system and link to neighbouring countries in order to gradually transform the obstacle situation to an opportunity for the country's development.

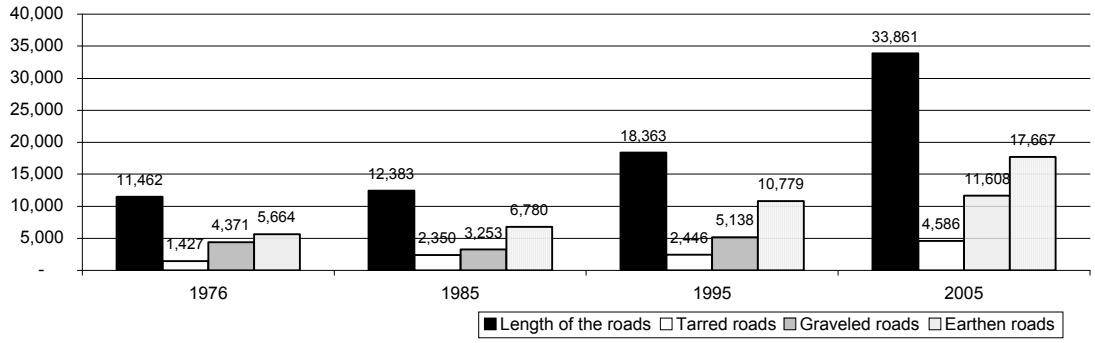
This report aims to provide an overall situation of the infrastructure development in Lao PDR through a review of the infrastructure development process in the country. The paper also discusses some important issues relating to infrastructure development in Lao PDR, including poverty reduction and logistic issue. It concludes with some considerations and policy recommendations for the development of infrastructure in general.

1. INFRASTRUCTURE DEVELOPMENT IN LAO PDR

Since gaining independence in 1975, the Government of Lao PDR has emphasized the importance of infrastructure development, particularly the road sector, as the key in the country's development. Playing a central role is the Ministry of Communication,

Transportation, Post and Construction (MCTPC) which has carried out the development of the road expansion in the country. In 2005, the total length of the road in Lao PDR increased to 33,861 km, from only 18,363 km in 1995 and 12,383 km in 1985. The increase was more than 3 folds in 30 years as seen in Figure 1.

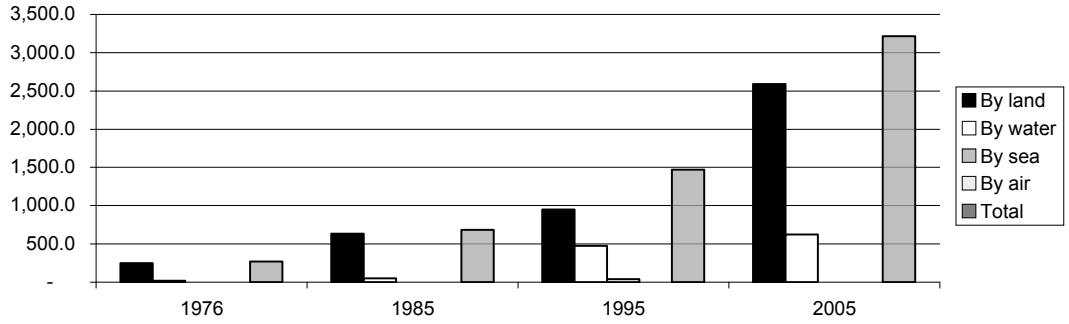
Figure 1: Length of Road in Lao PDR



Source: National Statistical Centre, 2005

The development of roads, bridges, waterways, airways and other infrastructures has supported the development of other sectors, including agriculture and commerce as it eased market access and improved the transportation, freight and transshipment of goods in the country. Road transport is the most used mode for freight transport, accounting for more than 80 percent of total freight transport in 2005. As the road transportation network was improved, however, other modes of transportation, particularly the waterways system, declined (Figure 2).

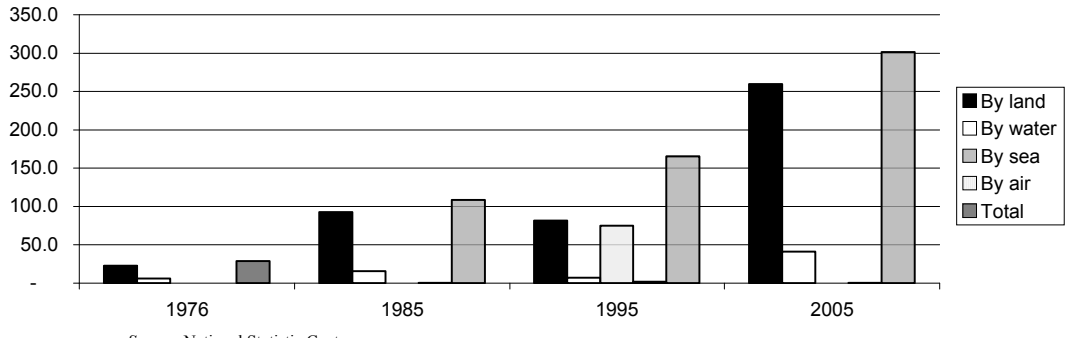
Figure 2: Freight Transport 1976-2005



Source: National Statistical Centre, 2005

Freight traffic almost doubled in the last 10 years since 1995 and had an almost 300 percent increase from 1976. More than 86 percent of this freight traffic, as noted earlier, was transported by road in 2005 (see Figure 3).

Figure 3: Freight Transport 1976-2005

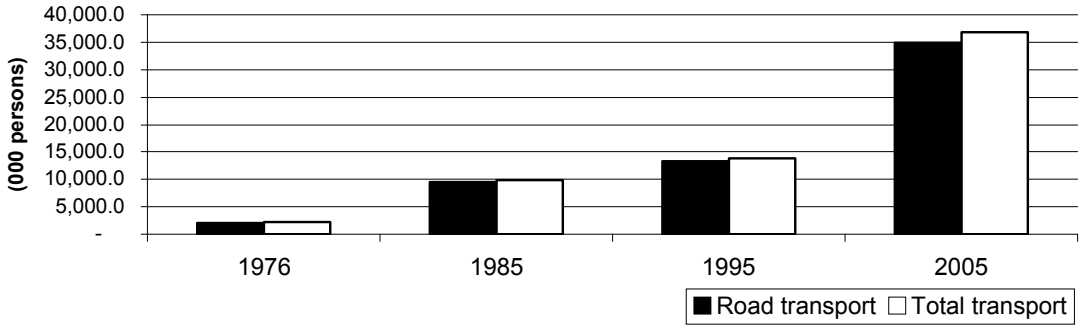


Source: National Statistical Centre, 2005

In 2005, total passenger transport in the whole country was about 37 million persons which increased more than 20 times in the last 30 years. About 95 percent of the people travelled by road as seen in Figure 4 although passenger travel by water also significantly increased. Still, though, the water transport mode nonetheless accounted

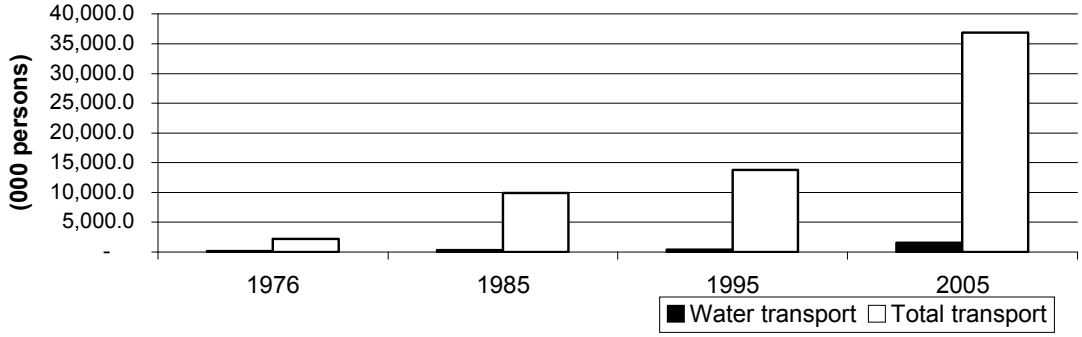
only for less than 3 percent (Figure 5).

Figure 4: Road Passenger Transport: 1976-2005



Source: National Statistical Centre, 2005

Figure 5: Water Passenger Transport: 1976-2005



Source: National Statistical Centre, 2005

1.1. Waterways (inland) and transportation

Most of the waterway transport system in Lao PDR were used for domestic services. Only the Mekong River had been used for international transportation with mainly neighboring countries such as Thailand, China and Cambodia. The Mekong River and some of its tributaries such as Nam Ou and Se Kong rivers flow through the country for

over 2,000 km. However, during the dry season, river transportation is reduced to only 1,300 km due to the rapids, falls and low water level.

