

Ministry of Public Works and Transport
Lao Peoples Democratic Republic (Lao PDR)

**THE COMPREHENSIVE STUDY ON
LOGISTICS SYSTEM IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC**

FINAL REPORT

Volume 1: National Logistics Strategy

January, 2011

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**INTERNATIONAL DEVELOPMENT CENTER OF JAPAN (IDCJ)
NIPPON KOEI**

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PREFACE

Lao PDR is located at the center of Greater Mekong Sub-region (GMS). This preferable location currently provides Lao PDR with strategic advantages to transform itself from a “land-locked” to a “land-linked” country, particularly due to globalization in trade and transport and regional economic integration. In this respect, Lao PDR faces a great opportunity to become a regional logistics hub in the GMS and ASEAN region. In cognizance of these situations, the Lao Government has embraced the transformation into a “land linked country” as a major policy essential to the country’s aspirations of graduating from a developing country.

However, there are still several constraints in logistics in Lao PDR; in particular the insufficient logistics system. The current logistics system in Lao PDR still falls below international standards in terms of efficiency, reliability and cost due to unsatisfactory performance by inadequate infrastructure and immature domestic logistics industry.

In this regards, the Japan International Cooperation Agency (JICA) decided to conduct the Comprehensive Study on Logistics System in Lao PDR. JICA selected and dispatched the Study Team between March 2009 and November 2010.

The Study Team held discussions with the concerned officials in the Government of Lao PDR and conducted field surveys in the study area. Upon returning to Japan, the Study Team conducted further studies and prepared this final report.

It is my hope that this report will contribute to development in the Lao PDR, and to the enhancement of a friendly relationship between our two countries. Finally, I wish to express my sincere appreciation to all the people for their generous cooperation with the Study Team.

January 2011

Kiyofumi KONISHI,
Director General
Economic Infrastructure Department
Japan International Cooperation Agency



Study Area Map

The Comprehensive Study on Logistics System in Lao People's Democratic Republic

Final Report

Volume 1: National Logistics Strategy

Table of Contents

Study Area Map	
Table of Contents.....	i
List of Tables.....	vi
List of Figures	x
List of Abbreviation.....	xv
Chapter 1 Introduction	1-1
1.1 Study Background and Objectives.....	1-1
1.1.1 Progress of Regional Economic Cooperation in ASEAN and GMS.....	1-1
1.1.2 Completion of Transport Network in GMS	1-1
1.1.3 Enhancement of Development Potential.....	1-1
1.1.4 Study Rationale.....	1-2
1.1.5 Study Objectives.....	1-3
1.1.6 Study Area.....	1-3
1.1.7 Study Schedule.....	1-3
1.2 Progress of the Study.....	1-4
1.2.1 Inception Report and Steering Committee Meeting	1-4
1.2.2 Progress Report and Steering Committee Meeting	1-4
1.2.3 Progress of Major Activities.....	1-5
1.2.4 Draft Final Report and Steering Committee Meeting	1-5
Chapter 2 Logistics in Lao PDR.....	2-1
2.1 Freight Movement.....	2-1
2.1.1 Geographical Location of Lao PDR in GMS	2-1
2.1.2 Transport Service Level in GMS	2-2
2.1.3 Freight by Mode	2-7
2.1.4 Trade and Freight Corridor	2-9
2.2 Transport Network and Logistics Infrastructure	2-16
2.2.1 Transport Network in GMS.....	2-16
2.2.2 Transport Network in Lao PDR	2-23
2.2.3 Logistics Infrastructure in Lao PDR.....	2-33
2.3 Cross-Border Procedure for Freight Transport	2-34
2.3.1 Customs Procedures.....	2-34
2.3.2 Vehicle	2-41
2.4 Logistics Services	2-43
2.4.1 Logistics Services	2-43
2.4.2 Evaluation of Logistics System in Lao PDR by Logistics Performance Index	2-49

2.5	Logistics Industries.....	2-51
2.5.1	Major Transporters in Lao PDR	2-51
2.5.2	Categories of Logistics Companies	2-54
2.5.3	Transport Business License	2-57
2.5.4	Multilateral Agreement on International Transport (GMS Cross-border Agreement)	2-58
2.6	Assessment of Current Logistics System in Lao	2-59
2.6.1	Current Problems.....	2-59
2.6.2	Inter-connectedness of the Current Problems	2-61
Chapter 3	Review of Relevant Policies	3-1
3.1	Review of Future Development Plans	3-1
3.1.1	National Socio-Economic Development Plan (2006-2010).....	3-1
3.1.2	Transport Sector Plan	3-7
3.2	Review of Logistics Policy in surrounding countries	3-12
3.2.1	Thailand	3-12
3.2.2	Vietnam.....	3-19
3.2.3	Yunnan Province	3-21
Chapter 4	Future Perspectives and Framework.....	4-1
4.1	Economic Integration in GMS.....	4-1
4.1.1	International Specialization and Relocation of Enterprises	4-1
4.1.2	Progress of Internal Procurement within GMS	4-4
4.2	Regional Integration Scheme of GMS and ASEAN	4-7
4.2.1	AFTA and CEPT.....	4-7
4.2.2	Regional Agreements.....	4-9
4.2.3	Information and Communication Technology.....	4-12
4.3	Development Potential of Lao PDR.....	4-14
4.3.1	Population Growth	4-14
4.3.2	Urbanization	4-15
4.3.3	Economy	4-16
4.3.4	Investment and Trade	4-23
4.4	Overall Development Perspectives of Lao PDR and GMS.....	4-26
4.4.1	Economic Development.....	4-26
4.4.2	Framework on Regional Trade and Logistics in GMS/ASEAN.....	4-26
4.5	Socio-Economic Framework	4-30
4.5.1	Population Framework.....	4-30
4.5.2	Economic Framework	4-33
4.6	SWOT Analysis.....	4-38
4.6.1	Strength	4-39
4.6.2	Opportunity	4-39
4.6.3	Weakness	4-41
4.6.4	Threat.....	4-41
4.6.5	Results of SWOT Analysis	4-42

