

CHAPTER 3

Industrial Readjustment in Lao PDR: Toward 2020

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INDUSTRIAL READJUSTMENT IN LAO PDR:

TOWARD 2020

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INTRODUCTION

A long-term goal to improve the economic position of Lao PDR from its current least developed country (LDC) status by 2020 has taken into account development of its potential in five main sectors: hydroelectricity, agricultural production, tourism, mining, and construction material manufacturing. These have been identified as priority industries for greater Lao PDR development. Since the implementation of a new economic mechanism (NEM) in 1986, foreign direct investment (FDI) has made a significant contribution to the development of the Lao economy.

In the last decade, FDI projects in hydroelectricity, agriculture in the form of contract-farming (including rubber, eucalyptus, maize, sugarcane, etc.), mining, tourism, and manufacturing (including garments, and motorcycle and automobile assembly) have increased significantly. However, the manufacturing facilities are located in urban areas, with the greatest number in Vientiane and a few in Savannakhet and Pakse, while most of the labor force has migrated from rural areas. At the same time, most agricultural investments are mainly in rural areas. This has raised

challenges concerning adequate labor supply in the coming years.

Nevertheless, the development of special economic zones (SEZs) has been introduced aiming to attract more FDI to the country. However, establishing a number of SEZs in a country with a limited domestic labor force might create additional problems. Therefore, in order to support Lao PDR industrialization in such circumstances, particularly with a view to implementing AFTA and ASEAN Economic Community (AEC) agreements by 2015 and beyond, a holistic and comprehensive industrial policy is required for the Lao PDR.

This study, divided into 3 main parts, aims to review the progress of industrialization in the Lao PDR, particularly in light of the 7th national socioeconomic development plan (2011-2015), the 2015 blueprint of ASEAN Economic Community establishment, and the national goals of 2020. Part one offers an overview of the Lao industrialization policy as the country moves toward implementation of the national development policy as it approaches 2020. Part two looks at the progress of the country's industrialization by reviewing structural changes and industrial development as well as related human development projects. Part three indicates selected challenges stemming from industrialization in the Lao PDR. The study ends with some concluding remarks and recommendations.

1. OVERVIEW OF INDUSTRIAL DEVELOPMENT POLICY IN THE LAO PDR

After the introduction of the new economic plan in 1986, the development of the Lao PDR has been gradually integrated into regional and international economic

development and industrialization. The national gross domestic product (GDP) structure has also shown progress with increased industrialization, which occurred as a result of the Government of Lao PDR (GoL) policy and which, in turn, has significantly contributed to both the sectoral and regional development of the country. To further support industrialization, the government of the Lao PDR developed the country's industrialization and modernization strategy, identifying focal sectors including hydropower, agricultural production, tourism, mining, and construction materials (Oraboune, S. 2010).

This section aims to provide an overview of the industrial development policy of the GoL as it moves toward 2020. Based on the national 2020 vision, this section provides details on national strategies, selected significant sector-related strategies, and a summary of the five-year national socio-economic development plan or (NSED), particularly the 6th and 7th NSED.

1.1. National Industrialization Structure

In the early 2000s, the GoL announced the national goal of moving the country from the list of least developed countries (LDCs) by 2020. To support that goal, the GoL introduced several main strategic objectives, including the 2010 and 2020 Strategies, the Industrialization and Modernization Strategy, and the National Growth and Poverty Eradication Strategy to 2020. To ensure implementation of all strategic goals, sectoral as well as regional strategies have also been formulated, such as the National Export Strategy, the National Climate Change Strategy, the Northern Economic Development Master Plan, the Triangle Development Master Plan in the Southern Part of the Lao PDR, etc.

Along with these strategies, the GoL in 2006 also set its 11 national priority programs which were developed from a previous 8 priority programs. The 11 national priority programs were presented as guidelines for strategic implementation. The mid-term development plan, also known as the National 5-Year Socio-Economic Development Plan (NSEDP), has played a crucial role in achieving national goals. The NSEDP has become the primary tool to transform the national strategic goals and the priority programs into plans of action. Starting from the early 2000s, the GoL formulated four NSEDPs (5th, 6th, 7th, and 8th). Achieving each NSEDP in turn is very important for the succeeding NSEDP in order to reach 2020 goals.

At present, two NSEDPs (5th and 6th) have already been completely implemented. Currently, the Lao PDR is in the process of implementing the 7th NSEDP (2011-2015) to attain several significant goals, including poverty reduction, achieving millennium development goals (MDGs), and enhancing regional economic integration, particularly toward the establishment of the ASEAN Economic Community by 2015. Together with the priority programs, the four breakthrough program guidelines¹ have also been introduced for the 7th NSEDP. Diagram 1 shows the structure of the national industrialization strategy of the Lao PDR going forward to 2020.

In order to achieve the 2020 goals, the GoL set targets to accomplish strong economic growth while stabilizing the social and economic status of its economy. Additionally, social development has also been identified as a priority target of the GoL (as it was in the previous 6th NSEDP), and achieving MDGs has become a strategic priority of the country. Besides economic development aspects, which the country has the apparent capability to achieve, in the 7th NSEDP, the GoL prioritized

¹ The four breakthrough guidelines include: 1) ideology, 2) human resource development, 3) administration, and 4) poverty alleviation.

the attainment of MDGs in order to foster human development. The GoL has demonstrated a determined effort to attain the 7th NSEDP goals, demonstrating its desire to achieve the stabilization of economic growth and encourage social improvement to reach the targets of:

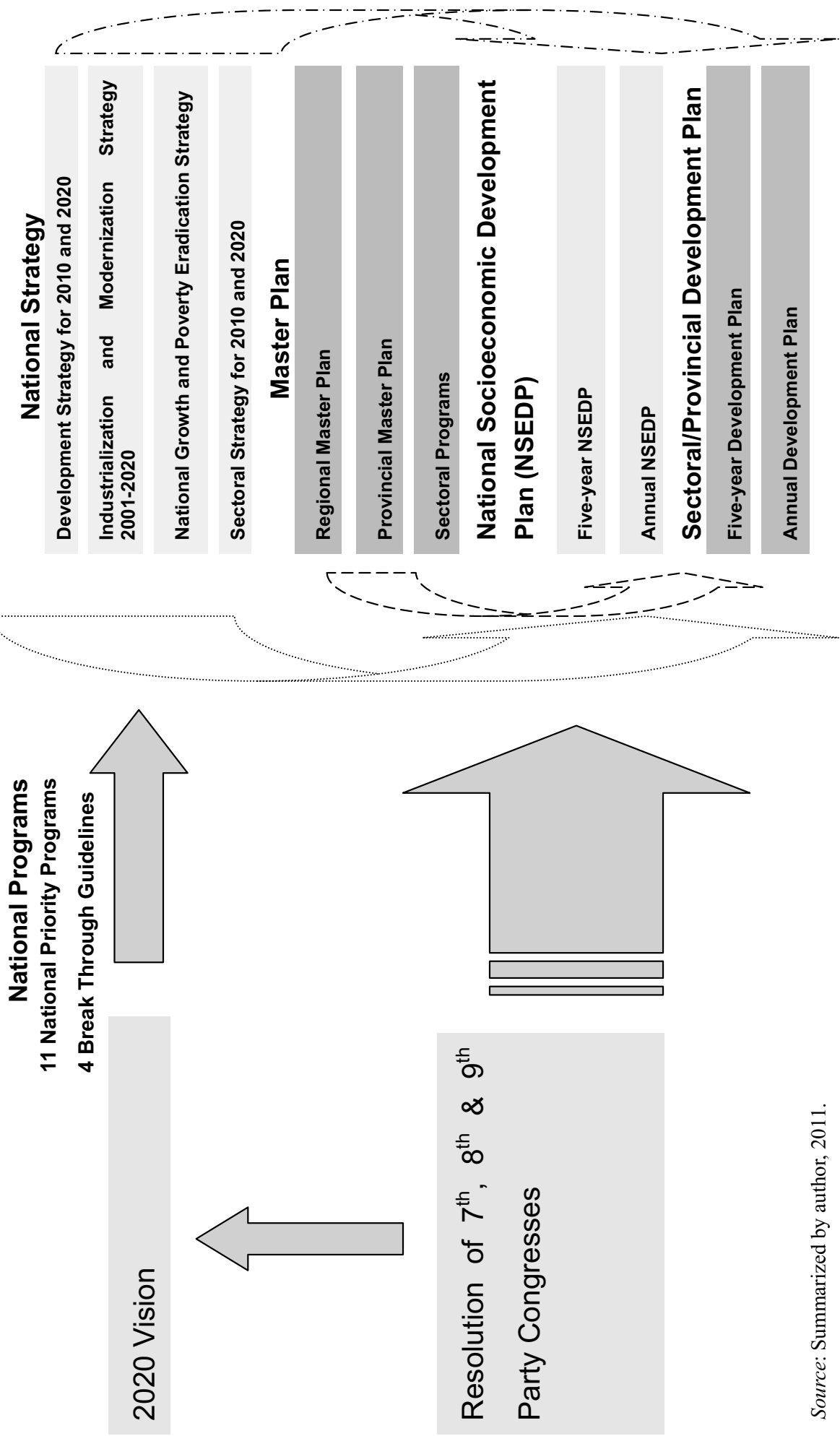
- Rapid economic growth to cross the poverty threshold of gross national income (GNI) per capita to elevate the country from the group of least developed countries (LDCs);² and
- Enhancing human capital to foster the national human asset index³ to cross the threshold by at least 2015.

Regarding the goal to achieve the threshold, the 7th NSEDP is very important for the country. The macro targets of the 7th NSEDP include achieving high economic growth of not less than 8% per year on average and the attainment of the MDGs in order to be able to guarantee the goal of human development. However, in order to ensure continuous social and economic development to further achieve the goal of removing the country from its LDC status, development in the period from 2016 to 2020 or the 8th NSEDP is of crucial importance.

² GNI per capita threshold is USD 1,086 (2009).

³ The Human Asset Index (HAI) is one criterion to leave LDC countries as this index takes into account health-related issues including indicators of: 1) nutrition (percentage of the population that is undernourished), 2) health (child mortality rate), education-related issues (school enrolment, gross secondary school enrolment rate, etc.), and literacy (adult literacy rate). The HAI threshold is 66 (2009).

Diagram 1. Lao National Industrial Development Structure toward 2020



Source: Summarized by author, 2011.

According to the draft of the 2020 Strategy, the economic goal during the 2016 to 2020 period is to further support continuous economic growth of, at least, 8.5% per year on average and to keep consolidating MDGs to ensure the sustainability of human capital development. Two aspects of the main sector areas of development have been identified to support these goals. The first sector area is to further support rapid economic growth, including hydroelectricity, mining, transportation (roads, railways, and air transport), and construction materials production. However, in order to gradually support sustainable economic development to ensure equitable income generation, a second sector area has also been identified. This includes rural development, small and medium-sized enterprise development, etc.

1.2. High Economic Growth Sector

Economic growth is still a priority goal for the country's development in order to attain the per capita income threshold for LDC graduation. Several main sectors have been identified, including economic infrastructure development, hydroelectricity, and particularly mining to enhance construction materials production.

1.2.1. Infrastructure development

To increase industrialization of the country, the GoL emphasizes infrastructure development as a critical need. In the 7th NSEDP (2011-2015), investment in infrastructure has been identified as significant for development. The GOL has set a target budget allocation for infrastructure development projects at 35% (social 35%, and economic 30%). The important infrastructure development projects for the next five years have been identified by the Ministry of Public Works and Transport

(MPWT) and include road construction, city planning and development, and transport-related projects such as airports, logistics, etc.

At the national level, the strategic plan, the so-called “Land-Linked” Strategy, was drafted together with the Industrialization and Modernization Strategy in the early 2000s. In order to implement this strategy, national road construction projects have been provided a roadmap toward 2020 (Map 1). On the core roadmap for national road development, two parallel highways have been recognized as significant for the country, particularly the development of a new highway parallel with national road number 13. Other connecting roads with neighboring countries are also important (Map 2).