Meanwhile, because of commercial activities with China, vessels up to 400 DWT can operate throughout the year in the northern section of the Mekong River. Elsewhere, however, travel is limited only to smaller barges of only 200 DWT or less. In the dry season, though, only small, shallow-draft, narrow-beam passenger vessels are used to navigate. Most of the higher capacity vessels are used to carry industrial and agriculture products such as sand, rock, wood products, food grains, steel products, logs, etc. At present, the waterway route in the northern provinces of the country plays a significant role for tourism development as many tourists prefer to travel by boat from Thailand to Lao PDR or by small ships along the Mekong River in the northern region.

On the other hand, in the central and southern regions, waterway transportation is not so popular especially after the development and expansion of the road network system such as Roads 13 and 9 as well as the completion of many domestic connecting bridges and international bridges such as the Lao-Thai Friendship Bridges 1 and 2. People prefer to travel by car rather than by other means of transportation.

1.2. Air transport

At present, there are two national air companies (state-owned Lao Airline and joint state-domestic private Lao Air) operating air transport domestically in Lao PDR. For international air flights, there are, besides Lao Airline, a few airline companies mainly from neighboring countries that provide air transportation services for international

routes to and from Lao PDR, including Thai Airways International which provides two flights a day to and from Bangkok and Vientiane, and Chiang Mai and Louang Prabang. Viet Nam Airline offers flight services to and from Hanoi – Vientiane – Phnom Penh – Ho Chi Min while China (Yunnan) Airlines has flights to and from Vientiane – Kunming – Vientiane.

Domestic services are operated exclusively by Lao Airlines and recently also by Lao Air although there is a privately owned and operated chartered helicopter service used mainly for aerial work and passenger transport to remote areas.

There are few domestic flights mainly between Vientiane and some provinces in the northern region, including Loungprabang, Xayabury, Xamneu, Phongsaly, Loungnamtha and Xiengkhouang. There is only one round-trip flight daily to and from Vientiane and Pakse after the flight to and from Savannakhet had been cancelled due to the improvement of National Road 13 South. In sum, there are about ten recognized minor airports located in the provincial capitals and thirty-nine other airports with unpaved runways.

However, only Vientiane International Airport and Loung Prabang Airport handle international traffic and provide basic customs, immigration and quarantine services. Pakse Airport is being planned to become a regional airport in the near future as it currently services the Vientiane – Pakse – Siam Reap (Cambodia) route daily and is expected to provide similar services later on. For the Savannakhet Airport, meanwhile, whose operation has been closed for some time now, it is expected that it will resume

business soon in cooperation with Thailand.

In the early 1990s, the government decided to establish an autonomous authority to manage the Vientiane Wattay International Airport. However, it is now back under the direct government management of the Lao Airport Authority (LAA) which is currently responsible for the management and operation of the airports in Vientiane, Luang Prabhang, Pakse, and Luang Namtha. The remaining minor airports are the responsibility of the provincial governments although the central government provides annual grants for their capital expenditures. The revenues and expenses of the LAA are part of the national budget, and its employees are governed by the terms and conditions applicable to government personnel. The Lao government obtains substantial revenue from international flight charges due to the high traffic volume in the following air routes that pass over Lao PDR airspace: Bangkok – Hong Kong, Bangkok – Manila, Bangkok – Hanoi, and Hanoi – New Delhi (Alberto Nogales, 2004).

Since the government undertook significant reforms in air transport sector, including privatization in airport and airlines operation, the Lao Airline business has gradually improved with significant benefits seen over the recent years. To further improve its quality of services, the company bought two aircrafts from China for domestic services and ordered two more aircrafts in 2007 (Vientiane Times Newspaper, 4 July, 2007).

1.3. Railways transport

The process of railway development in Lao PDR derives mainly from a feasibility study

of the Trans-Asian rail link. According to the studies, the rail route through Lao PDR that is parallel to Road 13-North would entail the least operational costs in linking the Thailand-China traffic. The main objective for the development of the railway system in Lao PDR is to enhance regional economic integration and ensure that Lao PDR would benefit from greater and easier access to regional markets.

In the meantime, the railway from Nongkai has been completely constructed and connected to the Lao-Thai Friendship Bridge. The construction of railway (3.5 km) from the middle of the bridge to Thanaleng was already agreed upon by the Lao and Thai governments to be funded by the Thai government with a total amount of US$4.9 million (197 million Baht). The funding of the 3.5 km railway has two portions, namely, 30 percent grant (US$1.5 million) and 70 percent soft loan (US$3.4 million) (Dr. Onnavong Bounta, 2006).

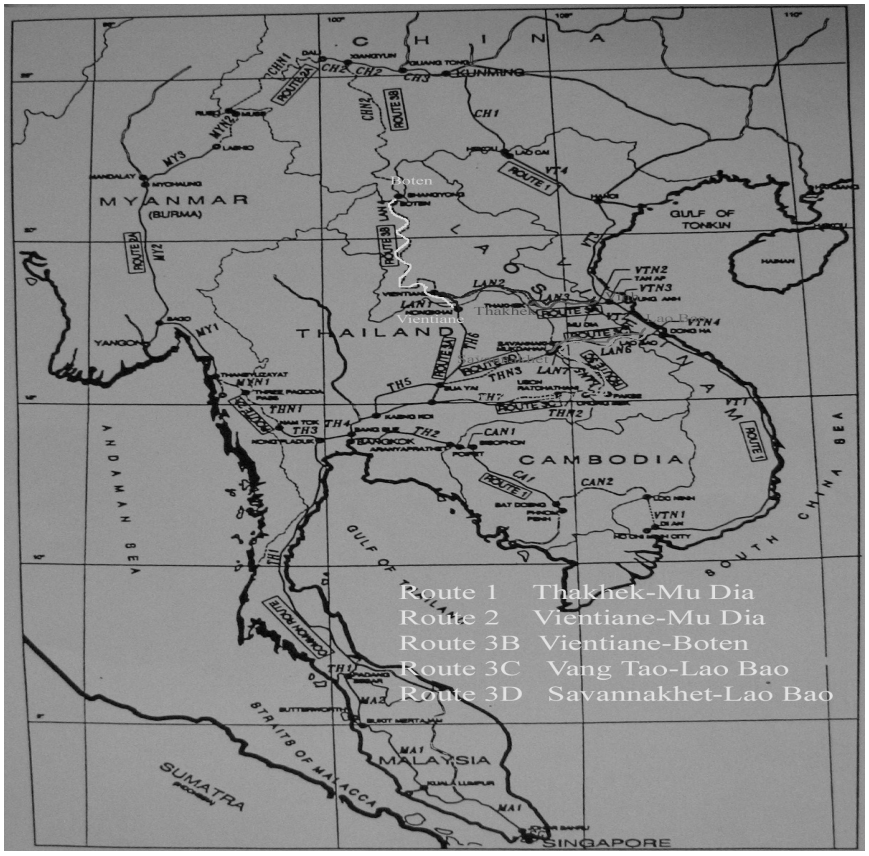
The project will be further developed from Thanaleng to Sokkham consisting of about 9 kilometers and supposed to be funded by France Development Agency (EU150,000). The pre-feasibility study of the railway route Vientiane – Thakhek – Mugia, however, which will connect to the Viet Nam Railway Network had already been carried out and completed and is now under a fund mobilization process (Dr. Onnavong Bounta, 2006).