Chapter 5 Freight Demand Analysis	5-1
5.1 Summary of Results of Traffic Survey	5-1
5.1.1 Outline of Traffic Survey	5-1
5.1.2 Results of Vehicle Count Survey	5-2
5.1.3 Monthly Fluctuations in Vehicle Volume	5-8
5.1.4 Results of Roadside Interview Survey	5-12
5.1.5 Customs Data	5-16
5.2 Methodology of Freight Demand Forecast	5-23
5.3 Summary of Results of Freight Demand Forecast	5-24
5.3.1 Future Road Network	5-24
5.3.2 Truck Assignment	5-26
5.4 Potential Freight Demand within GMS	5-29
5.4.1 Methodology of Potential Freight Demand Forecast	5-29
5.4.2 Summary of Results of Potential Freight Demand Forecast	5-30
 Chapter 6 National Logistics Strategy	 6-1
6.1 Anticipated Benefits and Development Issues	6-1
6.1.1 National Policy and Vision of Logistics Development	6-1
6.1.2 Development Issues	6-4
6.2 Target and Strategy	6-7
6.2.1 Overall Strategy	6-7
6.2.2 Development Target	6-11
6.3 Development Scenario	6-13
6.4 Development Strategy 1: Integration of Cargo Flow	6-16
6.4.1 Basic Concept	6-16
6.4.2 Development of Logistics Hub	6-18
6.4.3 Improvement of Major Logistics Routes	6-22
6.4.4 Improvement of Transport Efficiency	6-24
6.5 Development Strategy 2: Business Stimulation	6-25
6.5.1 Basic Concept	6-25
6.5.2 Attraction of Foreign Logistics Business	6-27
6.5.3 Strengthening of Domestic Logistics Business	6-28
6.5.4 Strengthening of Logistics Administration	6-30
6.6 Development Strategy 3: Market Expansion	6-31
6.6.1 Basic Concept	6-31
6.6.2 Facilitation of CBTA	6-33
6.6.3 More Improvement of Cross-Border Points	6-34
6.6.4 Liberalization in Logistics Market	6-36
6.7 Actions under Strategies	6-37
 Chapter 7 Regional Logistics Strategy	 7-1
7.1 Overall Strategy in Regional Core Cities	7-1

7.1.1	Logistics Hub System.....	7-1
7.1.2	Regional Core Cities.....	7-1
7.2	Vientiane Capital.....	7-3
7.2.1	Current Economy and Future Development Plan.....	7-3
7.2.2	Logistics in Vientiane.....	7-7
7.2.3	Freight Demand Forecast.....	7-11
7.2.4	Logistics Development Strategy.....	7-13
7.2.5	Vientiane Logistics Park.....	7-14
7.3	Luangnamtha.....	7-19
7.3.1	Current Economy and Future Development Plan.....	7-19
7.3.2	Logistics in Luangnamtha.....	7-20
7.3.3	Freight Demand Forecast.....	7-22
7.3.4	Logistics Development Strategy.....	7-24
7.3.5	Luangnamtha Logistics Park.....	7-24
7.4	Muangxai.....	7-28
7.4.1	Current Economy and Future Development Plan.....	7-28
7.4.2	Logistics in Oudomxay.....	7-30
7.4.3	Freight Demand Forecast.....	7-32
7.4.4	Logistics Development Strategy.....	7-34
7.4.5	Muangxai Logistics Park.....	7-34
7.5	Huoixai.....	7-36
7.5.1	Current Economy and Future Development Plan.....	7-36
7.5.2	Logistics in Bokeo.....	7-38
7.5.3	Freight Demand Forecast.....	7-39
7.5.4	Logistics Development Strategy.....	7-41
7.5.5	Huoixai Logistics Park.....	7-41
7.6	Luangprabang.....	7-43
7.6.1	Current Economy and Future Development Plan.....	7-43
7.6.2	Logistics in Luangprabang.....	7-45
7.6.3	Freight Demand Forecast.....	7-46
7.6.4	Logistics Development Strategy.....	7-48
7.6.5	Luangprabang Logistics Park.....	7-49
7.7	Thakhek.....	7-52
7.7.1	Current Economy and Future Development Plan.....	7-52
7.7.2	Logistics in Khammuann.....	7-53
7.7.3	Freight Demand Forecast.....	7-55
7.7.4	Logistics Development Strategy.....	7-57
7.7.5	Thakhek Logistics Park.....	7-57
7.8	Savannakhet.....	7-61
7.8.1	Current Economy and Future Development Plan.....	7-61
7.8.2	Logistics in Savannakhet.....	7-63
7.8.3	Freight Demand Forecast.....	7-64
7.8.4	Logistics Development Strategy.....	7-66
7.8.5	Savannakhet Logistics Park.....	7-67
7.9	Pakse.....	7-71