In conjunction with the road network, a plan for railway construction has also been identified in the Singapore-Kunming Rail Link Scheme. Several rail routes have been mapped out as follows:

Route 1: Bangkok–Aranyaprathet–Poipet–Sisophon–Phnom Penh–Loc Ninh–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 Gia and Thakhek or from Dong Ha to Savannakhet via Lao Bao.

Route 2A: Bangkok–Nam Tok–Three Pagoda Pas –Thanbyuzayat–Yangon–Lashio–Muse–Rueli–Dali–Kunming

Route 3A: Bangkok–Nong Khai–Vientiane–Thakhek–Mu Gia–Tan Ap–(Vung Anh)–Hanoi–Lao Cai–Hekou–Kunming. Concerning the route from Thakhek to Mugia (Lao

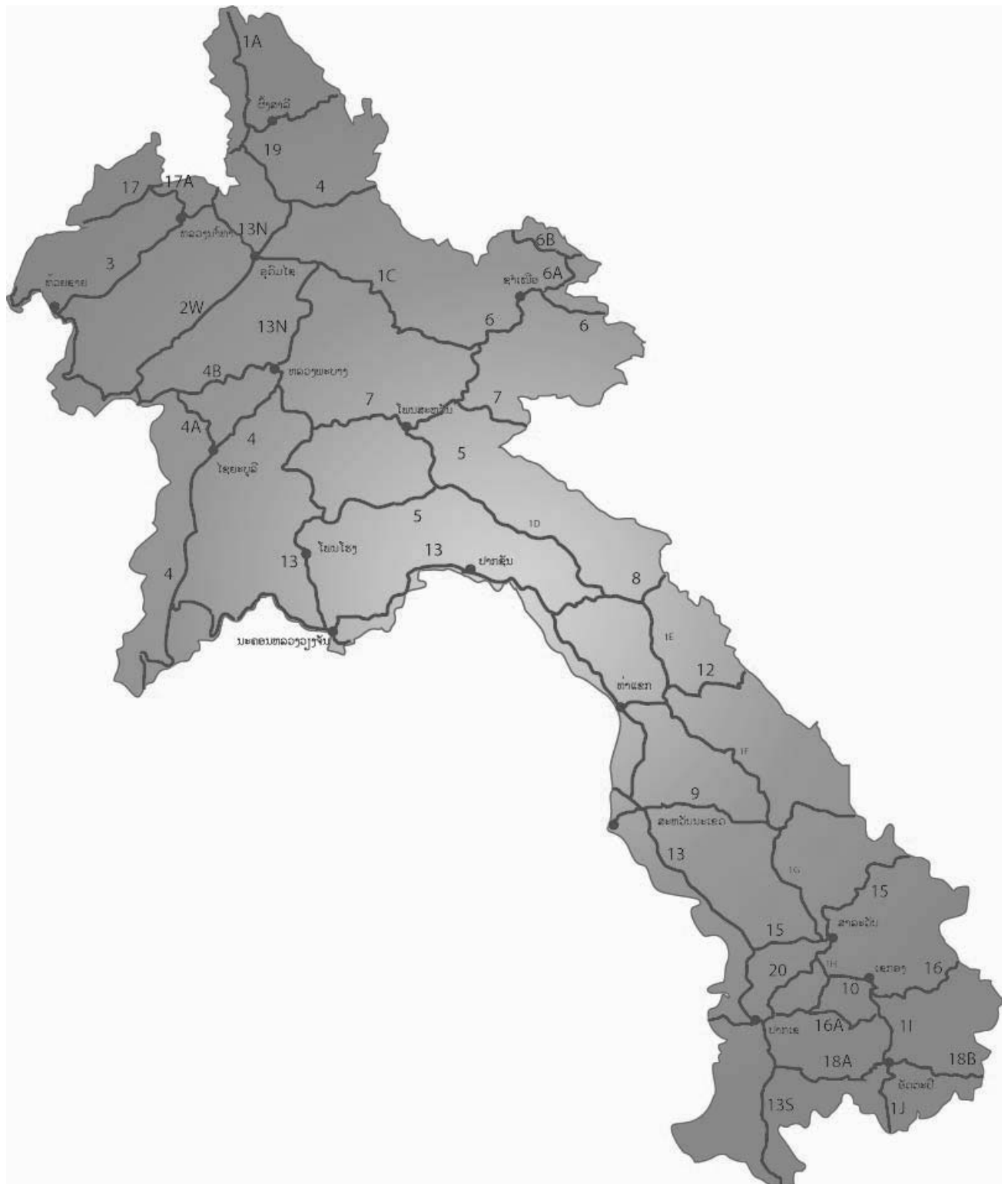
side), which is 136 km in length, the Vietnamese government received financial support to complete a feasibility study and also from Mu Gia to Tan Ap (53 Km).

Route 3B: Bangkok–Nong Kai–Vientiane–Boten–Xiangyun–Kunming. The geography of the route from Vientiane to Boten includes mountainous areas. Therefore, according to the feasibility study, the total length of this route is about 493 km, of which tunnels and bridges account for 44% or 217 km of total length. The newly-built Xiangyun–Boten route in China is 730 km long and is also a mountainous route. As a result, the required amount to build this route was estimated to be USD 2.5 billion.

Route 3C: Bangkok–Ubon Ratchathani–Chong Mek–Pakse–Savannakhet–Lao Bao–Dong Ha–Lao Cai–Hekou–Kunming. In order to link the domestic railway to SKRL, the government of Laos will have to build a railway extension (not under SKRL framework) from Thakhek to Savanakhet and to Pakse (Vangtau) with a total length of 348 km. This will require about USD 1.5 billion to complete.

Route 3D: Bangkok–Mukdahan–Savannakhet–Lao Bao–Dong Ha–Hanoi–Lao Cai–Hekou–Kunming. This route is 222 km in length with a proposed cost of USD 1.2 billion. Thailand will have to build a new line from Bua Yao to Mukdahan, a distance of 283 km. Vietnam will also have to build an 84 km railway line from Dong Ha to Lao Bao. The 2020 plan for railway network development has been summarized in table 1.

Map 1. National Road Network Plan for Lao PDR



Source: Ministry of Public Works and Transport, 2010.

Map 2. Connecting Roads with Neighboring Countries “Land-Linked” Strategy



Source: NERI, 2002.

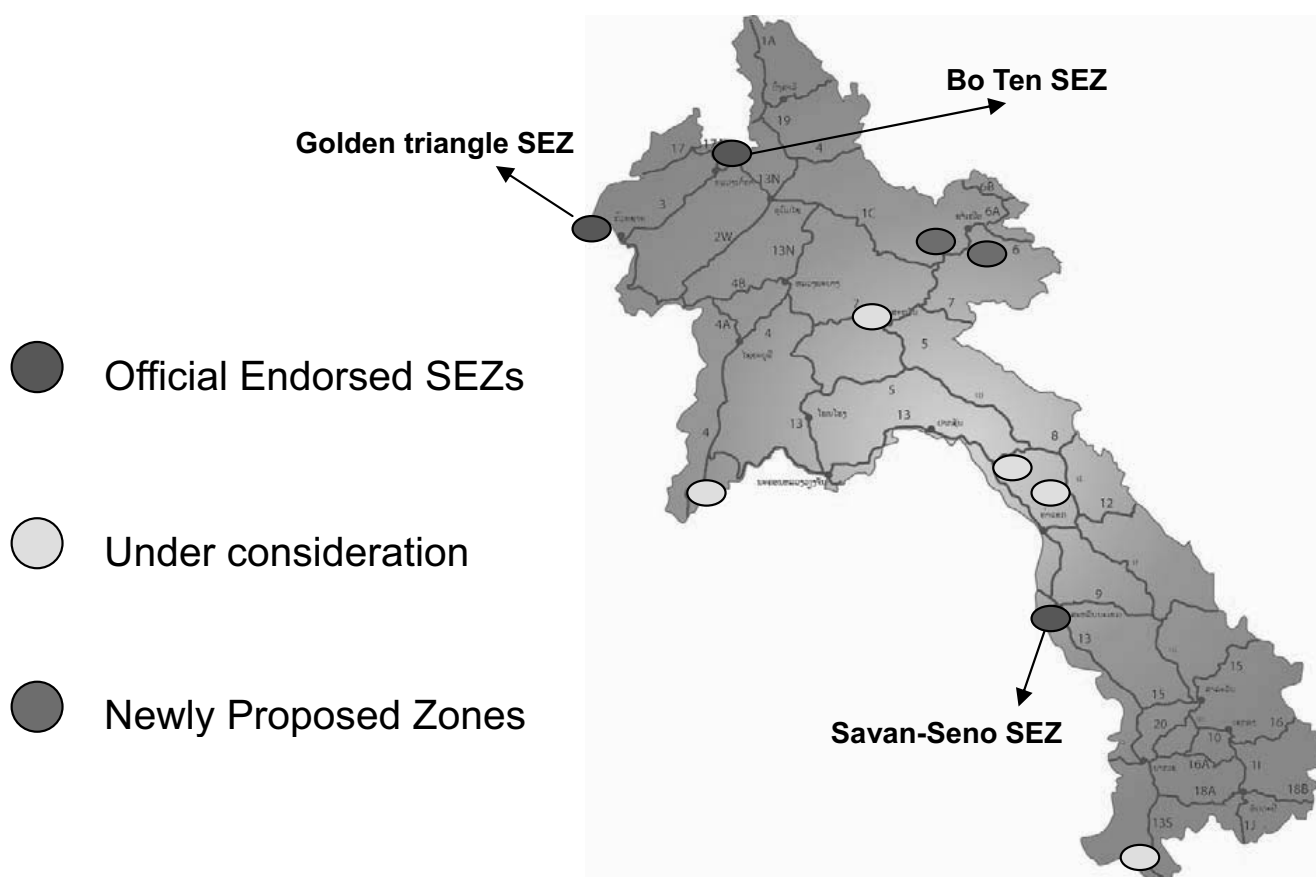
Table 1. Railway Development Plan

No	Name of railway	Distance (Km)	Amount (billion US\$)	Period	Remark
1	Thanaleng-Vientiane	9	40	2008-2010	Part of SKRL
2	Vientiane-Luangprabang-Boten	493	2,500	2010-2020	Part of SKRL
3	Vientiane-Thakhek	325	1,400	2010-2020	Part of SKRL
4	Thakhek-Mugia	135	614	2010-2020	Part of SKRL

Source: Ministry of Public Works and Transport, 2011.

One of the important national infrastructure-related development programs is the special economic zones (SEZ). The SEZ development policy was launched in the late 1990s. Currently, those that are officially endorsed include the Boten Dane Kham SEZ in Luangnamtha province, the Golden Triangle SEZ in Bokeo province, and the Savan-Seno SEZ in Savannakhet province (Map 3). Several other areas have been identified and are under SEZ consideration, including in locations such as Khammuane, Xiengkhouang, Xayabury, and Champasak provinces. Houapanh province is also a newly proposed site (Map 3). SEZ development aims to enhance the industrialization of the country by decentralizing industry to other parts of the country. In conjunction with this, a policy on village and grouping village development toward urbanization has recently been introduced.

Map 3. Current SEZ Development in Lao PDR



Source: SEZ Secretariat, 2010.