Nevertheless, under the ASEAN initiative in 1995 that was aimed to develop a regional railway linkage between the ASEAN and Kunming of China, the so-called "Singapore-Kunming Rail Link" (SKRL) was introduced. According to the SKRL feasibility study team, several rail routes have been introduced as potential areas for the

railway development in Lao PDR. These SKRL routes, as seen in Map 1, are as follows:

- Route 1: Bangkok-Aranyaprathet-Poipet-Sisophon-Phnom Penh-Loc Niinh-Ho Cho Minh City-Hanoi-Lao Cai-Hekou-Kunming with a spur line to the port town Vung Anh from Tan Ap and another one to Vientiane via Mu Dia and Thakhek or from Dong Ha to Savannakhet via Lao Bao.
- Route 2A: Bangkok-Nam Tok-Three Pagoda Pass-Thanbyuzayat-Yangon-Lashio-Muse-Rueli-Dali-Kunming
- Route 3A: Bangkok-Nong Khai-Vientiane-Thakhek-Mu Dia-Tan Ap-(Vung Anh)-Hanoi-Lao Cai-Hekou-Kunming
- Route 3B: Bangkok-Nong Kai-Vientiane-Boten-Xiangyun-Kunming
- Route 3C: Bangkok-Ubon Ratchathani-Chong Mek-Pakse-Savannakhet-Lao Bao-Dong Ha-Lao Cai-Hekou-Kunming
- Route 3D: Bangkok-Bua Yai-Mukdahan-Savannakhet-Lao Bao-Dong Ha-Hanoi-Lao Cai-Hekou-Kunming

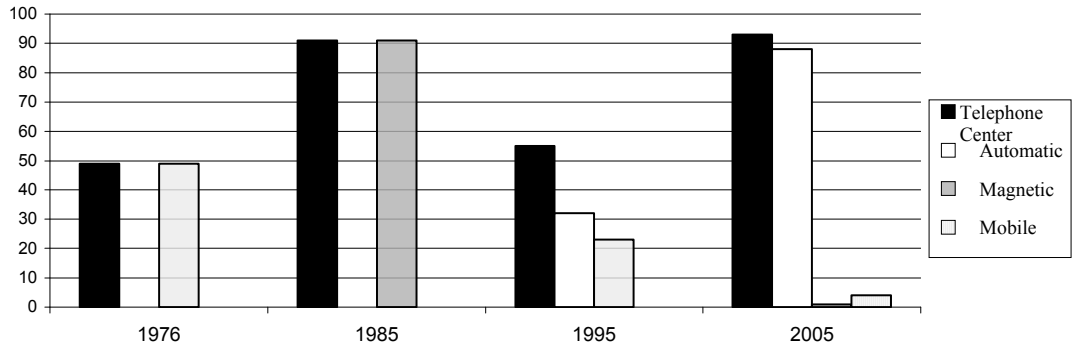
Map 1 : Singapore-Kunming Rail Link System (Feasibility Study)



1.4. Telecommunication sector

The telecommunication system in Lao PDR has gradually improved in the past 30 years. Telex, telegraph, fax and Internet services are available into and out of Lao PDR though mainly in the city and provincial centers. With the reform of the Lao Telecommunication Company (a state-owned company), the services of telecommunication have significantly developed and expanded especially in the 2000s. In 2005, for instance, almost all of the telephone centers in the country provide services with automatic system (see Figure 6).

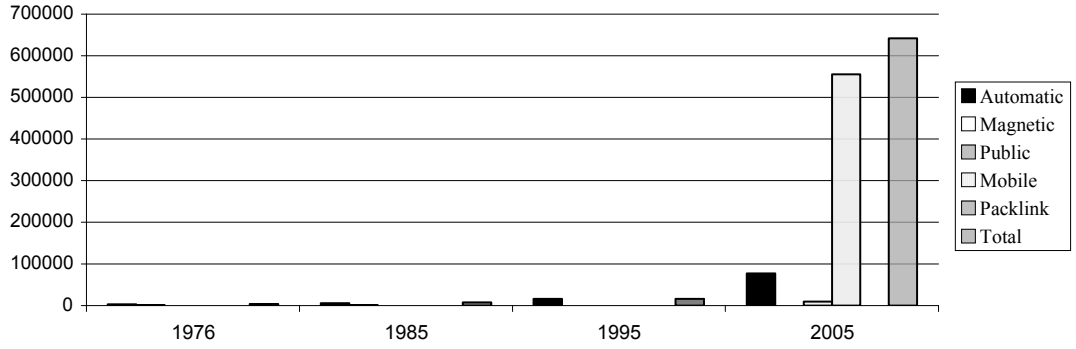
Figure 6: Number of Telephone Center 1976-2005



Source: MTCPC, 2005

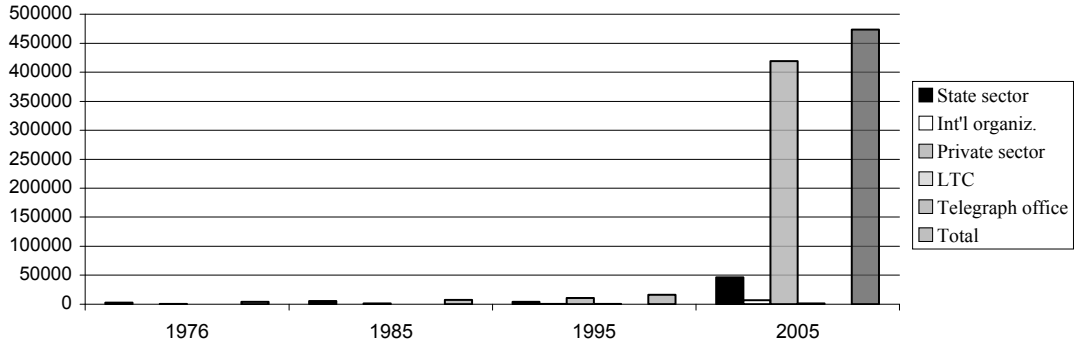
Since 2000, the number of telephones has dramatically increased, thereupon improving the telecommunication system in the country tremendously. Remarkably, mobile telephone has become a major mode used as mobile telephones accounted for more than 85 percent of total telephones. Moreover, almost 90 percent of these are privately used (Figures 7 and 8).

Figure 7: Number of Telephone 1976-2005



Source: MTCPC, 2005

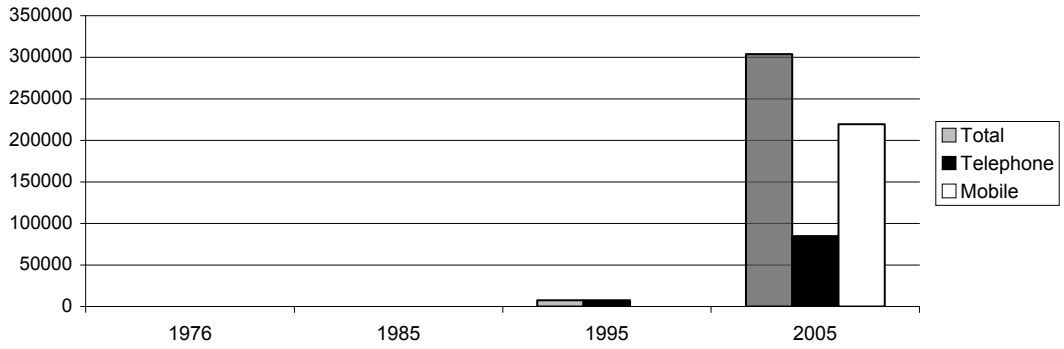
Figure 8: Number of Telephone by Sector



Source: MTCPC, 2005

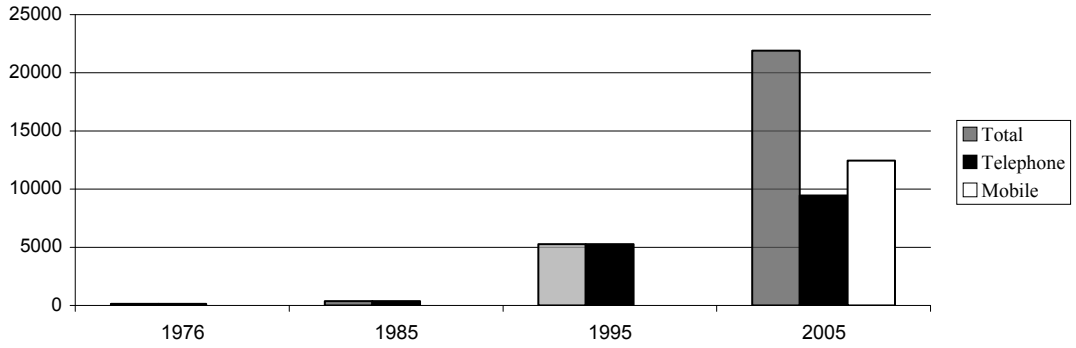
The telecommunication system further improved with the significant increase of service providers/centers, both public and private. Currently, there are five companies that provide mobile system services in Lao PDR. Three of them are privately owned and offer service coverage all over the country. With the improvement in the mobile system, the use of mobile phones accounted for more than 70 percent of total use of telecom production. Further, with the gradual decrease in service prices, the use of mobile phones has become more popular and more convenient (Figures 9 and 10).

Figure 9: Telecom Production 1976-2005



Source: MTCPC, 2005

Figure 10: International call 1976-2005



Source: MTCPC, 2005

1.5. Hydropower sector

Lao PDR has a total hydro potential of about 23,000 MW. At present, however, only 627 MW (as of 2002) of an estimated 18,000 MW of exploitable hydro potential has been harnessed (Electricity Du Laos). Since Lao PDR has extended its cooperation in the power sector to neighboring countries, the number of hydro power plants has increased. So far, more than 10 hydro power plants exist in Lao PDR with a total

capacity of about 644 MW, 627 MW (97%) of which is sourced from hydro and the rest (3%) from diesel (Table 1).