7.9.1	Current Economy and Future Development Plan	7-71
7.9.2	Logistics in Pakse	7-73
7.9.3	Freight Demand Forecast.....	7-75
7.9.4	Logistics Development Strategy.....	7-76
7.9.5	Champasack Logistics Park	7-77
Chapter 8	Preliminary Implementation Plan	8-1
8.1	Identification of Projects and Programs	8-1
8.2	Implementation of the Strategy.....	8-3
8.2.1	Preparatory for Implementation of the Strategy	8-3
8.2.2	Implementation of Projects and Programs under the Strategy	8-4
8.2.3	Priority Projects and Programs.....	8-7
8.3	Implementation Cost of National Logistics Strategy	8-7
8.4	Organization and Institutional Arrangements	8-8
8.4.1	Responsible Organization.....	8-8
8.4.2	Strengthening of LIFFA.....	8-12
8.4.3	Organization of Logistics Parks	8-13
8.5	Attraction of Foreign Investment.....	8-13
8.5.1	Transparency in Market	8-14
8.5.2	Provision of Flexibility in Business.....	8-14
8.5.3	Incentives.....	8-14
Chapter 9	Economic Analysis	9-1
9.1	Economic Effects of the National Logistics Strategy	9-1
9.1.1	Direct Effects and Indirect Effects.....	9-1
9.1.2	Direct Effects	9-1
9.1.3	Indirect Effects.....	9-3
9.2	EIRR Analysis	9-4
9.2.1	Basic Assumptions	9-4
9.2.2	Economic Benefit.....	9-5
9.2.3	Economic Cost.....	9-6
9.2.4	Calculation of EIRR	9-6
9.3	Financial Capacity.....	9-8
9.3.1	Government Budget for Transport Sector	9-8
9.3.2	Financial Capacity to Conduct the National Logistics Strategy	9-10
Chapter 10	Conclusions and Recommendations	10-1
10.1	Conclusions.....	10-1
10.2	Recommendations	10-2
10.2.1	Towards Realization of the Strategy	10-2
10.2.2	Implementation of Logistics Park Projects.....	10-3

List of Tables

Table 2.1.1	Routes connecting Big Cities in GMS via Lao PDR	2-1
Table 2.1.2	Socio-economic Conditions in GMS in 2007	2-5
Table 2.1.3	Population, GDP and Trade in GMS in 2006	2-6
Table 2.1.4	Freight Volume by Transport Mode across GMS (million ton-km) in 2004	2-7
Table 2.2.1	Transport Network and Service across GMS.....	2-18
Table 2.2.2	Evaluation of Transport Network and Services across GMS.....	2-21
Table 2.2.3	Time Zones and Population Covered (From Bangkok)	2-23
Table 2.2.4	Time Zones and Population Covered (From Hanoi)	2-23
Table 2.2.5	Time Zones and Population Covered (From Vientiane).....	2-23
Table 2.2.6	Road Length by Pavement Category by Road Classification (Unit: km).....	2-24
Table 2.2.7	Road Length by Pavement Category by Province (Unit: km).....	2-24
Table 2.2.8	Planned Bridges under the 6th Five-Year Plan.....	2-30
Table 2.2.9	Time Zones and Population Covered (From Vientiane).....	2-31
Table 2.2.10	Time Zones and Population Covered (From Savannakhet).....	2-31
Table 2.2.11	Time Zones and Population Covered (From Pakse).....	2-31
Table 2.3.1	Customs Procedure in Lao PDR.....	2-35
Table 2.3.2	Export Customs Procedure in Asian Countries.....	2-36
Table 2.3.3	Import Customs Procedure in Asian Countries.....	2-39
Table 2.3.4	Requirements for Vehicle Registration.....	2-42
Table 2.4.1	Categories of Current Logistics Services in Lao PDR	2-43
Table 2.4.2	Types of Industry and Production by Category	2-44
Table 2.4.3	Current Condition of Logistics Service (Category 1).....	2-45
Table 2.4.4	Current Condition of Logistics Service (Category 2).....	2-46
Table 2.4.5	Current Condition of Logistics Service (Category 3).....	2-47
Table 2.4.6	Current Condition of Logistics Service (Category 4).....	2-47
Table 2.4.7	Current Condition of Logistics Service (Category 5).....	2-48
Table 2.4.8	Current Condition of Logistics Service (Category 6).....	2-49
Table 2.4.9	LPI comparison between Land lock and non-land lock countries	2-49
Table 2.4.10	Correlation Factors between LPI and Economic Performance	2-50
Table 2.4.11	LPI and Socio-Economic conditions in Landlocked Countries	2-50
Table 2.4.12	LPI in GMS countries.....	2-51
Table 2.5.1	Licenses Required for Logistics Business	2-51
Table 2.5.2	Registered Logistics Companies in Lao PDR.....	2-52
Table 2.5.3	Requirements for Cross-Border Transport Operator in CBTA	2-54
Table 2.5.4	Requirements for Transport Business License	2-57
Table 2.5.5	Agreements & Annexes of International Transport.....	2-58
Table 4.1.1	Minimum Wage in Lao and Thailand	4-2
Table 4.1.1	Trade Matrix in GMS (2001)	4-5