In conjunction with the national development plan, regional infrastructure development strategies and plans have also been introduced. The 9 Northern-Province Economic Development Master Plan, for example, refers to a comprehensive master plan for the northern region of the Lao PDR toward 2020. Under the Master Plan, the GoL has introduced the 1334 model for northern regional development. The number 1334 means: 1 economic center, 3 economic corridors, 3 industrial focal zones, and 4 border cooperation zones (Map 4). Louang Prabang has been designated 1 Economic Center, due to its location and socio-cultural and economic background, for northern region development. Louang Prabang, a former capital city of the country, has a rich historical background and is recognized for its cultural significance. It has been

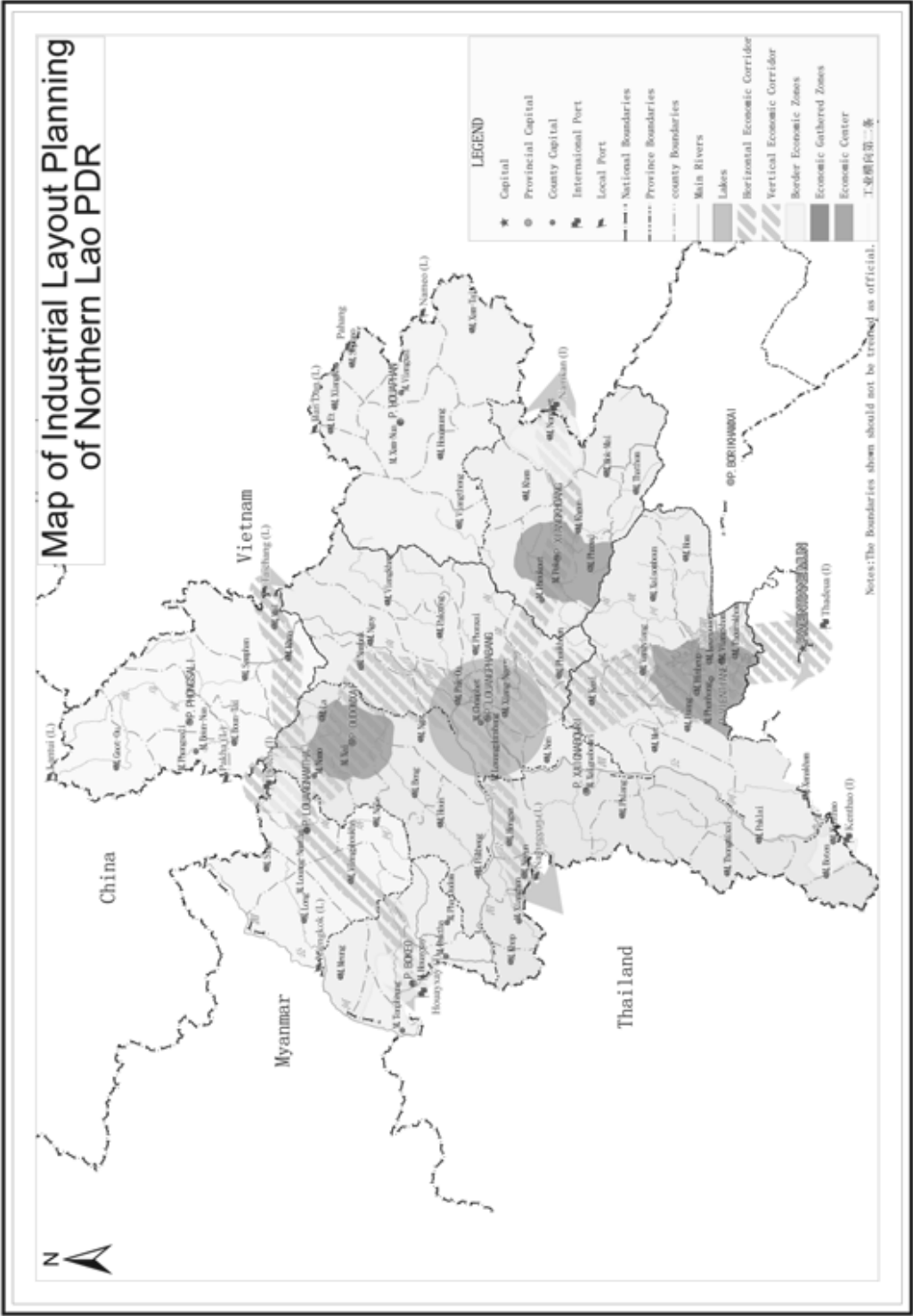
certified by UNESCO as a World Heritage Site since 1998 and is the most frequented tourist destination in Lao PDR. There are 3 Economic Corridors: the first connects China and Thailand through the Lao PDR via Louang Prabang, the second connects Thailand via the Lao PDR, to the borders of China and Vietnam, and the third connects Thailand and Vietnam. The main aim of developing economic corridors is to ensure a variety of development opportunities in other provinces of the region.

Planning also includes 3 Industrial Focal Zones: the first is in Oudomxay province, the second is in Xieng Khouang province, and the third is in Vientiane province. Establishing industrial focal zones is meant to ensure diversification of economic development and that these are consolidated as priorities before benefits are spread more widely in order to focus resources effectively.

The 4 Border Cooperation Zones include the border with China (Boten) in Louang Namtha province, the border with Vietnam (Nong Het) in Xieng Khouang province, and 2 borders with Thailand (Houy Sai-Tong Pheung in Bokeo province and Kean Thao in Xayabuly). The main aim of Border Cooperation Zones is to ensure access to regional markets, particularly in emerging economies such as China, Thailand, and Vietnam.

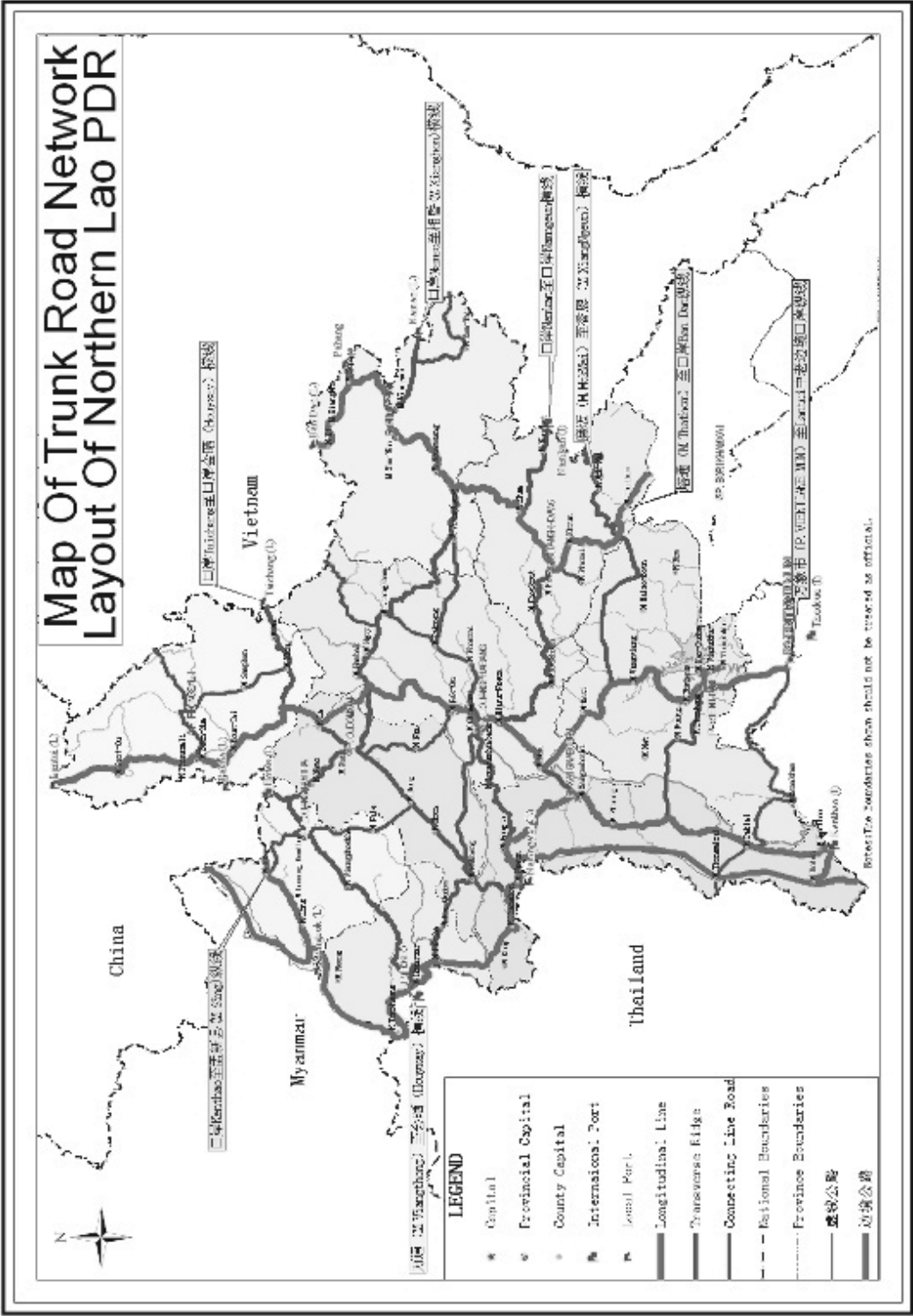
In order to implement the 1334 model, several transportation routes have been identified, such as the 3 vertical routes, the 5 horizontal routes, and the 8 connecting routes (Map 5). Railway transportation has also been mapped out as 1 vertical route and 3 horizontal routes (Map 6). In addition to surface modes of transport, airports and flight routes have also been planned (both domestic and abroad). Other infrastructure projects, including hydroelectric power and a connecting power grid, telecommunications, etc. have also been considered.

Map 4. 1334 Model for Development of Northern region of Lao PDR



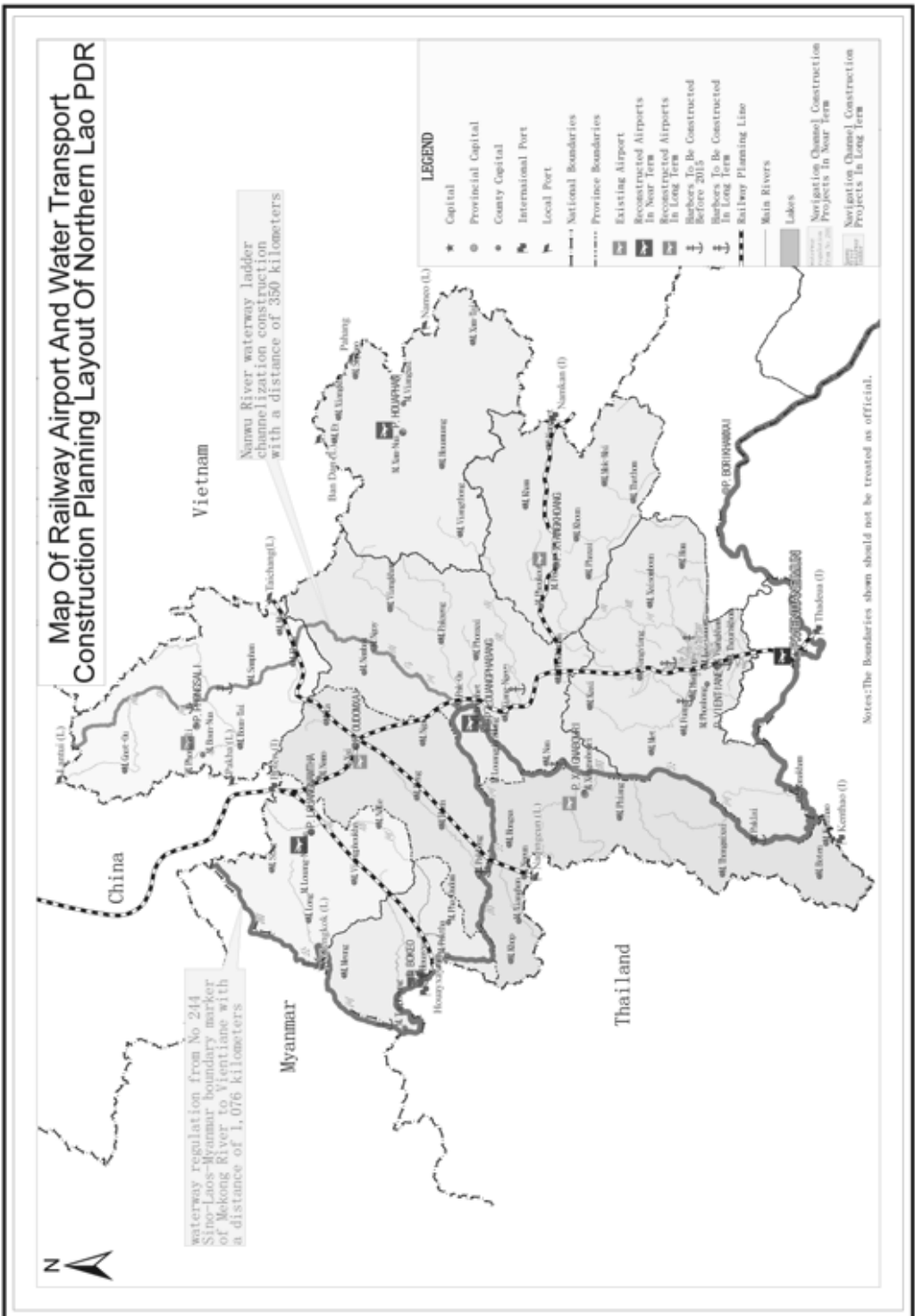
Source: Northern Economic Development Master Plan of Lao PDR, 2008.