Table 1: Existing Power Plants in Lao PDR

No.	Plants (H:Hydropower)	Location (Province)	Max. Output (MW)	Production (GWh/year)	Owner	Comm-year
1	Theun hinboun (H)	Khammouane	210	1,620	IPP	1998
2	Nam Ngum 1 (H)	Vientiane	150	960	EDL	1971
3	Houay Ho (H)	Attapeu	150	617	IPP	1999
4	Nam Leuk (H)	Vientiane	60	245	EDL	2000
5	Xeset (H)	Salavane	45	181	EDL	1999
6	Selabam (H)	Champasak	5	34	EDL	1969
7	Nam Phao (H)	Bolikhamxay	1.6	7	Province	1995
8	Nam Ko (H)	Oudomxay	1.5	8	EDL	1996
9	Nam Dong (H)	Luangprabang	1	5	EDL	1970
10	Micro-hydro	37 locations	5.56	-	Province	-
11	Solar	106 locations	0.17	-	Province	-
12	Diesel	48 locations	17.34	-	Province	-
			644	3,677		

Source: Electricity consumption Statistic year 2001 (DOE, MIH)
Note: IPP: Interconnection Plan Project, EDL: Electricity Du Laos

With the opportunity provided under regional integration, particularly in the framework of the ASEAN and GMS as well as with the increased demand for energy, and in order to achieve the development objectives for the hydropower sector as identified in the Memorandum of Understanding (MOU) between Lao PDR and neighboring countries like Thailand, Vietnam and Cambodia, the Lao Government took the initiative to further develop its hydropower industry by adopting a long-term power development plan for hydropower up to 2020. According to the plan, there will be 19 projects located throughout the country with a total capacity of approximately 991 MW and annual energy of 4,493 GWh (see Table 2).

Table 2: The power generation development plan to 2020

No.	Project Name	Inst. Cap. (MW)	Annual Energy (GWh)	Compl. Years	Regions	Types
1	Nam Mang-3	40	147	2005	C1	EDL
2	Xeset-2	76	309	2006	S	EDL
3	Xepon	75	301	2008	C2/S	EDL
4	Nam Ngum-2	75	275	2008	C1	EDL
5	Nam Ngum-5	100	430	2009	C1/N	EDL
6	Xeset-3	20	85	2010	S	EDL
7	Houay Lamphan	60	354	2010	S	EDL
8	Nam Ngum 4B	56	254	2011	N	EDL
9	Nam Beng	45	175	2012	N	EDL
10	Tha Kho	36	215	2013	C1	EDL
11	Nam Bak 2b	116	563	2012	S	EDL
12	Vieng Phoukha Thermal	50	263	2014	N	EDL
13	Nam Pot	23	97	2015	C1	EDL
14	Nam Sim	7	24	2015	N	EDL
15	Nam Kong 3	25	142	2016	C1	EDL
16	Nam Long	11	53	2016	C1	EDL
17	Nam Ngum 4A	55	250	2017	C1	EDL
18	Nam Sane2	62	279	2018	C1	EDL
19	Xexou	59	277	2019	S	EDL
	Total Plan	**991**	**4,493**			

Source: Electricite du Laos, 2003
Note: N: North, S: South, C1: Central-1, C2: Central-2

2. INFRASTRUCTURE DEVELOPMENT PLAN/STRATEGY IN LAO

The infrastructure development strategy of the country can be described from two angles: domestic policy and regional cooperation policy. The MCTPC has developed the sector strategy for 2020 as well as in each five-year plan based on the principle of turning the country into “land-linked”. In order to support the overall strategy of the country in this era of economic integration and cooperation within regions especially in the ASEAN, Greater Mekong Sub-region (GMS) and other sub-regional cooperation, the Government has developed several programs for infrastructure development as outlined in the succeeding sections.

2.1. Government Strategy for Infrastructure Development in Lao PDR

The government of Lao PDR continues with its efforts to develop the country's infrastructure, particularly the road sector, as per the overall plan described below.

Continue building the national roads which are sub-regional and serve as links between the north to the south, and from the east to the west, and complete the construction of paved roads in Vientiane Capital which link the municipal areas of provinces throughout the country. Roads from the municipal areas to districts in the provinces and focal development areas must be usable during both seasons.

- Give proper attention to maintenance and restoration of roads for them to last longer.
- Continue improving and upgrading road ways, water ways, and air ways to ensure the effectiveness of social, economic and security aspects of the country.
- Continue developing post and telecommunication and gradually expanding the services to all areas of the country as well as applying new technology in order to modernize the sector.
- Continue improving and restoring the cleanliness of all municipals as part of town planning and expanding water supply services that cover at least 59 percent of the total population in municipal areas in the next 5 years.
- Improve traffic safety management in order to reduce road accidents and other issues.
- Ensure an adequate supply and generation of electricity to meet domestic demand and to export the excess to other countries in the region. By the year

2010, try to provide the electricity for daily living of 70 percent of the entire households in the country, and of 90 percent by the year 2020.

Since improving the management and operational capacity of the sector is a priority in the achievement of the plan, capacity- building programs must therefore be provided to relevant staff to ensure the ability to supply quality services to all people in the country.

2.2. Regional Integration and Infrastructure Development Policy

2.2.1. Association of South East Asia Nations (ASEAN)

To achieve the dream where no mountains, rivers nor seas divide us and where every one is linked by friendship, cooperation and commerce, the development of infrastructure linkages among ASEAN countries becomes a very critical issue. The ASEAN especially attaches importance to such connectivity in the desire to concretize the concept of an ASEAN Economic Community (AEC). AEC's 11 priority sectors in the regional integration include air travel and tourism. Furthermore, maritime cooperation has been included as an area of cooperation toward establishing an ASEAN Security Community (ASC).

2.2.2. The GMS and Infrastructure Development Policy

Lao PDR has been an active participant in the GMS Program of Economic Cooperation since the program's inception in 1992. It has participated in ADB-assisted loan and RETA projects. The country was also the recipient of multi-country ADB loans

for the GMS such as, among others, the East-West Economic Corridor Project (EWEC).

Lao PDR has also been involved in 111 RETA projects, for which ADB has provided $59.6 million. These include, among others, the following priority sub-regional infrastructure activities:

(i) GMS Cross-Border Transport Agreement

(ii) Study on the Regional Indicative Master Plan on Power Interconnection in the GMS

(iii) Inter-Governmental Agreement on Regional Power Trade, Regional Power Trade Operating Agreement, and Regional Power Trade Coordination and Development

(iv) Development of the Energy Strategy, and

(v) Transport Sector Strategy Study.

2.2.3. Development Triangle Area (Cambodia – Laos – Viet Nam

The Development Triangle covers the territory of the following provinces: Mondulkiri, Rattanakiri and Stung Treng (Cambodia); Attapeu, Saravan and Sekong (Laos); and Dak lak, Daknong, Gia Lai and Kon Tum (Viet Nam). These provinces are located in the border areas of these three countries and share many similarities in terms of natural, economic and social conditions. The development level of the provinces in the Development Triangle is generally low compared to the average national level of their respective countries.

One of the main development and cooperation objectives for the Development Triangle in the border areas of Cambodia, Laos and Viet Nam is the coordination of the infrastructure development plans of the three countries, with the aim of supporting the requirements of the key economic activities in the Development Triangle.

3. ISSUES OF INFRASTRUCTURE IN LAO PDR

3.1. Infrastructure Development and Poverty Reduction

Infrastructure development, especially transportation and communication, has always been a priority sector of the country as it has direct and indirect relations to many issues. The Lao Expenditure and Consumption Survey (LECS 2) and participatory poverty assessments (PPA), for example, found a high correlation between the lack of road access and severe poverty. The very poor (17 per cent of the population) live in areas where infrastructure is particularly scarce. On average, the very poor may be found at least 15 kilometers from a main road. During the rainy season, 70 per cent among them have no road access[1].The National Growth and Poverty Eradication Strategy (NGPES) indicates that the continuation of transportation system improvement in Lao PDR is fundamental in supporting economic growth and realizing the goals and objectives outlined in the NGPES. While considerable progress has been made over the past decade in extending and upgrading the system, there are still many areas that are remote and isolated. The rural poor have identified this as one of the main causes of their poverty. Due to the difficulty in accessing markets to sell their surplus agricultural