Table 4.1.2	Trade Matrix in GMS (2008)	4-5
Table 4.1.3	Rates of Intra-GMS Trade	4-5
Table 4.1.4	Rate of Procurement (Import) from GMS countries in 2001	4-6
Table 4.1.5	Rate of Procurement (Import) from GMS countries in 2008	4-6
Table 4.1.6	Rate of Shipment (Export) to GMSs in 2001	4-6
Table 4.1.7	Rate of Shipment (Export) to GMSs in 2008	4-7
Table 4.2.1	CEPT Progress	4-9
Table 4.2.2	Effect of Cross Border Transport	4-9
Table 4.3.1	Population and Its Annual Average Growth Rate in Census Years	4-14
Table 4.3.2	Future Production of Electricity and Contribution to GDP Growth	4-23
Table 4.3.3	Proportion of Investment to GDP	4-24
Table 4.3.4	Trade Volumes with Major Trade Partners	4-25
Table 4.5.1	Population Projections until 2030	4-30
Table 4.5.2	Urban Population and Rural Population	4-32
Table 4.5.3	Arable Land per Rural Inhabitant in 2004	4-32
Table 4.5.4	Population by Provinces up to 2025	4-33
Table 4.5.5	3 GDP Growth Scenarios until 2030	4-34
Table 4.5.6	Projection of GDP Growth by World Bank	4-34
Table 4.5.7	Projection of Future GDP Growth until 2013 (as of July 2008)	4-35
Table 4.5.8	Investment amounts and Percentage share in GDP	4-36
Table 4.5.9	Change in Sectoral Apportionment of GDP	4-37
Table 4.5.10	Growth Rates of Industries	4-37
Table 4.5.11	Changes in GRDP and GRDP per Capita	4-38
Table 4.6.1	Summary of SWOT Analysis	4-39
Table 5.1.1	Field Survey Locations and Schedule	5-1
Table 5.1.2	Average Daily Truck Volume on Weekdays and Weekends	5-8
Table 5.1.3	Vehicle Classification by Fare Table as of 2008	5-8
Table 5.1.4	Monthly Fluctuation of Traffic Volume and Adjustment Factor for AADT in 2008	5-11
Table 5.1.5	Sample Ratio by Survey Location	5-12
Table 5.1.6	Empty Truck Ratios	5-14
Table 5.1.7	Loading Ratio by Type of Commodity and Truck	5-14
Table 5.1.8	Trade Volume relevant to Lao PDR	5-17
Table 5.1.9	Trade in GMS relevant to Lao PDR	5-18
Table 5.1.10	Import Volume by Customs in Vientiane Capital	5-22
Table 5.1.11	Import Value by Customs in Vientiane Capital	5-22
Table 5.1.12	Estimated Loading Capacity in Weight (ton)	5-23
Table 5.3.1	Vehicle Type in OD Matrices for Traffic Assignment	5-26
Table 5.3.2	Evaluation Index	5-29
Table 5.4.1	Potential Transit Cargo Volumes between Thailand, Northern Vietnam and Yunnan in 2025	5-30

Table 6.1.1	Benefits of Logistics Development	6-3
Table 6.2.1	Trade Volumes among GMS Countries	6-8
Table 6.2.2	Transit Cargo Volumes from GMS Countries through Lao PDR	6-8
Table 6.2.3	Numerical Development Targets (Trade Volume of Manufactured Goods)	6-12
Table 6.2.4	Numerical Development Targets (Estimated Rail Share in Vientiane Capital)	6-12
Table 6.2.5	Numerical Development Targets (Return Haulage of Manufactured Goods).....	6-13
Table 6.2.6	Numerical Target.....	6-13
Table 6.4.1	Distance and Time on North-South and East-West Corridors in GMS.....	6-16
Table 6.4.2	International Logistics Hub	6-19
Table 6.4.3	Hubs and their Functions.....	6-20
Table 6.4.4	Hubs and their Functions.....	6-21
Table 7.2.1	Summary of Total Area required for VLP.....	7-17
Table 7.2.2	VLP Project Cost.....	7-18
Table 7.3.1	Annual Handling Volume in 2025.....	7-26
Table 7.3.2	Summary of Total Area required for LNLP	7-27
Table 7.3.3	Summary Project Cost of LNLP	7-28
Table 7.4.1	Annual Handling Volume in 2025.....	7-36
Table 7.5.1	Annual Handling Volume in 2025.....	7-43
Table 7.6.1	Annual Handling Volume in 2025.....	7-50
Table 7.6.2	Summary of Total Area required for LPLP	7-51
Table 7.6.3	Summary Project Cost of LNLP	7-52
Table 7.7.1	Annual Handling Volume in 2025.....	7-59
Table 7.7.2	Summary of Total Area required for TLP	7-60
Table 7.7.3	Summary Project Cost of LNLP	7-61
Table 7.8.1	Annual Handling Volumes in 2015 and 2025.....	7-69
Table 7.8.2	Summary of Total Area required for SLP.....	7-70
Table 7.8.3	SLP Project Cost.....	7-70
Table 7.9.1	Annual Handling Volumes in 2015 and 2025.....	7-79
Table 7.9.2	Summary of Total Area required for CLP	7-80
Table 7.9.3	CLP Project Cost.....	7-81
Table 8.3.1	Implementation Cost of National Logistics Strategy	8-8
Table 8.4.1	Ministerial Roles and Responsibilities in Logistics Service/Infrastructure Development	8-10
Table 8.4.2	Tasks of Logistics Division.....	8-12
Table 8.4.3	Committees within LIFFA	8-13
Table 9.2.1	Annual Economic Benefits of Logistics Hubs in 2025, 2035 and 2045	9-5
Table 9.2.2	Economic Benefits of Improvement of Transport Efficiency in 2025.....	9-5
Table 9.2.3	Economic Benefits of International Routes Improvement Project	9-6
Table 9.2.4	Calculation of EIRR.....	9-7

Table 9.3.1 Ministerial Budget of MPWT and Proportion in National Budget (Unit: Billion Kip)..... 9-8

Table 9.3.2 Expenditure of MPWT by Major Departments during Period 2001-2005 (Unit: Million Kip) 9-8