Map 5. Priority Road Transportation Routes in Northern Region



Source: Northern Economic Development Master Plan, 2008.

Map 6. Railway Routes for Northern Region



Source: Northern Economic Development Master Plan, 2008.

The 4 provinces of the southern region have been named in the Triangle Development Master Plan to connect the central provinces of Vietnam with selected northern provinces of Cambodia.

1.2.2. Hydroelectricity development plan

Along with the trend of regional economic integration with the surrounding emerging economies of China, Thailand and Vietnam, electricity demand is expected to increase very rapidly. With a potential of over 23,000 MW of hydroelectricity, Lao PDR has introduced its plan to develop its hydroelectric potential and to become a major electricity supplier to Southeast Asia or the “Battery of Southeast Asia”. Currently, only about 10% of its potential has been utilized (about 2,500 MW) The GoL plans to increase its hydroelectric output to at least 1/3 of its potential by 2020. Table 2 shows the planned hydroelectric projects and production capacity in Lao PDR by 2020.

Table 2. Hydroelectricity Plan toward 2020

Region	No. of projects	Output (MW)	Production (GWh/y)
Northern region	31	1,466 (2010-15) 1,623 (2016-20)	8,016 (2010-15) 7,783 (2016-20)
Central region	19	1,333 (2010-15) 323 (2016-20)	5,366 (2010-15) 1,524 (2016-20)
Southern region	27	1,047 (2010-15) 905 (2016-20)	6,504 (2010-15) 4,729 (2016-20)
Total	77	3,846 (2010-15) 2,851 (2016-20)	19,886 (2010-15) 14,039 (2016-20)

Source: EDL, 2011.

In order to realize all potential projects, the government of Laos has opened the door of the hydropower sector to not only domestic enterprises, but also foreign

investors. Recently, more than 10 countries have invested in the hydropower sector in Laos, but the main investors are Thai, the Lao government, and Electricité du Laos (a public company in Laos). Some projects have attracted the interest of French, Korean, Japanese, Chinese, and Malaysian companies. Laos has also signed an MOU to provide 7,000 MW of energy after 2015 to Thailand, and 3,000 MW of electricity from the present until 2020 to Vietnam. Representatives of the energy sectors in Laos and Cambodia have signed a purchase agreement for the supply of about 5 MW by the end of 2009 (Oraboune, S. 2007).

1.2.3. Mining development plan

Mining is still considered as a Lao PDR potential economic growth sector. However, it is estimated that it will decline during the period 2014-2015. In the 7th NSEDP, the mining sector will still contribute to the economic growth of the country, but since most mining output is mainly for export as primary products, issues of sustainability have arisen after the expected decline in production. Therefore, focusing on mining-related processing production, such as construction materials production as well as other processing sectors, is important for the country.

1.3. Sustainable Development Sector

In conjunction with strong economic growth, sustainable development has been stated as an important issue for the country to achieve vision 2020. Particularly, in the period 2016-2020, this has to be a focal issue for the socioeconomic development of the country. Although the 8th NSEDP has not yet been drafted, some development area sectors have been discussed recently. The focal sectors include manufacturing

(including garments and motorcycle/electric motorcycle assembly), eco-tourism, agriculture and rural development (including village and grouped village development), small and medium-sized enterprise development, etc., as these sectors are related to human capital development, which, in turn, will ensure sustainability for the country's future development.

2. PROGRESS OF INDUSTRIAL DEVELOPMENT IN THE LAO PDR TOWARD AFTA, AEC, AND ITS GOAL OF 2020

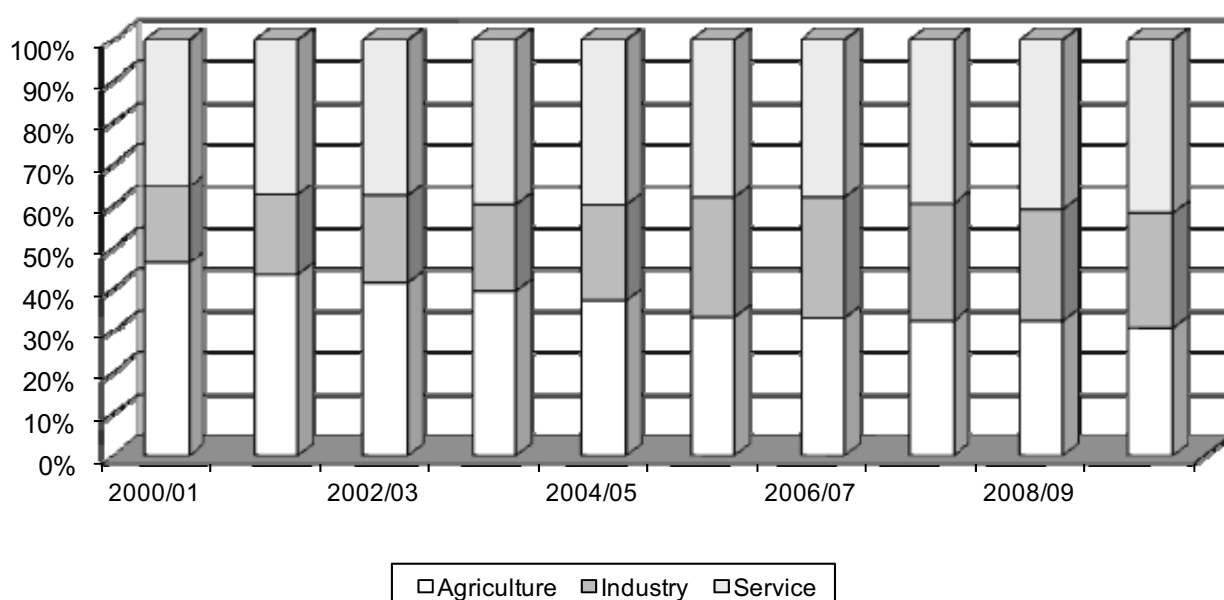
After introducing its 2020 vision, the Lao PDR began implementing the 5th NSEDP (2001-2005) as the first five years of its 2020 Strategy. However, the 5th NSEDP did not achieve the planned targets though the economic growth rate was considered high (6.3% yearly on average), but still lower than planned (7-7.5% on average). After implementing the 6th NSEDP (2006-2010), the Lao PDR turned to a new development program, where it could successfully attain and even exceed planned goals (and also the first NSEDP in which the Lao PDR could achieve its macro objectives). The progress is summarized as follows.

2.1. Industrial Structure

The Lao PDR has an agriculture-based economy as over 70% of its people are currently engaged in agricultural activity. During the 1980s and 1990s, the agriculture sector accounted for over 50% of gross domestic product (GDP), while industry and service accounted for less than 25%. Thanks to the NEM policy, foreign direct investment (FDI) was promoted and has significantly contributed to the country's development. With the

increase in FDI, the industrial and service sectors gradually developed with an average of 12-15% growth in over 10% of industry and service sectors during the past decades. Consequently, the share of the agriculture sector has declined from about 46% in the early 2000s to around 39% in 2010. The industrial sector, meanwhile, gradually increased from only 12% of GDP in 2000 to over 25% in 2010. The service sector also increased from about 20% to over 35% (Figure 1).

Figure 1. Share of Laos' GDP (2000-2010)



Source: NERI, 2011.

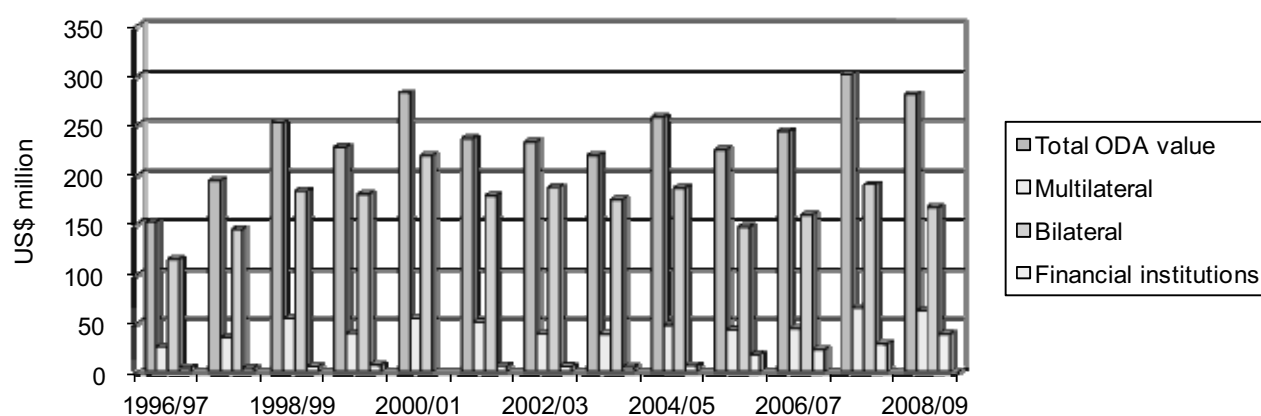
The change in the GDP structure derived from the improved path of the country's economic development. From the starting point of 1986, the GDP growth rate was approximately 5–6% annually and for the decade 1996-2005. However, from 2006 to the present (or from the implementation of the 6th five-year NSEDP), the growth rate of the Lao economy has improved to an average of about 8% per annum.

Previous empirical reviews indicated that the external sector played a significant

role in the socio-economic development of the Lao PDR, including official development assistance (ODA), foreign direct investment (FDI), and foreign trade (mostly in the form of border trade).

Official Development Assistance (ODA) has also played an important role in the socio-economic development of the Lao PDR, especially in the public investment sector. The ODA figure to 2001 reached USD 378.3 million, of which grant aid amounted to USD 238.27 million, or 63% of the total, compared to 72% in the previous fiscal year. Loans amounted to USD 140 million (DIC, 2003). An increase in the Official Development Assistance (ODA) inflow to the Lao PDR is considered a result of the more open policy of the government. The ODA provides an investment fund for the Public Investment Program (PIP), which plays the most important role in encouraging economic growth of the country. Since the mid-1990s, significant funds from the ODA have flowed into the Lao PDR, a situation which helps the government to deal with the problems of budget deficit.