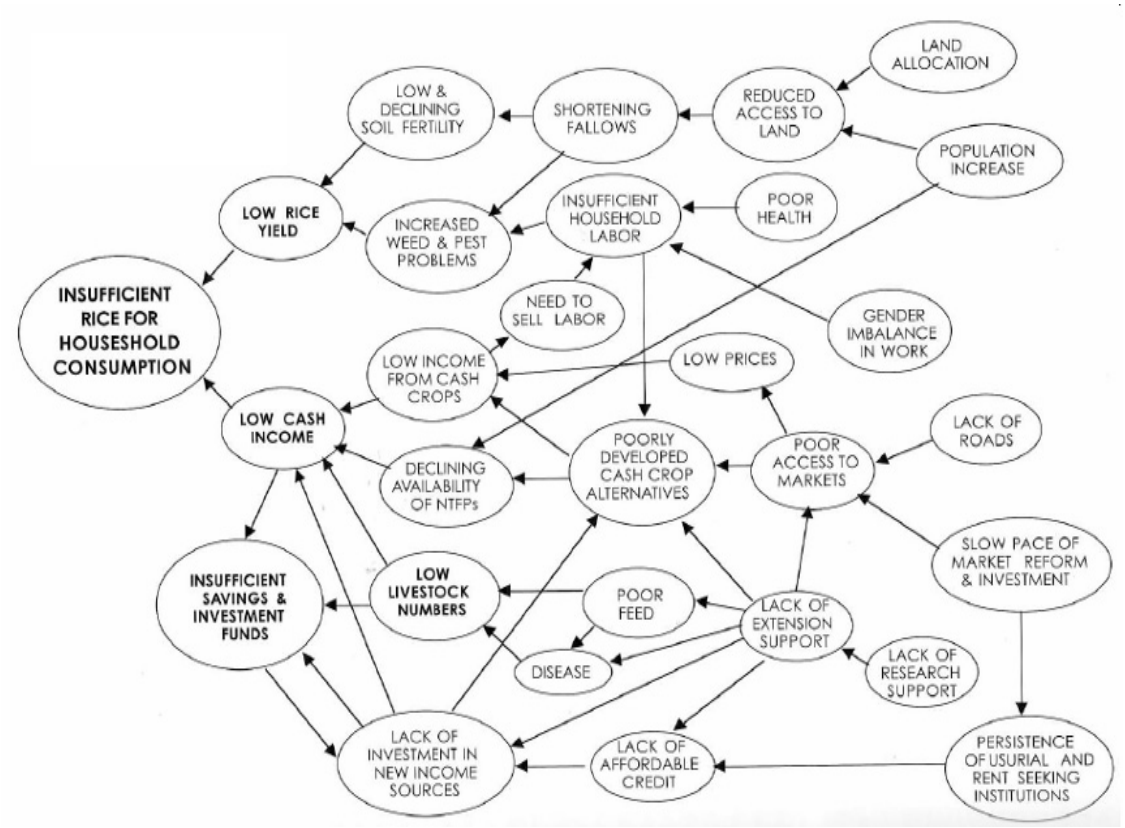
[1] National Growth and Poverty Eradication Strategy (NGPES), 2005

produce and other goods, the rural poor are locked into subsistence farming. Lack of access to all-weather roads or roads of any kind has also meant lack of access to schools, health facilities and other basic services such as electricity and potable water. Thus, poor infrastructure results in inter-generational poverty inasmuch as the poor people have limited opportunity and capacity to climb out of their poverty.

As such, road/transport sector has been identified as a second priority sector among 4 main priority sectors[2] for poverty reduction in the country. It is also a criterion to determine poverty especially at the village and district levels since constraint in terms of road access contributes to poverty vulnerability among villagers (see Diagram 1). Therefore, improving the road access for villagers has been considered as an important issue for poverty reduction of the country. Diagram 2 shows the poverty tree criteria in Lao PDR.

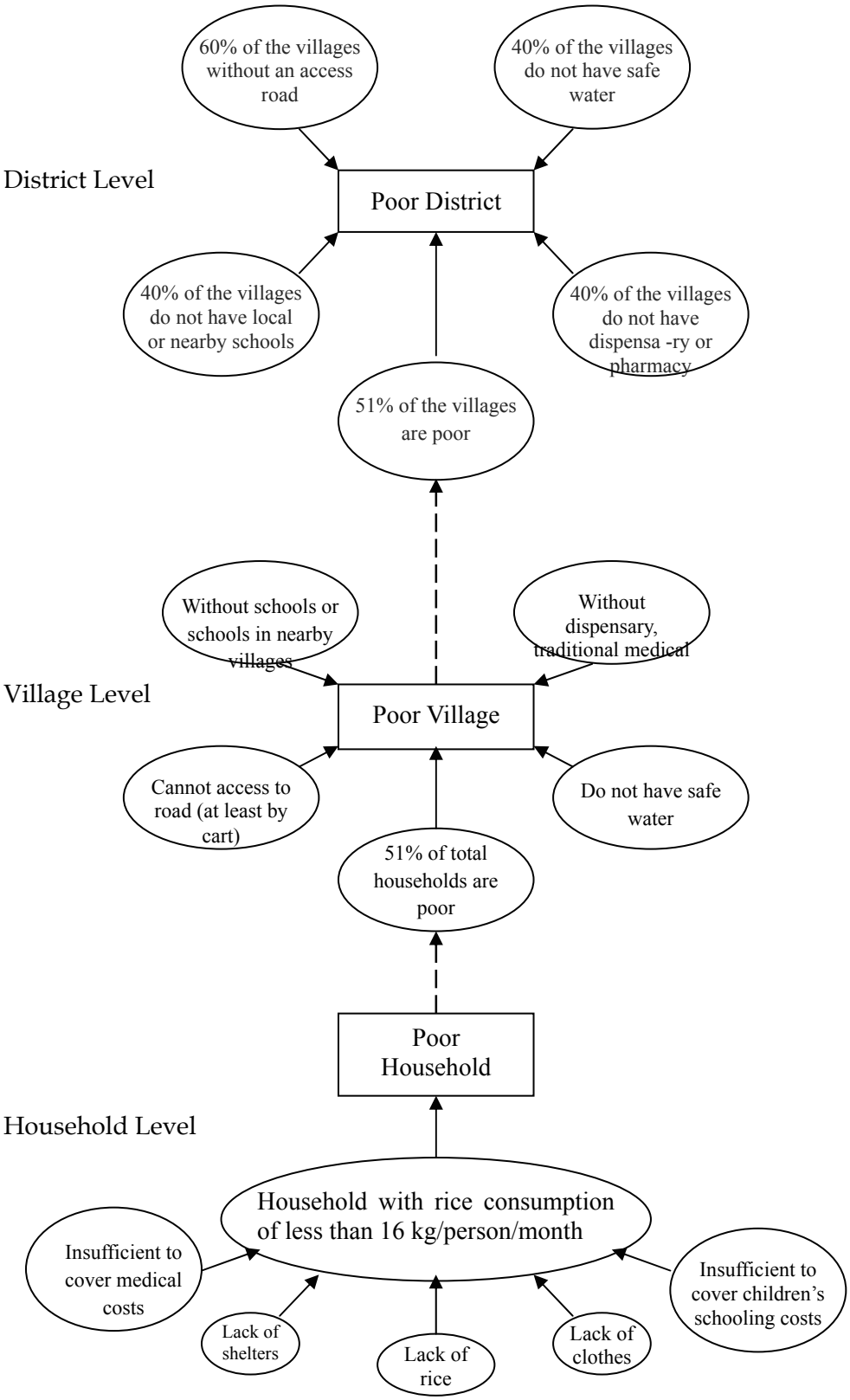
[2] The four main priority sectors for poverty reduction are: 1) agriculture sector; 2) road/transport sector; 3) education sector; and 4) health sector.