Table 9.3.3 Revenue for Road Maintenance Fund..... 9-9

Table 9.3.4 Budget for Road Maintenance..... 9-9

List of Figures

Figure 1.1.1	Overall Study Schedule	1-3
Figure 2.1.1	Distances and Travel Times between Major Cities in GMS	2-2
Figure 2.1.2	Merchandise Exports across GMS during 1990-2007	2-3
Figure 2.1.3	Direction of Trade across GMS (Export).....	2-4
Figure 2.1.4	Merchandise Imports across GMS during 1990-2007	2-4
Figure 2.1.5	Direction of Trade across GMS (Import).....	2-5
Figure 2.1.6	GDP by Sector in GMS in 2007	2-6
Figure 2.1.7	Population, GDP and Trade in GMS (Unit: USD million) in 2006.....	2-7
Figure 2.1.8	Freight Traffic by Transport Mode across GMS in 2004	2-8
Figure 2.1.9	Modal Share in Freight Traffic across GMS in 2004.....	2-8
Figure 2.1.10	Freight Traffic by Transport Mode during 2000-2007	2-9
Figure 2.1.11	Commodity-wise Apportionment of Imports at Cross-Border Points (Tonnage 2007/08)	2-10
Figure 2.1.12	Commodity-wise Apportionment of Imports at Cross-Border Points (Value 2007/08).....	2-11
Figure 2.1.13	Commodity-wise Apportionment of Exports at Cross-Border Points (Tonnage 2007/08)	2-12
Figure 2.1.14	Commodity-wise Apportionment of Exports at Cross-Border Points (Value 2007/08).....	2-13
Figure 2.1.15	Commodity-wise Apportionment of Exports at Cross-Border Points (Tonnage 2007/08)	2-14
Figure 2.1.16	Traffic Volume (Unit: PCU/6hours) in 2008	2-15
Figure 2.1.17	Traffic Volume (Unit: Truck/6hours) in 2008	2-16
Figure 2.2.1	GMS Transport Corridors.....	2-17
Figure 2.2.2	Road Network by Topography in GMS.....	2-19
Figure 2.2.3	Road Network by Road Condition in GMS.....	2-20
Figure 2.2.4	Zones by Travel Time (Up-left: From Bangkok, Up-right: Hanoi and Down: Vientiane)	2-22
Figure 2.2.5	Road Network by Pavement Type	2-25
Figure 2.2.6	Road Network by Road Condition.....	2-26
Figure 2.2.7	Bridge's Maximum Axle Load	2-27
Figure 2.2.8	Zones by Travel Time (Up-left: From Vientiane, Up-right: Savannakhet and Down: Pakxe) ...	2-31
Figure 2.2.9	Monthly Traffic Volume by Vehicle Type.....	2-32
Figure 2.3.1	Natyuey Customs (Substantial Main Office for Boten Checkpoints).....	2-35
Figure 2.3.2	Export Procedures in Lao PDR	2-36
Figure 2.3.3	Import Procedures in Lao PDR.....	2-38
Figure 2.6.1	Assessment of Current Problems of Logistics System in Lao	2-62
Figure 3.2.1	Transport Network in Indochina.....	3-17
Figure 3.2.2	Trunk Road Network in Yunnan	3-24
Figure 4.1.1	Example of International Specialization between Lao and Thailand.....	4-3
Figure 4.1.2	Necessary Condition to set up New Business Establishments in Lao PDR	4-3
Figure 4.2.1	Overall Schedule of CEPT	4-8

Figure 4.3.1	Population Growth Rate by Provinces 1995-2005.....	4-15
Figure 4.3.2	Urbanization Ratio in 2005.....	4-16
Figure 4.3.3	GDP Growth Rate and Contribution of Industries.....	4-17
Figure 4.3.4	Change of Industrial Composition.....	4-17
Figure 4.3.5	GRDP by Provinces in 2007 (Nominal).....	4-18
Figure 4.3.6	Production Volume of Rice since 1995.....	4-19
Figure 4.3.7	Rice Production Volume by Province in 2007.....	4-19
Figure 4.3.8	Locations of Level 1 and Level 2 Business Enterprises.....	4-21
Figure 4.3.9	Production of Gold and Copper.....	4-22
Figure 4.3.10	Major Mining Sites.....	4-22
Figure 4.3.11	Number and Amount of FDI.....	4-24
Figure 4.3.12	Merchandise Trade and Its Major Items.....	4-25
Figure 4.4.1	Assumptions on Future Socio-Economic Conditions of Lao PDR.....	4-27
Figure 4.4.2	Assumptions on Future Situation regarding Logistics in Lao PDR.....	4-29
Figure 4.5.1	Population Projection Scenarios.....	4-31
Figure 4.5.2	Change of GDP per Capita in the 3 Scenarios.....	4-35
Figure 5.1.1	Field Survey Locations.....	5-2
Figure 5.1.2	Results of Vehicle Count Survey.....	5-3
Figure 5.1.3	Vehicle Composition by Survey Location.....	5-4
Figure 5.1.4	Hourly Fluctuation (Average for 3 Weekdays).....	5-5
Figure 5.1.4	Hourly Fluctuation (Average for 3 Weekdays) cont'd.....	5-6
Figure 5.1.5	Hourly Fluctuation (Average for Saturday and Sunday).....	5-7
Figure 5.1.6	Locations of Toll Gates.....	5-9
Figure 5.1.7	Traffic Volume Fluctuation by Vehicle Class in 2008.....	5-10
Figure 5.1.8	Ratios of Average Monthly Traffic Volume in May for the 10 Available Toll Gates.....	5-10
Figure 5.1.9	Monthly Fluctuation by Vehicle Class in 2008.....	5-11
Figure 5.1.10	Truck OD based on Roadside Interview Survey (vehicle / 3 weekdays).....	5-13
Figure 5.1.11	Number of Trucks by Commodity Carried (Domestic).....	5-15
Figure 5.1.12	Number of Trucks by Commodity Carried (International).....	5-15
Figure 5.1.13	Type of Packaging by Commodity (Vehicle / 3 weekdays).....	5-16
Figure 5.1.14	Declaration-based Import / Export Volume.....	5-17
Figure 5.1.15	Commodity Composition of Imports to Lao PDR from GMS Countries.....	5-18
Figure 5.1.16	Commodity Composition of Exports from Lao PDR to GMS Countries.....	5-19
Figure 5.1.17	Commodity Composition of Transit Freight through Lao PDR from GMS Countries.....	5-19
Figure 5.1.18	Trade Volume by Province in Lao PDR.....	5-20
Figure 5.1.19	Imports by Commodity and Province (Custom).....	5-21
Figure 5.1.20	Exports by Commodity and Province (Custom).....	5-21
Figure 5.2.1	Work Flow for Freight Demand Modeling and Forecast.....	5-24
Figure 5.3.1	Future Road Network in 2015.....	5-25
Figure 5.3.2	Future Road Network in 2025.....	5-25