Figure 2. Value of Official Development Assistance (ODA) (1997-2008)

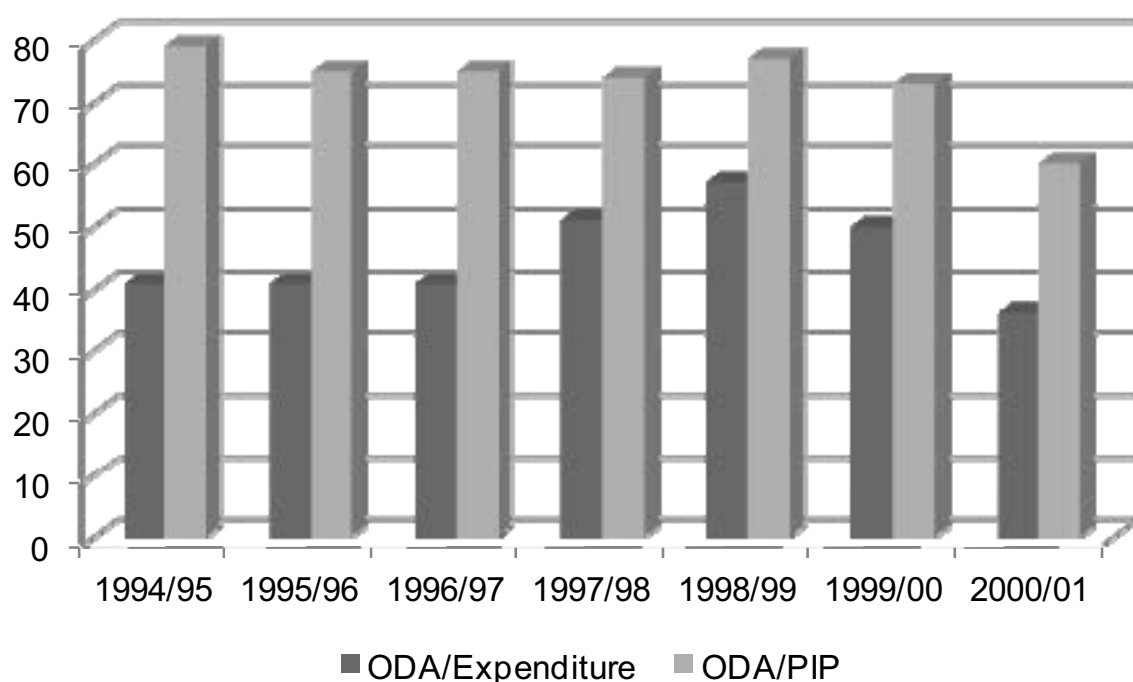


Source: DIC, MPI, 2008.

Figure 2 indicates the value of ODA inflow into the Lao PDR from 1996/97 to 2008/09. The average amount of these contributions to the Lao PDR is about USD 240 million per year, where bilateral sources accounted for over 70% of the total ODA received. A large percentage of ODA went to the infrastructure sector, human resource development, and the health and other social sectors. Therefore, the ODA has been a significant factor for poverty alleviation, especially by providing necessary facilities to the poor, including connecting roads, education and health infrastructure, and livelihood development. However, over the last five years, the value of ODA inflow into the Lao PDR has increased significantly to over USD 2.2 billion or an average of about USD 460 million per year. In the 7th NSEDP (2011-2015), however, the expectation for ODA was estimated to be about 30% of GDP or approximately USD 4-6 billion. This is an average of about USD 750-800 million per year in order to ensure the attainment of the macroeconomic target growth rate of not less than 8% per year on average.

Currently, the ODA plays a significant role in public expenditure. Figure 3 shows that from 1994 to 2001 almost half of public expenditures (particularly for infrastructure development projects, including construction of roads, bridges, etc.), was financed by ODA and about 80% of public investment projects have been similarly financed. This indicates that the ODA has continued to finance not only economic infrastructure, but also social infrastructure. In the 7th NSEDP, the total investment requirement was estimated at about USD 15 billion, where ODA is expected to account for about 25-30% of total investment.

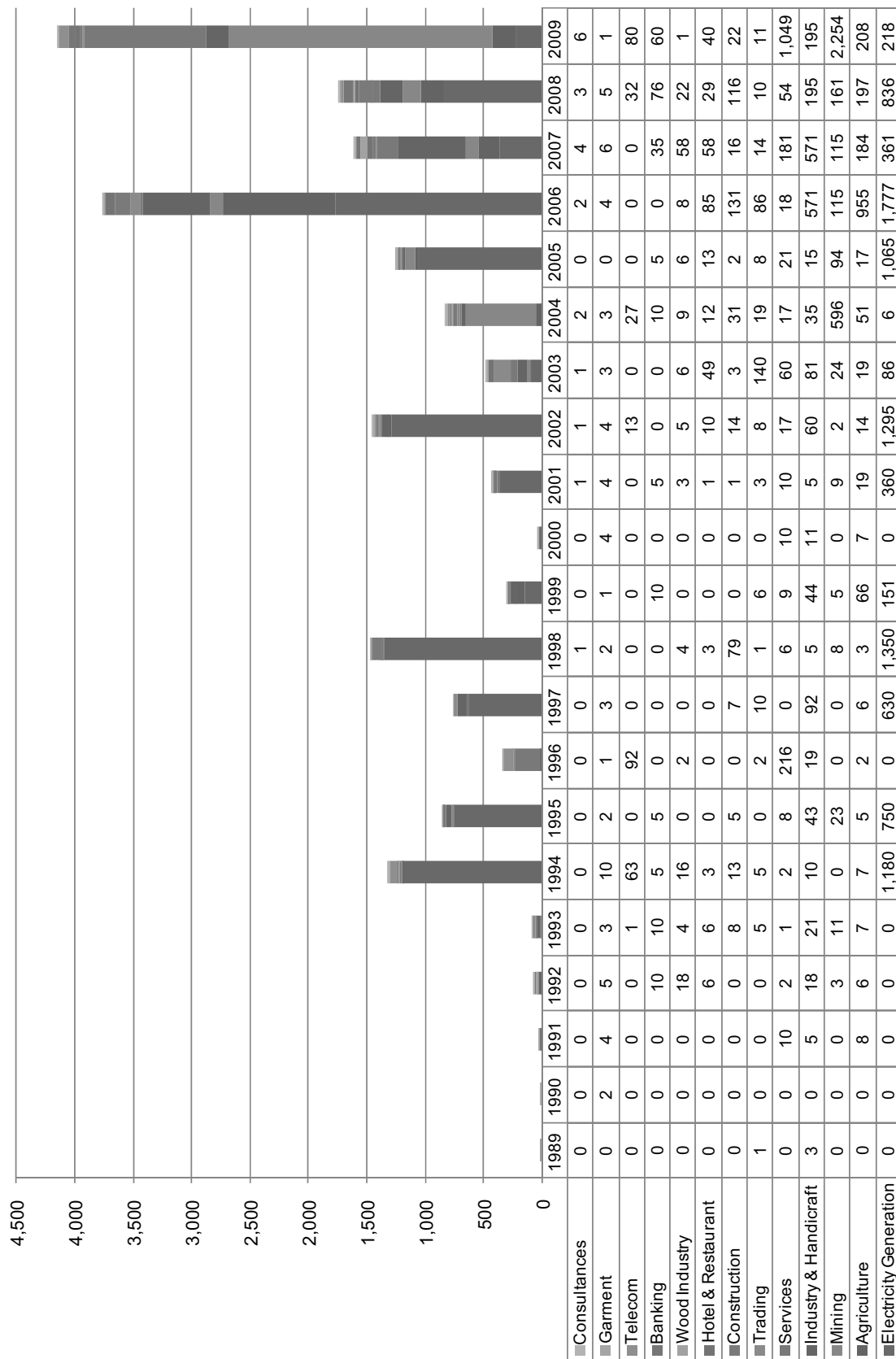
Figure 3. Proportion of ODA and Public Expenditure and PIP



Source: DIC, MPI, 2005.

Another external source is FDI, which began in 1988 and gradually increased during the early and middle 1990s after Laos became a full member of the Association of Southeast Asian Nations (ASEAN) in July, 1997. From 1989 to 2008, the total amount of FDI flowing into the Lao PDR was about USD 17 billion with about 1,600 projects established (Oraboune, S. 2010). Unsurprisingly, given the potential of the hydroelectricity sector of the country, almost 60% of total FDI went into the electricity generating sector (approximately USD 9.8 billion by 2008) followed by the industry-handicraft and agriculture sectors of about 11% (USD 1.8 billion) and 9% (USD 1.6 billion), respectively. Since 2003, increased funding has also been given to the mining sector (USD 1.2 billion by 2008), accounting for about 7% of total FDI (Department of Investment, MPI, 2009).

Figure 4. Value of FDI in Lao PDR by Sector (1989-2009) (US\$ million)

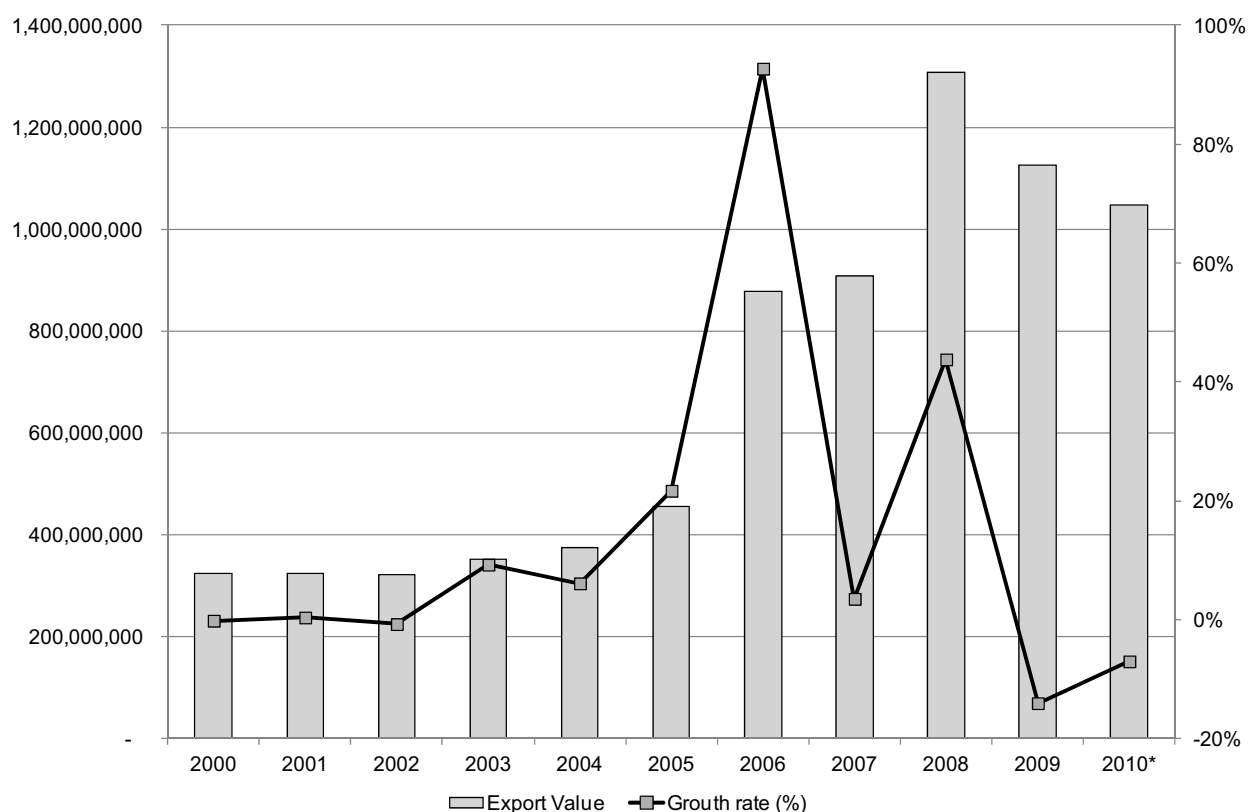


Source: Dept. of Investment, MPI, 2010.