Diagram 1: Causal Diagram of the full set of relationships implicit in the people's poverty analysis



Source: Human Development Report, Lao PDR, UNDP, 2003

Diagram 1(Contd.): Causal Diagram of the full set of relationships implicit in the people's poverty analysis



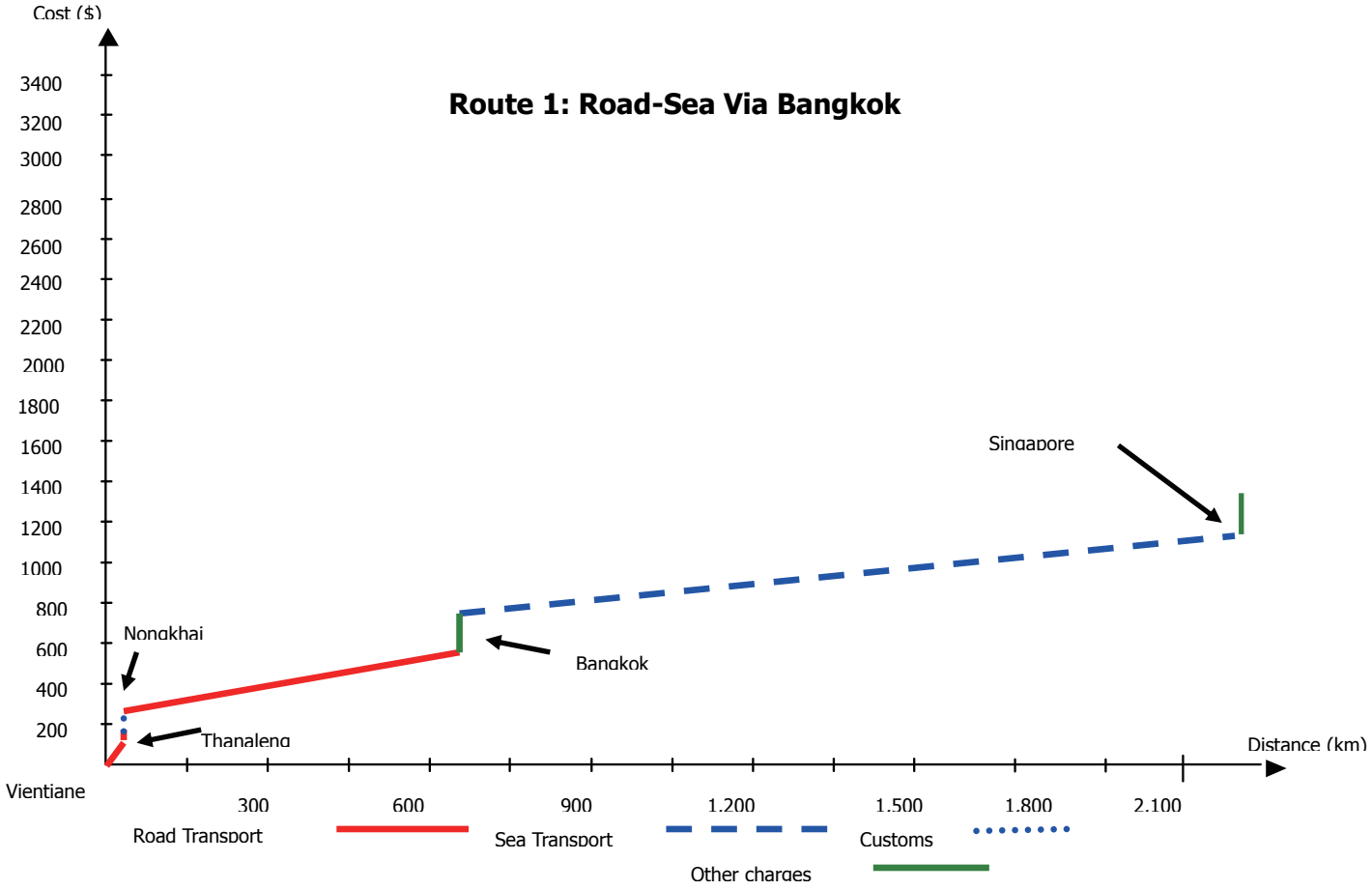
Source: Summarized from the NGPES, 2004

3.2. Infrastructure Development and Private Sector Development (Logistic Infrastructure)

One critical issue regarding infrastructure development for a land-locked country like Lao PDR is infrastructure logistic. As the country seeks to reduce poverty and graduate from the list of LDC countries in the world by 2020, the growth of its economy is seen as one of the means to attain this. The development of the private sector which mostly produces the goods for export is naturally a very important source of economic growth for this small domestic market. The situation of its being land-locked with poor infrastructure, including logistic infrastructure and other related concerns, has, however, reduced the price competitiveness of the country's exports.

At present, the most used mode of freight transportation for Lao exports to Singapore via Bangkok is a combination of the road and sea systems which provide the cheapest way and the least time consumed. This multiple mode of "Road-Sea" costs around USD 1,215/TEU with a competitive transit time of about 6 to 7 days. Road transport represents 30 percent of the total transport cost while sea transport has a ratio of around 19 percent. The total cost of transportation, including road and sea, accounts for about 49 percent of total cost in the whole process while other charges account for more than half of the total (Figure 11).

Figure 11: Most used of freight transportation of Lao exporters

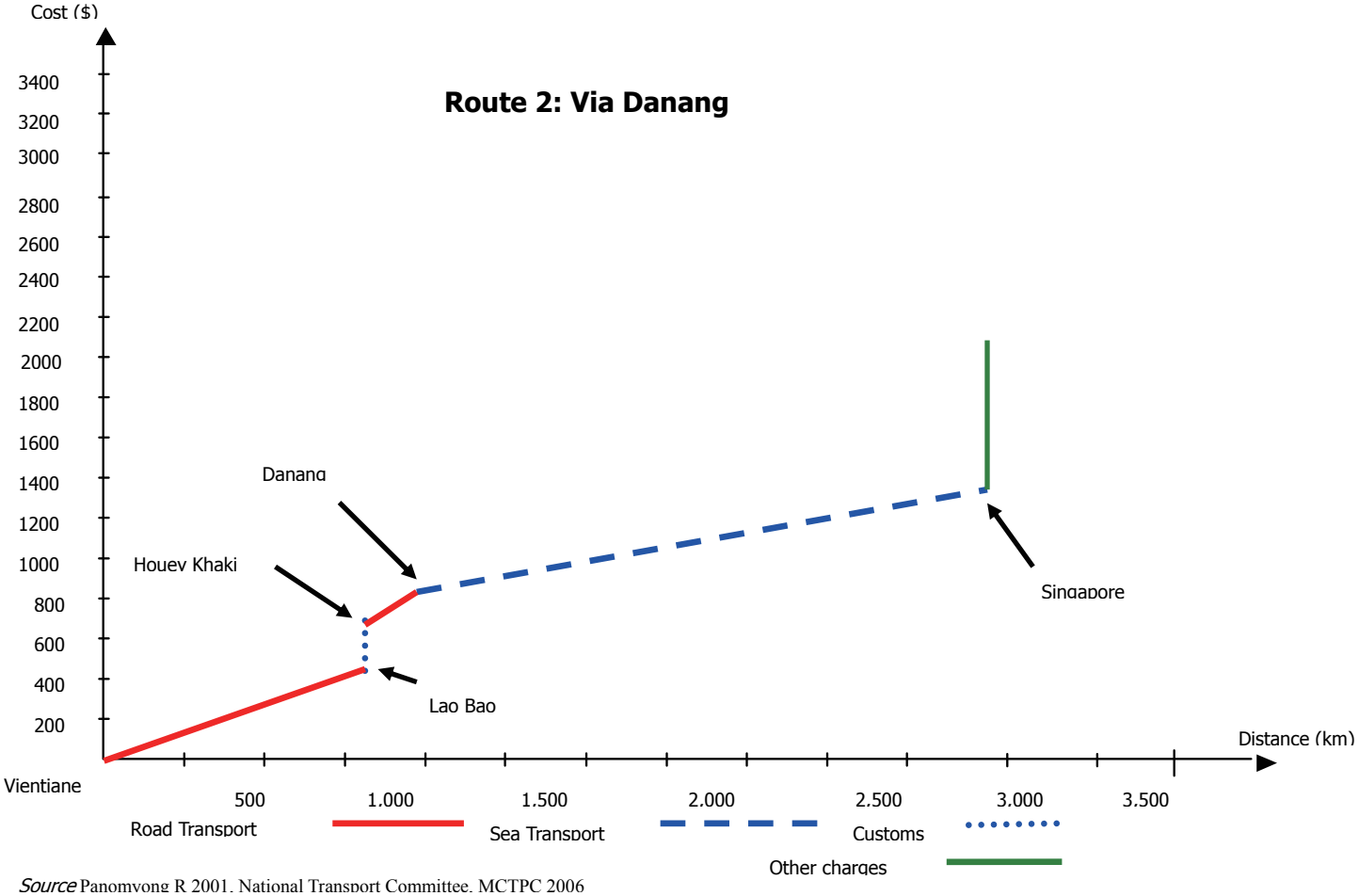


Source: Panomyong R 2001, National Transport Committee, MCTPC 2006

Other "Road-Sea" transport mode for Lao exports is via Danang in Viet Nam. However, according to information gathered, the total transport cost for this route covering a distance (between Vientiane and Danang) of 1,060 km amounts to about USD 2,150/TEU. This translates into a cost of USD 0.71/km. In comparison, the sea leg distance between Danang and Singapore is longer at 1,910 km long but costs only USD 0.21/km. The movement of freight itself is not considered to be the biggest difficulty in the Vientiane-Danang route, even with road transport comprising the bigger portion of the total transport cost (due to the distance from Vientiane to Lao Bao through Savannakhet before going to Danang) and with the sea transport mode representing only 18 percent

(Figure 12). What constitutes the main problem of this particular logistics channel is the 'other' charges not directly related to transport. These charges are very hard to quantify accurately because the amounts depend on the officials involved in the transit process who ask for these 'other' charges. This is one of the reasons why 'other' handling charges are very high for transit via Viet Nam at around USD 700 (Banomyong R, 2001).