Figure 5.3.3	Travel Time from Vientiane Capital to Provincial Center	5-26
Figure 5.3.4	Truck Assignment Results for 2009	5-27
Figure 5.3.5	Truck Assignment Results for 2025	5-28
Figure 5.3.6	Truck Assignment of 2025 Volume on 2009 Network.....	5-29
Figure 6.1.1	Roles of Logistics in the Socio-Economic Development Process	6-2
Figure 6.1.2	Flow of Ripple Benefits of Logistics Development	6-4
Figure 6.1.3	Identification of Issues in Logistics Development.....	6-5
Figure 6.2.1	Development Strategy	6-9
Figure 6.2.2	Shift from Vicious Cycle to Positive Cycle with Development Strategies.....	6-10
Figure 6.2.3	Trade Volumes in GMS (Manufactured Goods, 00 ton/ year) in 2009 and 2025.....	6-11
Figure 6.2.4	Trade Volumes to/from Vientiane (Manufactured Goods, 00 tons/ year) in 2025	6-13
Figure 6.3.1	Development Scenario	6-15
Figure 6.4.1	Times and Distances on North-South and East-West Corridors in GMS.....	6-17
Figure 6.4.2	Structure of Strategy 1	6-18
Figure 6.4.3	Locations of Logistics Parks.....	6-22
Figure 6.4.4	Logistics Routes to be Improved under the Strategy.....	6-23
Figure 6.7.1	Actions under National Logistics Strategy	6-38
Figure 7.1.1	Concept of Spatial Structure	7-3
Figure 7.2.1	Land use and Urban Structure of Vientiane	7-5
Figure 7.2.2	Network and Land Use Concept in Vientiane Urban Planning.....	7-7
Figure 7.2.3	Current Freight Generation Volume	7-8
Figure 7.2.4	Contribution of Domestic Cargo to Provincial Freight Production (left) and Attraction (right)	7-9
Figure 7.2.5	Proportion of Trade with Thailand in Provincial Freight Production (left) and Attraction (right).....	7-9
Figure 7.2.6	Proportion of Trade with Vietnam in Provincial Freight Production (left) and Attraction (right)	7-10
Figure 7.2.7	Proportion of Trade with PRC in Provincial Freight Production (left) and Attraction (right).....	7-10
Figure 7.2.8	Current Share of Freight from / to Vientiane Capital in Domestic Generation.....	7-11
Figure 7.2.9	Forecasted Freight Generation in Vientiane Capital.....	7-11
Figure 7.2.10	Forecasted Freight Composition in Vientiane Capital.....	7-12
Figure 7.2.11	Forecasted Freight Commodity Apportionment in Vientiane Capital.....	7-12
Figure 7.2.12	Forecasted Freight Distribution	7-13
Figure 7.2.13	Alternative Options for Development of Vientiane Logistics Park.....	7-15
Figure 7.2.14	Layout Plan of VLP	7-17
Figure 7.2.15	Implementation Schedule.....	7-18
Figure 7.3.1	Current Freight Generation Volume	7-21
Figure 7.3.2	Current Share of Domestic Freight Generated from / to Luangnamtha	7-22
Figure 7.3.3	Forecasted Freight Generation in Luangnamtha	7-22
Figure 7.3.4	Forecasted Freight Composition in Luangnamtha.....	7-23
Figure 7.3.5	Forecasted Freight Commodity Apportionment in Luangnamtha.....	7-23
Figure 7.3.6	Forecasted Freight Distribution	7-24