However, from 2009 onward FDI inflow into the mining sector has sharply increased. In that year alone, investment in the mining sector accounted for over 50% of total FDI. Figure 4, shows that hydroelectricity and mining are the most important sectors contributing to the economic growth of the country. During the implementation of 5th NSEDP, FDI accounted for about USD 1.9 billion, but from 2006 to 2010, the FDI inflow into the Lao PDR had sharply increased to about USD 13 billion. This has been an important factor contributing to the Lao PDR success in achieving its macroeconomic goal of GDP growth of about 8% in the period (2006-2010). However, over 50% of FDI is concentrated in the natural resource-based sectors, including hydroelectricity and mining, though mining is estimated to decline in the next several years to come. Therefore, more sustainable development of human capital development has been identified for increasing support by the GoL, particularly in the coming decades.

Together with the increase in FDI, the regional economic integration of the Lao PDR has experienced growth, particularly within the Greater Mekong Sub-region (GMS) and ASEAN. The GoL has promoted the export sector of the country and encouraged all economic sectors to develop products suitable for export. Figure 5 shows the country's progress in export development from 1995 to 2010. From 1995 to 2010, the average export growth rate was over 30%, with a notably sharp increase in 2006 (almost double), 2007, and over 40% in 2008. Small declines were noted in 2009 and 2010 (Figure 5).

Figure 5. Value and Growth Rate of Lao PDR's Export (2001-2010)



Note: * Estimate.

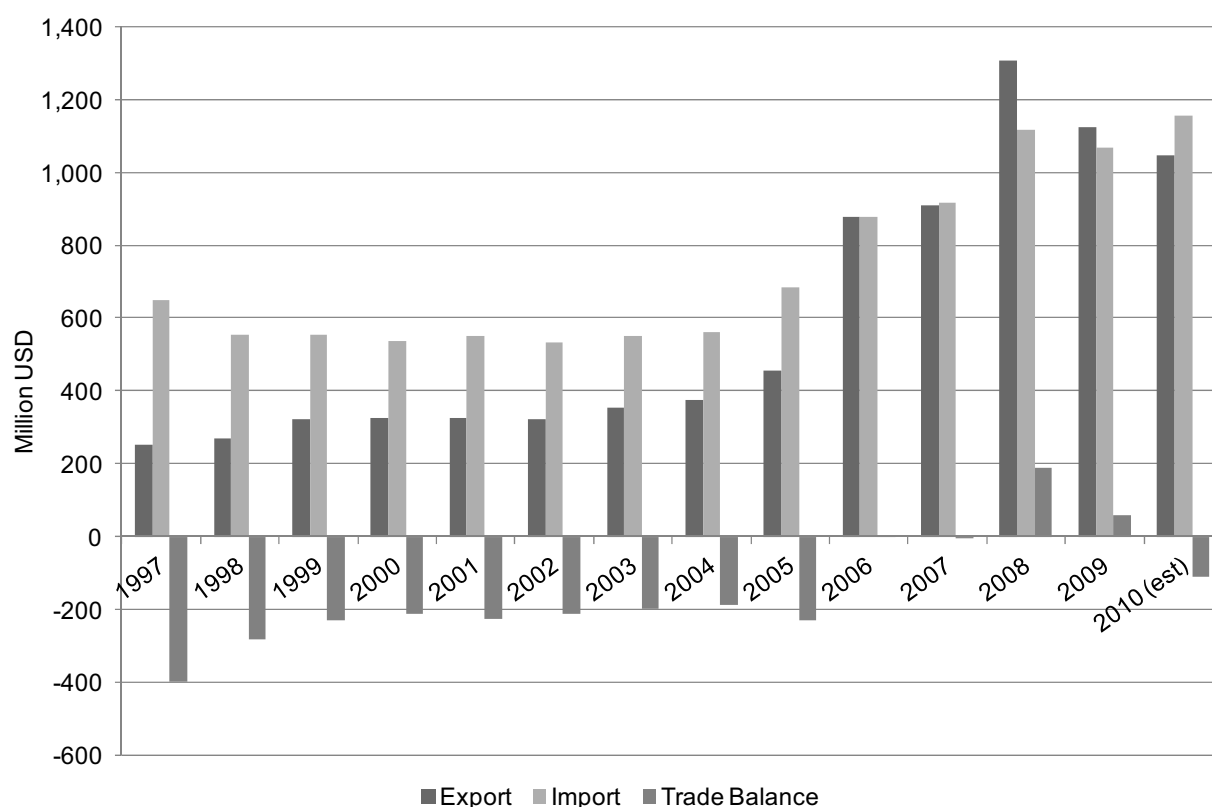
Source: Ministry of Industry and Commerce, 2010.

The Government of the Lao PDR is seeking ways to diversify the Lao economy and reduce the economic vulnerability of the country. Policies and platforms include an Integrated Framework for co-operative trade practices. Currently, nearly 70% of official Lao exports of goods remain concentrated in natural-base products including wood products, garments, mining, and electricity. The Lao PDR has access to preferential treatment from many countries. Its exports receive preferences from industrialized countries and from the original members of ASEAN. The country has GSP access to the EU under the Everything But Arms (EBA) arrangement and also has a special textile agreement that exempts exports from EU quotas. Since July, 2003, all exports to Australia and New Zealand have been admitted free of duties and quotas. The Lao PDR signed a bilateral trade agreement with the US in 2003 and was granted

Normal Trade Relations (NTR) in November, 2004, opening the door for extensive import/export relations with the US market. The Lao PDR applied for WTO accession in 1997 and is now in the negotiation process.

The trade balance was in deficit from the 90s to the mid-2000s. The trade structure improved in the period of the 6th five-year NSEDP (2006-2010). The trade balance was in positive territory in 2000, in balance in 2007, and positive again in 2008 (Figure 6). The improvement of the Lao PDR export sector was effected by the growth of FDI, particularly in the natural-based sector, but, due to the declining trend prediction of the mining sector in 2014 and 2015, diversifying to other industrial sectors is crucially important.

Figure 6. Foreign Trade of Lao PDR (2001 - 2010)



Source: Ministry of Industry and Commerce, 2010.

Empirical reviews have shown that the Lao PDR has gradually integrated into the regional and global production network, particularly its garment and motorcycle industries. Most garment factories are still in the form of cut-make-trim (C-M-T), though this sector has contributed significantly to poverty reduction through employment and income generation. Indeed, the garment industry also ranks in the top 5 of the country's export sectors. Another manufacturing industry with potential is motorcycles, as currently there are nearly 20 motorcycle assembly factories in the Lao PDR. Some have been in operation for over 30 years.

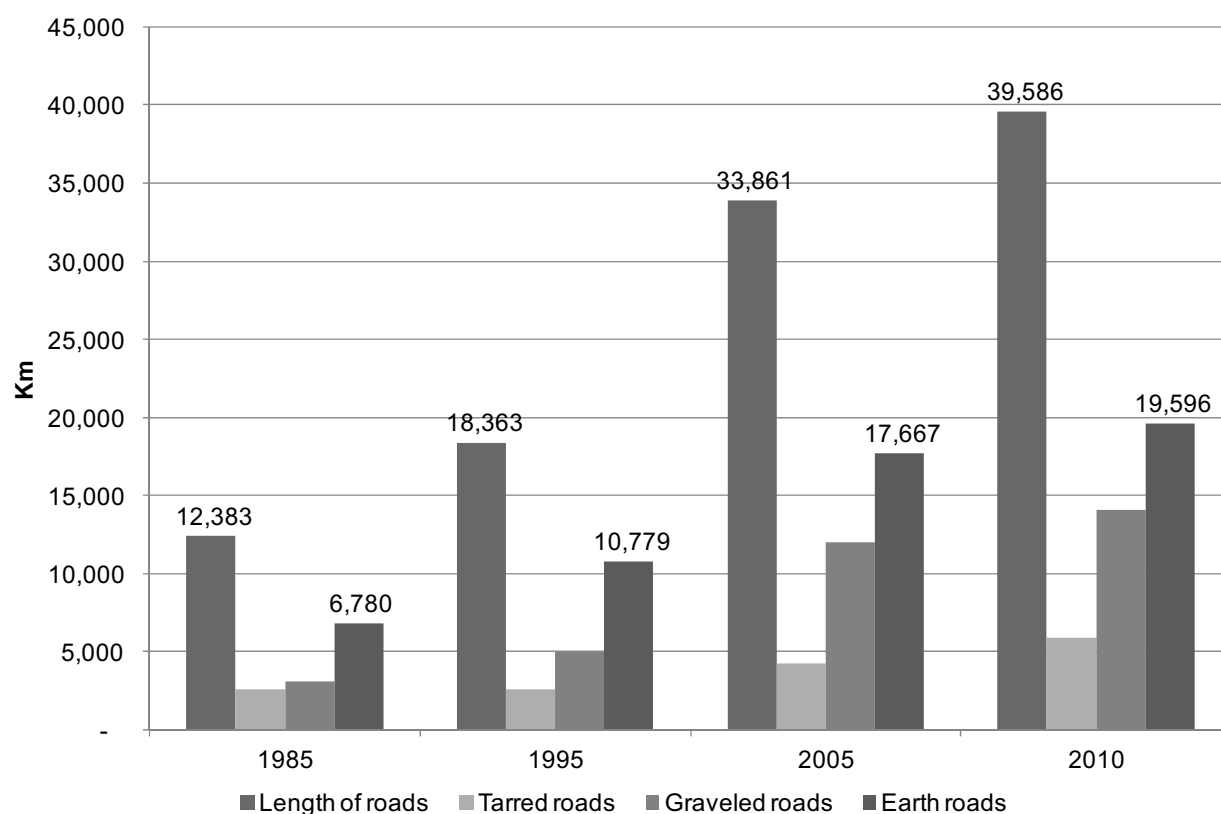
2.2. Infrastructure Development

Based on appropriate strategies and the 7th NSEDP, infrastructure has been identified as another important sector for the country's development. In order to facilitate the "Land-Linked" Strategy, a number of roads and bridges have been constructed, particularly strategic roads connecting to neighboring countries in the region (including road number 9, the second Lao-Thai Friendship Bridge along the GMS East-West Economic Corridor, the third Lao-Thai Friendship Bridge connecting Khammouan province and Nakhonphanom (officially opened on 11 November, 2011), road number 3 connecting Thailand and China via Loung Namtha and Borkeo provinces of Lao PDR (GMS North-South Economic Corridor), and numbers 8,12,15, etc.

According to official statistics, the total number of kilometers of all roads in the Lao PDR is less than 40,000 and, of that number, paved roads accounted for only about 30% of total road construction to date (mostly concentrated in city areas including Vientiane, Savannakhet, Pakse, and Loung Prabang). Given the total land area of 236,800 square kilometers, road density in Laos is just a little above 0.16 (only 0.02

improved in the last 5 years). This is very small when compared with neighboring countries.