Figure 12: Freight Transportation via Danang, Vietnam



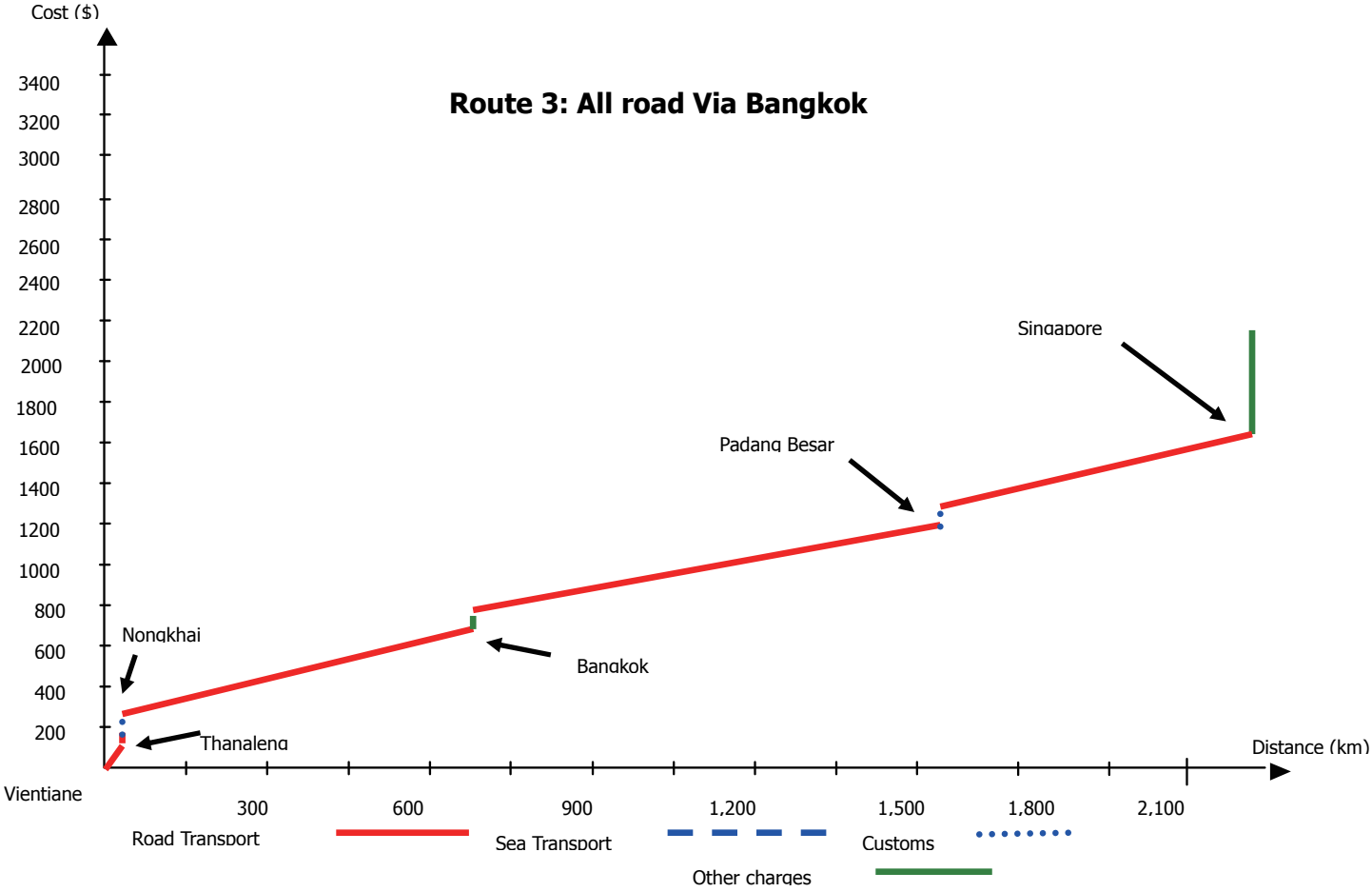
Source Panomyong R 2001, National Transport Committee, MCTPC 2006

According to Figure 12, other charges during the transportation account for about 46.5

percent of the total transport cost, with customs charges comprising up to almost 22 percent of the inland transport cost between Vientiane and Danang. The total time consumed is about 9 to 10 days, almost equally divided between the inland and sea legs. This transit time is based on the assumption that there are no administrative delays while the goods are in transit.

Another option for Lao exporters is the "All Road" route via Bangkok. This route presents the least time consumed when compared to other routes, with only 4 to 7 days of transit and with a total cost of about USD 2,139/TEU. However, this option has never been used because the truck that must transport the cargo for the whole journey must belong to the Express Transit Organisation (ETO), the Thai state-owned trucking company. It is the only company that has all the transit rights from Vientiane to Singapore via Malaysia. If a different trucking company would be involved, the goods will have to be transloaded in Nongkhai, Bangkok, and Padang Besar at an average cost of USD 12 per transload. This cost is included in the 'other' handling charges of USD 300 (Banomyong R, 2001).

Figure 13: Freight Transportation via Bangkok "all roads"



Source: Panomyong R 2001, National Transport Committee, MCTPC 2006

Figure 13 shows that road transport represents up to 73.5 percent of the total transport cost. Road transport cost is at USD 0.71/km per TEU from Vientiane to Singapore. A closer analysis of each segment will reveal that the road transport cost can be broken down as follows (Banomyong R, 2001):

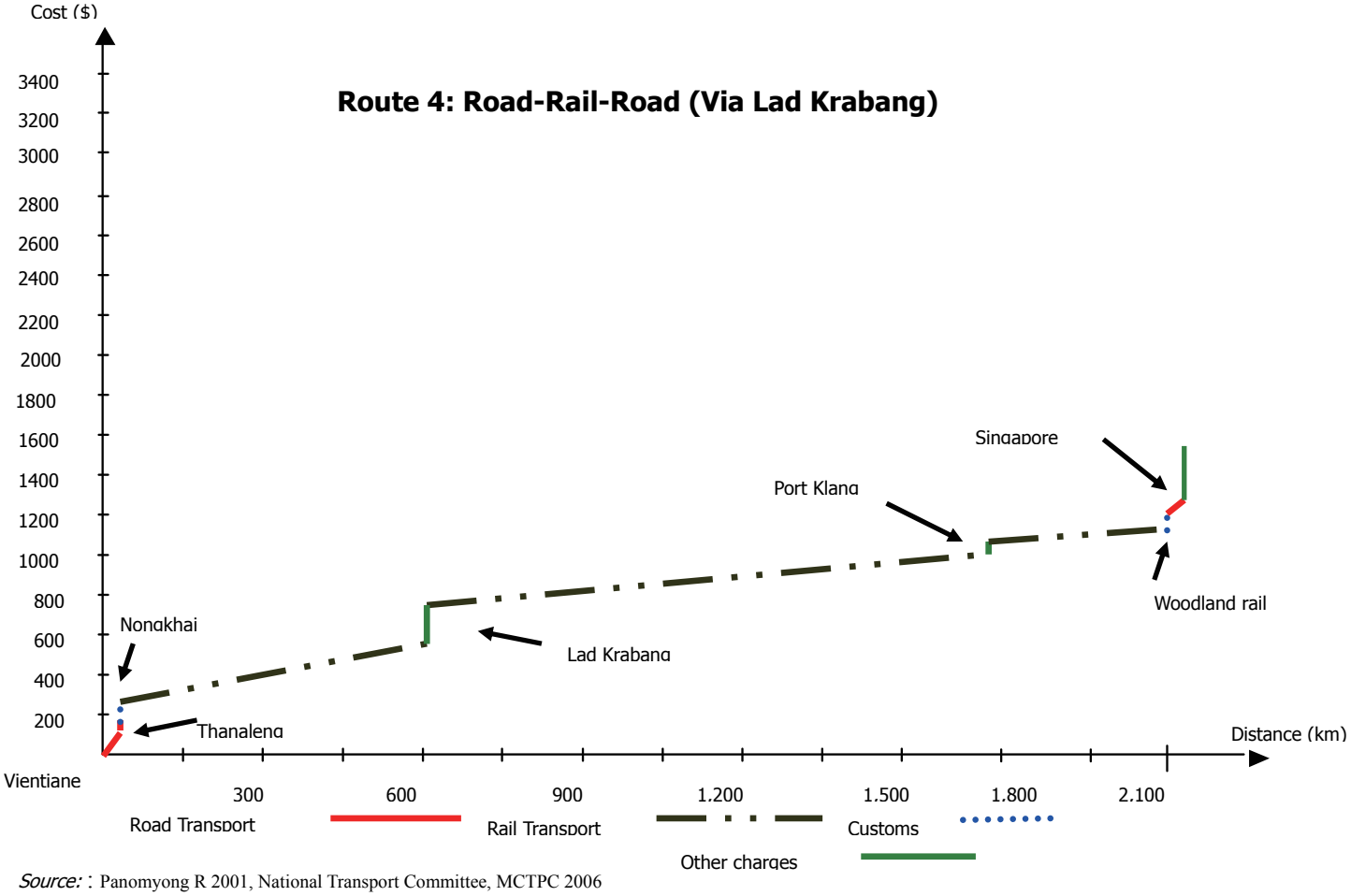
- Vientiane (Lao PDR) - Thanaleng (Lao PDR) leg is at USD 3.6/km per TEU;
- Thanaleng (Lao PDR) - Nongkhai (Thailand) leg is at USD 2/km per TEU;
- Nongkhai (Thailand) - Bangkok (Thailand) leg is at USD 0.49/km per TEU;
- Bangkok (Thailand) - Padang Besar (Malaysia) leg is at USD 0.67/km per TEU;