Figure 7.3.7	Location of the Logistics Park in Luangnamtha.....	7-25
Figure 7.3.8	Layout Plan of LNLP	7-27
Figure 7.4.1	Current Freight Generation Volume	7-31
Figure 7.4.2	Current Share of Freight from / to Oudomxay in Domestic Generation.....	7-32
Figure 7.4.3	Forecasted Freight Generation in Oudomxay	7-32
Figure 7.4.4	Forecasted Freight Composition in Oudomxay	7-33
Figure 7.4.5	Forecasted Freight Commodity Apportionment in Oudomxay	7-33
Figure 7.4.6	Forecasted Freight Distribution	7-34
Figure 7.4.7	Location of the Logistics Park in Muangxai.....	7-35
Figure 7.5.1	Current Freight Generation Volume	7-38
Figure 7.5.2	Current Share of Freight from / to Bokeo in Domestic Generation.....	7-39
Figure 7.5.3	Forecasted Freight Generation in Bokeo	7-39
Figure 7.5.4	Forecasted Freight Composition in Bokeo	7-40
Figure 7.5.5	Forecasted Freight Commodity Apportionment in Bokeo	7-40
Figure 7.5.6	Forecasted Freight Distribution	7-41
Figure 7.5.7	Location of the Logistics Park in Huoiuxai	7-42
Figure 7.6.1	Current Freight Generation Volume	7-45
Figure 7.6.2	Current Share of Freight from / to Luangprabang in Domestic Generation.....	7-46
Figure 7.6.3	Forecasted Freight Generation in Luangprabang.....	7-46
Figure 7.6.4	Forecasted Freight Composition in Luangprabang	7-47
Figure 7.6.5	Forecasted Freight Commodity Apportionment in Luangprabang	7-47
Figure 7.6.6	Forecasted Freight Distribution	7-48
Figure 7.6.7	Location of the Logistics Park in Luangprabang	7-49
Figure 7.6.8	Layout Plan of LPLP	7-51
Figure 7.7.1	Current Freight Generation Volume	7-54
Figure 7.7.2	Current Share of Freight from / to Khammuane in Domestic Generation	7-55
Figure 7.7.3	Forecasted Freight Generation in Thakhek.....	7-55
Figure 7.7.4	Forecasted Freight Composition in Thakhek.....	7-56
Figure 7.7.5	Forecasted Freight Commodity Apportionment in Thakhek	7-56
Figure 7.7.6	Forecasted Freight Distribution.....	7-57
Figure 7.7.7	Location of the Logistics Park in Thakhek	7-58
Figure 7.7.8	Layout Plan of TLP	7-60
Figure 7.8.1	Current Freight Generation Volume	7-63
Figure 7.8.2	Current Share of Freight from / to Savannakhet in Domestic Generation	7-64
Figure 7.8.3	Forecasted Freight Generation in Savannakhet	7-64
Figure 7.8.4	Forecasted Freight Composition in Savannakhet.....	7-65
Figure 7.8.5	Forecasted Freight Commodity Apportionment in Savannakhet	7-65
Figure 7.8.6	Forecasted Freight Distribution	7-66
Figure 7.8.7	Alternative Locations for the Logistics Park in Savannakhet.....	7-67
Figure 7.8.8	Location of the Logistics Park in Savannakhet (Site B).....	7-68
Figure 7.8.9	Layout Plan of SLP	7-69

Figure 7.8.10	Implementation Schedule.....	7-71
Figure 7.9.1	Current Freight Generation Volume	7-74
Figure 7.9.2	Current Share of Freight from / to Champasak in Domestic Generation.....	7-74
Figure 7.9.3	Forecasted Freight Generation in Champasak.....	7-75
Figure 7.9.4	Forecasted Freight Composition in Champasak	7-75
Figure 7.9.5	Forecasted Freight Commodity Apportionment in Champasak.....	7-76
Figure 7.9.6	Forecasted Freight Distribution.....	7-76
Figure 7.9.7	Alternative Locations for the Logistics Park in Champasak	7-78
Figure 7.9.8	Layout Plan of CLP	7-80
Figure 7.9.9	Implementation Schedule.....	7-81
Figure 8.1.1	Projects and Programs of National Logistics Strategies.....	8-1
Figure 8.2.1	Overall Development Phasing	8-5
Figure 8.2.2	Implementation Schedule (Preliminary).....	8-6
Figure 8.4.1	Organizational Structure (Ministry of Public Works and Transport).....	8-9
Figure 8.4.2	Logistics Sub-Committee	8-11
Figure 8.4.3	Logistics Division (tentative) in DOT	8-12
Figure 9.1.1	Direct Effects of National Logistics Strategy	9-2
Figure 9.1.2	Indirect Effects of National Logistics Strategy.....	9-4

List of Abbreviation

Abbreviations	Name
AADT	Annual Average Daily Traffic
ADB	Asian Development Bank
AEM	ASEAN Economic Ministers
AFTA	ASEAN Free Trade Agreement
AH	Asian Highway
AIA	ASEAN Investment Agreement
ASEAN	Association of Southeast Asian Nations
ASW	ASEAN Single Window
CBTA	Cross Border Transport Agreement
CCA	Common Control Area
CEPT	Common Effective Preferential Tariff
CIQ	Custom, Immigration and Quarantine
CLMV	Cambodia, Lao PDR, Myanmar and Vietnam
CLP	Champasack Logistics Park
CO2	Carbon Dioxide
CST	Council of Sciences and Technology
CY	Container Yard
DBST	Double Bituminous Surface Treatment
DCA	Department of Civil Aviation, MPWT
DHUP	Department of Housing and Urban Planning, MPWT
DIC	Department of Industry and Commerce
DOI	Department of Inspection, MPWT
DOP	Department of Personnel, MPWT
DOR	Department of Roads, MPWT
DOT	Department of Transport
DOW	Department of Waterway and Public Works, MPWT
DPC	Department of Planning and Cooperation, MPWT
DWT	Dead Weight Tons
EDI	Electronic Data Interchange
EIA	Environment Impact Assessment
EIRR	Economic Internal Rate of Return
EU	European Union
EWEC	East West Economic Corridor
EXIM	Export and Import
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FEU	Forty-foot Equivalent Unit
FIRR	Financial Internal Rate of Return
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GML	General Exception List
GMS	Great Mekong Sub region
GNI	Gross National Income
GRDP	Gross Regional Domestic Product