Figure 7. Length of Road in Lao PDR (2010)



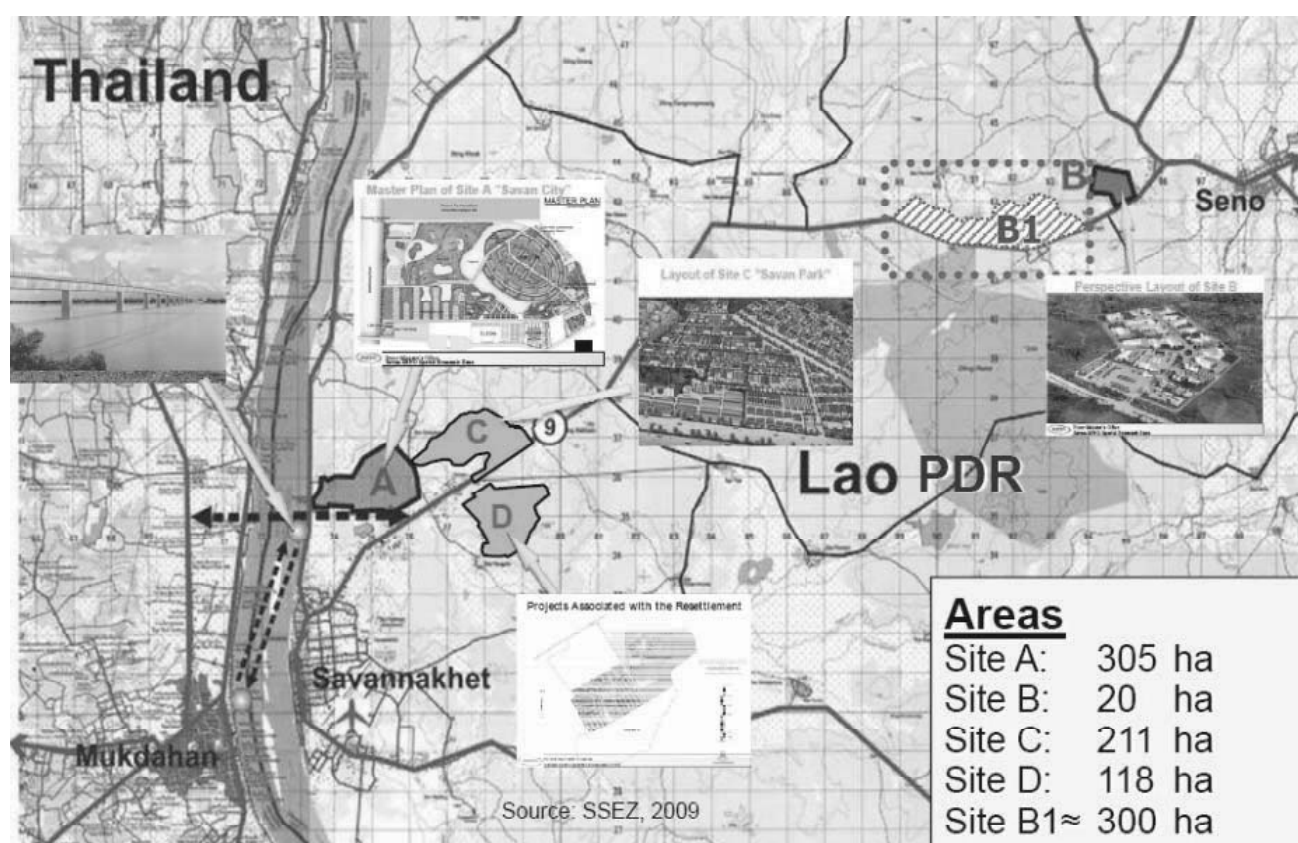
Source: Ministry of Public Works and Transport, 2011

As for a rail network, there is only a very short route of 3.5 kilometers connecting Vientiane with the Thai railway network in Nongkhai province over the first Lao-Thai Friendship Bridge. This route, completed in 2009, was funded by the Thai government for a total amount of USD 4.9 million, including 30% for grant aid and 70% for a soft loan. Furthermore, the Thai government has promised to finance another project of 9 kilometers from Thanaleng to Sökkham (Vientiane Station). Similarly, the funding will be structured to include a 30% grant and a 70% soft loan.

Concerning the development of SEZs, the Savan-Seno Special Economic Zone

(SSEZ) is under construction, while a number of zones have already been built. Map 7 shows the zoning of the SSEZ. The Golden Triangle SEZ in Bokoe province is also under construction, though some areas are nearly completed. Some facilities at the Bo Ten SEZ in Louang Namtha province have been completed, but other areas are under construction. In Vientiane, there are some locations yet to be constructed as new urban areas, including the Industrial Zone, Nong Tha Urban city, etc.

Map 7. Outline of Savan-Seno Special Economic Zone



Source: Savan-Seno Special Economic Zone Authority, 2010

Other provinces have also planned and designed new urban areas, including Vientiane province (90 kilometers from Vientiane), which has developed its urban plan with some parts in the selected area already under construction. Boun Neua district of Phongsaly province is in the process of development into the new capital town of the

province. Other provinces in the country are also in the process of constructing infrastructure, including roads, urban facilities, etc.

2.3. Human Development/Employment-Related Issues

The overall picture of human development in the Lao PDR has improved in recent decades. The incidence of poverty has decreased from about 46% in 1990/91 to about 21% in 2010/11. The measurement of the human development index (HDI) has also improved significantly from about 0.240 in 1990/91 to about 0.510 in 2010/11. This result bears a significant correlation to the level of economic development of the country.

The economic structure of the Lao PDR has moved toward a reduction of the agricultural sector's share of the GDP, though the number of laborers in agriculture still remains high at about 78.5%. Industry has contributed greatly to economic growth, but the proportion of industrial workers is low at about 4.8%. The service sector workforce accounted for about 16.7% (Table 3). Although hydroelectricity and mining were considered significant sectors for high economic growth in previous decades, they employ only a small number of the local workforce (0.2% for electricity and 0.3% for mining, Lao NHDR 2009).

Table 3. Division of Workforce by Sector in Lao PDR (2009)

	Agriculture	Industry	Service	Total
Number	2,384,830	145,824	507,346	3,038,000
Percentage	78.5%	4.8%	16.7%	100%

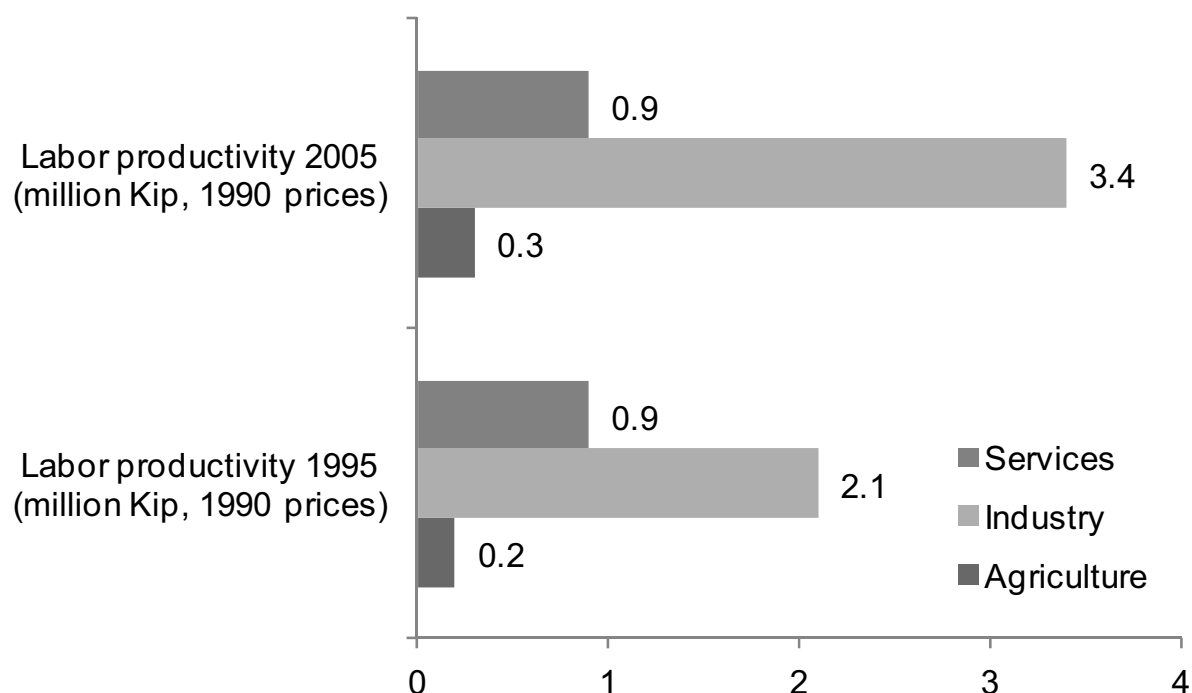
Source: MLW, DOS, MPI, 2010.

However, compared with significant economic growth, employment does not show a close correlation with progress in industrial development. The percentage increase in employment in the Lao PDR when the GDP rises by one percent is low at 0.40. It is low in agriculture as well at 0.37 (the agricultural yield rate has not expanded significantly in recent years). In industry, it is 0.57 [mining 0.29, electricity (plus gas, water and sewerage) 0.38, and manufacturing (plus construction) 0.63], and in services it is 0.94 (trade 0.73, and hotel and restaurants 1.32) (Lao National Human Development Report 2009, 2010).

Particularly in the period between 2003 and 2007, hydroelectricity and mining projects received major investment. Mining has grown by a factor of 100 in the last five years and now constitutes more than 12% of the Lao PDR GDP. However, fewer than 8,000 direct jobs have been created in the mining sector and even fewer in the electrical sector (plus gas and water) (Lao National Human Development Report 2009, 2010). For economic growth, these sectors have responded well, but to further ensure long-term development, in particular the last 5 years of 2020 vision (2016-2020), an improvement to human capital is needed to be able to fully utilize the industrial potential of the country.

It has been noted that during the years 1995-2005, labor productivity in the service sector had not shown any improvement, while the industrial and agricultural sectors had seen only very small gains (Figure 8). Taking into account the potential for service sector development in the Lao PDR, including eco-tourism, the transit trade, and other “land-linked” related business, an improvement of human capital is essential to further increase labor productivity and to support greater development of SEZs.

Figure 8. Labor Productivity in Agriculture, Industry and Service, 1995 and 2005



Source: Department of Statistic, MPI, 2010.

3. MAJOR CHALLENGES/BARRIERS TO INDUSTRIAL READJUSTMENT FOR THE LAO PDR TOWARD AFTA, AEC AND THE GOALS OF 2020

To achieve the 2020 vision, as noted in the previous section, the Lao PDR needs to master not only the economic, but also the social aspects of economic growth, human capital development, and environmental issues. Currently, the Lao PDR is in the process of implementing the 7th NSEDP, which is considered an important engine to boost economic growth and human capital development through the achievement of MDGs in the coming period of deeper integration with regional and global economies.

The Lao PDR has committed to participate in the establishment of the ASEAN Economic Community (AEC) in 2015. It has to face challenges in several aspects of

development, including 1) a single market and production base, 2) a highly competitive economic region, 3) a region of equitable economic development, and 4) a region fully integrated into the global economy. To enter into such a situation requires all stakeholders to be prepared in order to ensure full and successful participation and gain as much profit as possible from the process.

Furthermore, the Lao PDR is in the process of negotiating WTO membership. This also requires the country to readjust its economic, social, and administrative position accordingly. However, taking into account the current situation of the country, the Lao PDR still faces several challenges, which need to be considered and resolved in order to ensure full regional and global integration to support its industrial development. These challenging aspects are described below.

3.1. Industrial Structure

From the macroeconomic viewpoint, industrial structure has developed well toward industrialization as the GDP share of agriculture dropped rapidly in the past five years. Concurrently, the shares of the industrial and service sectors improved, but only in a few sub-sectors, particularly hydroelectricity and mining. These two accounted for over 55% of total FDI between 2006 and 2010. Moreover, exports from these sectors were mostly primary products. Unfortunately, there has not been much contribution from these two sectors in improving domestic technology.

Furthermore, previous studies show that mining volume will decline between 2014 and 2015, or after the 7th NSEDP. These are definite challenges for the Lao PDR as it attempts to stimulate economic growth in order to secure the first criterion of GNI per capita in removing Laos from the list of LDC countries. Hydroelectricity is another

opportunity for growth. Generating electricity to support other areas of sector development is important so as to ensure the contribution of this sector to grow employment in other sectors, particularly the critically important manufacturing sector.

The service sector, including eco-tourism and regional transit trade and logistic services, is a potential growth industry, yet the physical capacity in terms of infrastructure and human capital has not yet been realized. In eco-tourism, for example, the Lao PDR is rich in terms of biodiversity and many areas have great potential for tourism development. Weak infrastructure, however, leads to difficulties in developing such potential in most of provinces of the Lao PDR.