and

• Padang Besar (Malaysia)-Singapore leg is at USD 0.97/km per TEU.

Another cost- competitive route is the "Road-Rail-Road" from the Vientiane-Singapore corridor via Lad Krabang ICD at a cost of USD 1,550/TEU with a theoretical transit time of 8/9 days. In practice, however, the rail is never used (see Figure 14)because there is no regular schedule from Nongkhai to Lad Krabang ICD. The price for rail transport between Nongkhai and Lad Krabang Inland Clearance Depot (ICD), in the outskirt of Bangkok, is quite competitive at USD 350/TEU (Banomyong R, 2001).

Figure 14: Freight Transportation via Lad Krabang "Road-Rail-Road"



Source: : Panomyong R 2001, National Transport Committee, MCTPC 2006

Based on all the transportation routes and estimate costs and time given above, the "Road-Sea" route via Bangkok is the most competitive in terms of cost with reasonable time when compared to the other routes (refer to Table 3). However, this applies mostly to big exporters with huge volumes of goods. Majority of the Lao enterprises, meanwhile, are of small and medium sizes with small volumes of export goods. This is why said transportation costs are too high for them.

Table 3: Compare Transportation Cost and Time between Transportation Modes for Lao Exporters

Route	Total cost (USD)	Distance (km)	Transit time (Day)
Via Danang (Road-Sea)	2,150	2,800+	9 - 10 days
Via Bangkok (All road)	2,139	2,100+	4 - 5 days
Via LKB (Road/Rail/Road)	1,550	2,100+	7 - 8 days
Via Bangkok (Road-Sea)	1,215	2,100+	6 - 7 days

Source : Panomyong R 2001, National Transport Committee, MCTPC 2006

Although an alternative for Lao exporters is to use the "Road-Sea" via Danang since the use of the sea port in Danang may potentially be much easier for Lao PDR, if one compares the other costs involved, though, which include the condition and distance from Vientiane to Danang, the competitiveness of this route diminishes. In comparison to the Bangkok port, too, Danang port is not that competitive in terms of international standard and quality control.

On the whole, then, logistic transportation still remains as a constraint for Lao exports as well as for private sector development in the country.

4. CONCLUSIONS AND RECOMMENDATIONS

The situation of being land-locked with poor infrastructure has put a constraint for the socio-economic development of Lao PDR. To address this concern, the Government of Lao PDR has introduced a "land-linked" strategy that is parallel with regional and sub-regional infrastructure development trends, especially along the frameworks of, among others, the ASEAN, Greater Mekong Sub-region and Triangle Development Area. The strategy addresses the importance of infrastructure development, particularly road/transport sector, as the means to achieve the 2020 vision for the country to graduate from the list of less developed countries (LDCs) and to eradicate mass poverty by 2010. Infrastructure development has been identified as significant both for poverty reduction and private sector development. At the outset, attention should be given to the important issues relating to poverty reduction and 2) logistic infrastructure development to enhance private sector development. The following are the considerations and recommendations regarding these issues:

4.1. Infrastructure Development and Poverty Reduction

Focusing on rural infrastructure, particularly on roads, in order to ensure market accessibility for rural people is important to ensure income generation and poverty reduction. Previous studies show that improving market access, including quality of the access (good infrastructure), is crucial as a means for development of commercialization, ensuring of a stable income earning for the people and contributing to poverty reduction. Therefore, construction of rural roads (Farm-To-Market Road) to ensure market connection of the rural people should be prioritized. Top priority must be given to the

construction or maintenance of roads that connect rural production to markets, with special focus on border markets (as all provinces in Lao PDR share border with at least one neighbouring country), so that commercialization and improvement of the rural folks'produce as well as increase in their income earnings may be assured. This will correspondingly help improve their living standard and reduce poverty. The access road would provide opportunity for rural farmers to link to the growing demand for food products within the country and in the region.

4.2. Logistic Infrastructure Development and Private Sector Development

Considering the situation of current exporters, the most competitive transport route for their goods is by the road-sea mode via Bangkok through Singapore. Because the distance from Vientiane to Bangkok is the shortest and most convenient at present and since all industries are at present located in Vientiane, there is no other choice of a better route for exporters than this one.

Although there are other alternative routes for transportation, they are not that competitive. For example, the road-sea route via Danang is quite far from Vientiane as compared to Bangkok. Other modes, meanwhile, like the road-rail or all-rails route are not yet available (the railway is under construction). Taking this situation into account, the strategy should be to develop both the short-term and longer term development vision regarding the logistic infrastructure development. In this regard, among the recommendations are:

Short-term

Attention should be paid to current exporters of the country in order to enhance their business performance. Improving the following export and transportation procedures being practiced by them must be prioritized:

- Simplify procedures on freight transportation from Vientiane to Bangkok (Factory-To-Port Container Movement) since this route is the most economical and practical route for current exporters in terms of both cost and time.
    - Develop a consolidation service for small freight shipments in the Vientiane-Bangkok corridor.
    - Based on the Lao-Thai Agreement, negotiate with Thai authorities, including customs clearance, on the reduction of the number of signatures, and reduce regulations on import-export, among others.
    - Establish an Inland Container Depot (ICD)/Dry Port near the border where the shipping lines could deliver loaded containers and receive cargo for loading into empty containers. The ICD could also provide a focal point for transactions with both the shipping lines and the trucking companies. It would allow importers to return empty containers to the ICD rather than to Bangkok. Similarly, it would act as a dispatch point for empty containers to be loaded with exports thus reducing the transport of empty containers to Bangkok. This facility would also allow repositioning empties to shippers within Thailand as well as to container

yards around Bangkok using a single trailer or rail wagon for two 20' containers.[3]

- License customs clearance agents. This would include certification of technical knowledge combined with a commitment to remain current on customs procedures. It would also include a requirement for bonding individual customs agents.

- Provide capacity building programs for logistics industry through cooperation with international organizations and neighboring countries, including programs of TIFFA or from UNCTAD or the Bank's Distance Learning Program, in order to improve their logistic services of domestic forwarding companies.
- Monitor clearance times and productivity at the border crossings in order to ensure the smooth movement of transportation.

Long-term

For the medium and longer terms, attention should be paid to providing diversification of choices for the business community. Not only present exporters but potential and aspiring exporters should be identified. The following are the recommendations for the long- term strategy regarding logistic infrastructure development of the country.

- Develop other modes of transportation such as the road-rail-road, all-rails or rail-road mode which is the cheaper. However, this might require huge related

[3] Thai customs has identified an area for constructing an ICD in Nongkhai. This should be considered in the marketing study which would be prepared leading up to the establishment of a Lao ICD. (based on DTIS, 2006)

infrastructure investments. Hence, this is where regional development programs such as those within the ASEAN and GMS regions would come in.

- Industrial decentralization is also significant. Because most industries are centralized mainly in Vientiane today, it leads to less choice when dealing with transportation in the country. Therefore, decentralizing industry to other parts of the country would widen choices for transportation, e.g., development of Savannakhet as the new industrial area of the country will provide another route of transportation like the road-sea channel via Danang, which is a shorter distance when compared to Bangkok.
- Finally, because the transportation mode of "road-sea" via Danang in Viet Nam might be a better option for transportation due to shorter distance, cooperation and negotiation with concerned authorities in Viet Nam for the reduction of other costs related to transportation as well as for the upgrade of the Danang port (improve capacity and quality, among others) would be necessary.

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