Although foreign trade has significantly improved in terms of trade value in recent years, the Lao PDR is still mainly dependent on very few trade partners within the region, including Thailand, Vietnam and China. This low level of trade destination diversification demonstrates the vulnerability and fragility of the Laotian economy if there is any uncertainty occurring with these trading partners. Furthermore, most export items remain natural-base products, a situation that increases potential economic instability.

3.2. Infrastructure Development

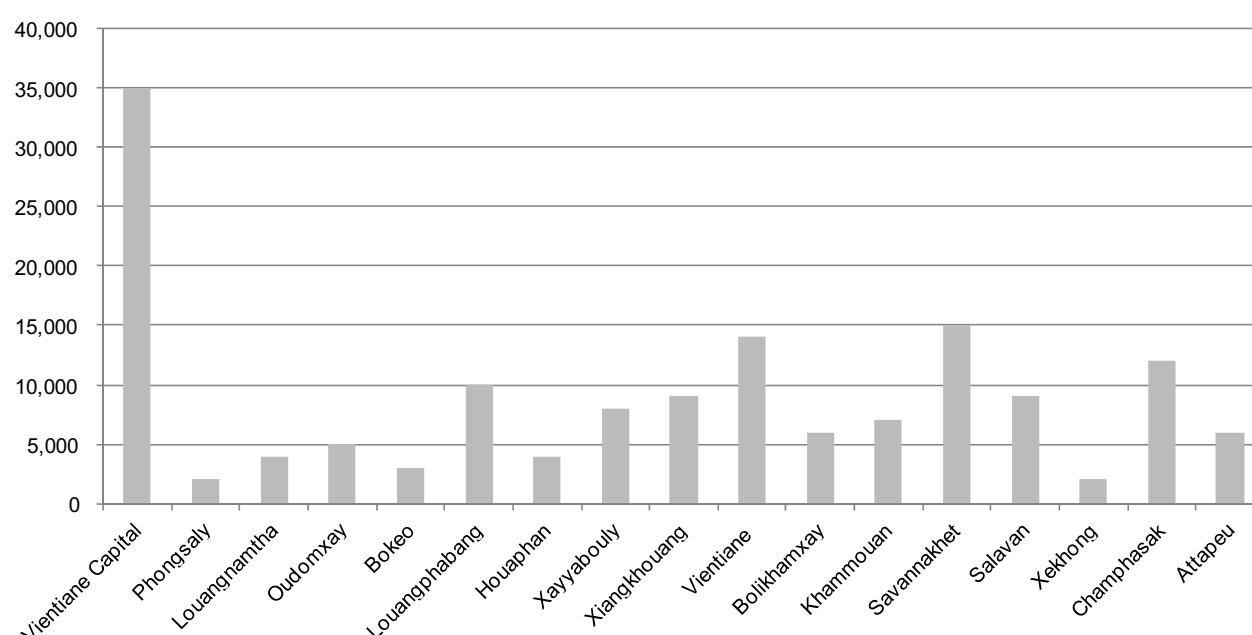
Infrastructure development has already been noted as an important factor for the socio-economic development of the country. The 7th NSEDP confirmed the need for total investment in projects at approximately USD 15 billion. The government budget can finance only about 10-12% of this amount, while the ODA may contribute about 25-30%, and the private sector about 50-55%. Encouraging private participation in infrastructure development will assist in overcoming the challenge of further industrial

growth.

In the 5 years between 2016 and 2020, early estimates for economic growth suggest that approximately 8.5% per annum on average is needed in order to reach the 2020 development goals. The estimate for total investment is about USD 25 billion, of which 55-60% of the total is the expected contribution from the private sector. However, the domestic private sector is not strong enough to participate to such a degree as most Lao PDR enterprises are small and medium-sized and the majority is found in Vientiane and other urban areas (Figures 9 and 10).

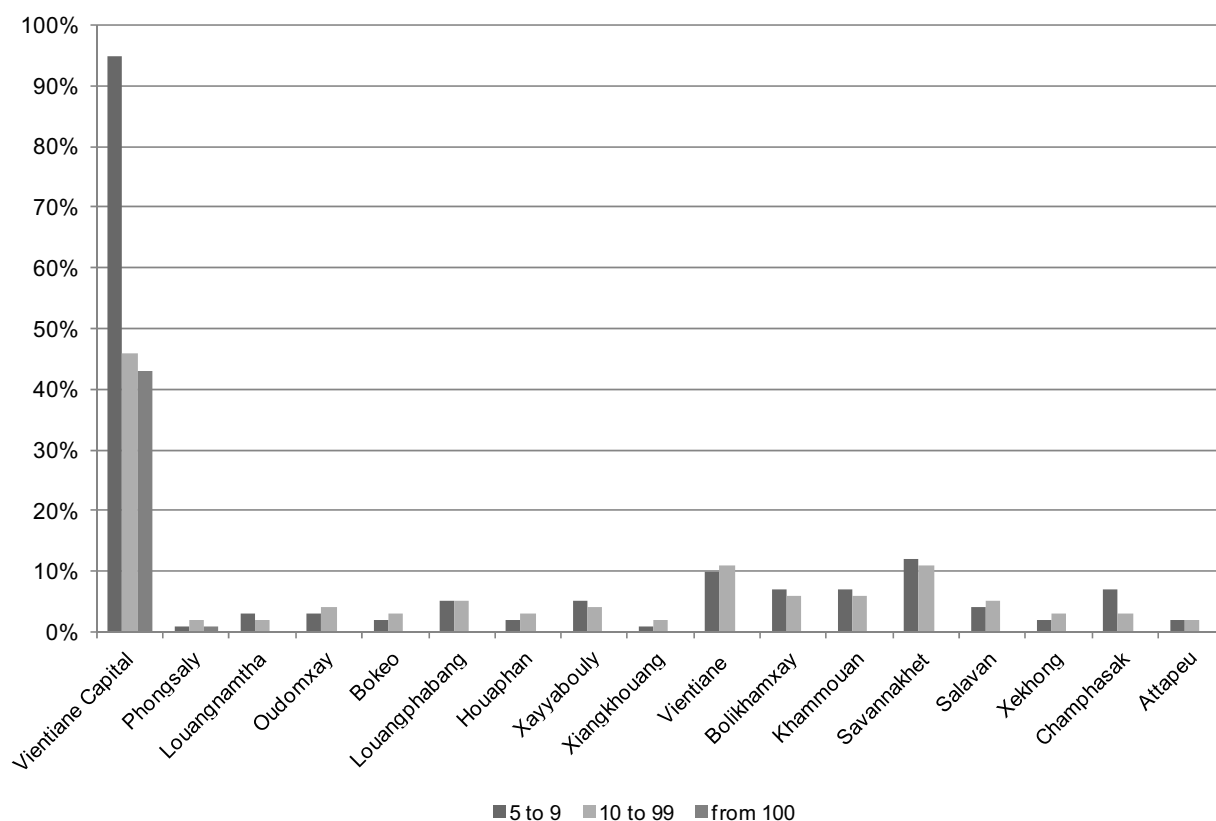
Therefore, soliciting more ODA and FDI is still an important aspect of this issue. However, improving the regulatory framework for the promotion of the private sector is needed as well as improving the investment climate to promote business activity and, hopefully, the contribution of the private sector to the socio-economic development of the country.

Figure 9. Number of All Enterprise in Lao PDR (2006) by Provinces



Source: SME Committee, MOIC, 2009.

Figure 10. Share of Enterprise Employing 5 and more Employees in Lao PDR (2006) by Provinces



Source: SME Committee, MOIC, 2009.

3.3. Human Development/Employment-Related Issues

Another challenge to industrial development in the Lao PDR is related to human capital or labor issues. The majority of Lao people are engaged in agricultural activity, specifically subsistence agriculture. This type of agriculture is a mark of the rural areas, where the majority of the Lao people live, which contrasts with a “market-oriented” agricultural system. Farmers in this system produce just enough to support their food and non-food needs. Furthermore, empirical studies have suggested that farmers have been claiming forestland and grazing land for crops, increasing the total cropped land at a rate of 4.7% each year in the decade 1995 to 2005, which is larger than the annual

growth of production in the sector. Thus, output in the agricultural sector has grown mainly owing to the expansion of the area under cultivation, with little evidence of yield-rate growth (Lao NHDR 2009, 2010). This trend is becoming unsustainable.

Another issue related to employment is a characteristic of the Lao labor force. Many workers, known as seasonal workers, withdraw from the workforce in the dry season and rejoin in the wet season. Although in recent years, the seasonal withdrawal of workers has tended to be smaller due to an increase in cash demands, many workers are still seasonal. This labor issue has put considerable pressure on the mostly urban manufacturing sector, particularly in Vientiane, Savannakhet and Pakse, because most workers have migrated from the provinces. Additionally, the outbound migration to neighboring countries (mostly Thailand: about 8% of the total workforce) has caused a shortage of laborers in the border provinces, where the government aims to develop SEZs.

One of the critical issues related to human capital and the workforce is the system of technical and vocational education. It is not fully coordinated with the industrialization process of the country in specific industries of investment (particularly foreign direct investment). Most FDI-related firms must outsource their foreign technicians and engineers. A poorly trained workforce is an impediment to the development of the country.

4. CONCLUSION AND POLICY RECOMMENDATIONS

Since the implementation of NEM as the open-door policy of the Lao PDR in 1986, the development of the Lao PDR has gradually moved toward a market-oriented system.

The national strategies to achieve vision 2020, including 2020 strategies, industrialization and modernization strategies, national growth and poverty eradication strategies, etc., have been formulated to guide socio-economic development of the country. Thanks to an outward-looking policy, including foreign direct-investment promotion, the capital flow into the economy has significantly contributed to the social and economic development of the Lao PDR.

The socio-economic development of the Lao PDR has made much progress in the decade 2001-2010 as the first half of vision 2020. However, in order to ensure the achievement of strategic goals in the second half of the vision, several strategic measures have to be carried out carefully, especially to support those two area sectors described above. Several recommendations are summarized as follows:

High Economic Growth Sectors:

- Considering the great potential of the hydroelectric capacity of the country, continued development in this sector is important for economic growth. However, as this sector does not create a great deal of employment, linking it to support indirect employment in other sectors is crucial. One example is electric motorcycles. Laotian laborers have 30 years of experience in the assembly industry plus the potential to produce domestic electricity. Promoting this industry is significant in a time of climate change. Electric motorcycles can further support the aim of developing Vientiane city as a green and clean environment.
- Further address related logistic infrastructure development projects to enhance the development of the “land-linked” strategy. During the period of 2011-2015,

the utilization of ODA is necessary to support infrastructure development, but, at the same time, the promotion of private capital flow to infrastructure development is crucially important as well. Public-Private Partnership (PPP) might be considered as an appropriate mechanism for this application. However, careful studies and adoption of relevant ideas into real situations of the country are needed.

- The mining sector is considered important for economic growth during the period of 2011-2015, but, faced with a declining trend, this sector is required to focus more on processing and manufacturing. Therefore, the utilization of income gains from the mining sector to foster the development of the manufacturing sector is essential.

Sustainable Development Sectors:

- Developing potential in the agricultural sector by focusing on the improvement of agricultural productivity is necessary. Giving priority to organic farming is another area with potential growth as Lao farmers are already accustomed to traditional non-chemical farming. In line with this idea, the development of traditional medicinal herbs and plants is another resource possibility for the Lao PDR. According to World Health Organization (WHO) estimates, the demand for medicinal plants is about USD 14 billion a year and is projected by the year 2050 to be USD 5 trillion (Medicinal herbs and plants strategy, MOIC, 2007).
- Utilizing natural resources like the rich variety of biodiversity to support the eco-tourism sector is another area of potential growth. In addition, community-based eco-tourism is an advantage for rural villages.

- The gradual development of human capital toward supporting a knowledge-based economy is strategically important. Absorbing emerging demands in the region and exploiting its geographical advantages, including the development of transit trade service sector (such as the regional trade information service, banking service, telecommunications, etc.), are ideas that have potential for longer-term development of the country.

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