Abbreviations	Name
GSP	Generalized System of Preference
HSL	High Sensitive List
HXLP	Huoxiai Logistics Park
ICD	Inland Container Depot
ICT	Information and Communication Technology
IEE	Initial Environmental Evaluation
IETA	Industrial Estate Authority Thailand
IL	Inclusive List
IMF	International Monetary Fund
IRR	Internal Rate of Return
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
JIT	Just In Time
LAA	Lao Airport Authority
LAK	Laos Kip
LCL	Less than Container Load
LDC	Least Developed Countries
LECS	Lao Expenditure & Consumption Survey
LIFFA	Lao International Fright Forwarders Association
LNLP	Luangnamtha Logistics Park
LNLS	Laos National Logistics Strategy
LPI	Logistics Performance Index
LPLP	Luangprabang Logistics Park
MDG	Millennium Development Goals
MOF	Ministry of Finance
MOIC	Ministry of Industry and Commerce
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
MXLP	Muangxai Logistics Park
NGPES	National Growth and Poverty Eradication Strategy
NIC	Newly Industrializing Country
NLS	National Logistics Strategy
NR	National Road
NRAL	National Railway Authority of Lao PDR
NSEC	North South Economic Corridor
NSEDP	National Socio-Economic Development Plan
NSW	National Single Window
O&M	Operation and Maintenance
OD	Origin and Destination
ODA	Official Development Assistance
OTP	Office of Transport and Traffic Policy and Planning, Thailand
PCU	Passenger Car Unit
PMO	Prime Minister Office
PRC	People's Republic of China
PTA	Provincial Truck Association
PTI	Public Work and Transportation Institute

Abbreviations	Name
RAP	Resettlement Action Plan
RMF	Road Maintenance Fund
RMP	Road Maintenance Program
SC	Steering Committee
SCF	Standard Conversion Factor
SEA	South East Asian
SEC	Southern Economic Corridor
SEZ	Special Economic Zone
SIDA	Swedish International Development Cooperation Agency
SL	Sensitive List
SLP	Savannakhet Logistics Park
SLRTE	State Land River Transport Enterprise
SME	Small and Medium Enterprises
SRT	State Railway of Thailand
STEA	Science, Technology and Environmental Agency
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TEL	Temporary Exception List
TEU	Twenty-foot equivalent unit
TFR	Total Fertility Rate
TLP	Thakhek Logistics Park
TSS	Transport Sector Strategy
TSSS	Transport Sector Strategy Study
UN	United Nation
USD	United States Dollar
VLP	Vientiane Logistics Park
VOC	Vehicle Operation Cost
WB	World Bank
WTO	World Trade Organization

CHAPTER 1 INTRODUCTION

1.1 Study Background and Objectives

1.1.1 Progress of Regional Economic Cooperation in ASEAN and GMS

Lao PDR is a land locked country surrounded by five neighbouring countries: Thailand, Cambodia, Vietnam, Myanmar and China (Yunnan Province and Gwangxi-Chiwan Province). This characteristic of a “land locked country” has traditionally been a significant constraint in terms of economic development of Lao PDR for a long time. However, there have been favourable changes in international trade and logistics, which may greatly contribute to facilitation of movement of people and goods and promotion of investment within ASEAN and the GMS (Greater Mekong Sub-region). One of the changes was the implementation of the Cross Border Transport Agreement (CBTA) under GMS and bi-lateral agreements on cross border facilitation which would enhance more efficient and reliable transport connecting Lao PDR with ASEAN/GMS markets and international ports in Indochina. The other change was the advancement of the ASEAN Free Trade Agreement (AFTA), which would in principle remove custom duties within ASEAN countries. This will greatly contribute to drastic changes in trade to/from/through Lao PDR by promoting higher mobility of goods and people and investment in the ASEAN region.

1.1.2 Completion of Transport Network in GMS

After establishment of the GMS in 1992, major international highways in the GMS have been intensively developed with financial assistance mainly from ADB and the Japanese Government. In particular, 3 economic corridors, the East-West Corridor, North-South Corridor and South Corridor, have been developed, giving the highest priority to the integration of regional economy by promoting trade and transport.

In regard to the development of highways, Lao PDR has also intensively developed international highways and major domestic highways such as NR13 (which is designated as Asian Highway Route 12 (AH-12), NR-1 (AH-13), NR-3 and NR-8 (both in AH-15) and NR-9 (AH-16). This highway network drastically improves accessibility to foreign markets and international ports. Accordingly, Lao PDR developed its geographical potential from “land locked country” to “land linked country” under liberalization of movement of goods, peoples and investment within the GMS.

1.1.3 Enhancement of Development Potential

The socio-economy of Lao PDR has gradually changed from a traditional agro-based economy to

an urbanized and industrialized economy. In particular, the development facets mentioned below seem to be seeds of potential economic development in Lao PDR, which may greatly affect the development approach of the national logistics system.

(1) Industrial Development Potential

Industrial development potential is enhanced by relatively lower production costs compared to those in Thailand and Vietnam. Due to rise in production costs in Thailand and Vietnam, great potential to produce labor-intensive manufacturing goods is observed at low labor cost countries such as Lao PDR and Cambodia.

(2) Mineral and Agricultural Development Potential

Currently, an abundance of mineral resources have been discovered in Lao PDR such as gold, copper, bauxite and gypsum. On the other hand, the potential of high value-added agricultural products such as cash crops and agro-processing products have been promoted by adopting “One Village (district) - One Product” approach. Reliable and competitive logistics is one of the key pre-requisites to effectively develop the mineral and agricultural development potential.

(3) Urban Development Potential

Lao PDR is currently experiencing a rapid population increase at an annual growth rate of over 2%. This contributes to the expanding urban population, which already accounts for 27% of the total national population. Continuous urbanization will increase the urban economy and change the life style in the urban population.

1.1.4 Study Rationale

As mentioned above, conditions surrounding Lao logistics have drastically changed due to globalization in trade and transport and regional economic integration in the GMS/ASEAN region. In addition, additional development potential generates various business opportunities in Lao PDR. It is consequently said that both external and internal favorable changes have contributed to Lao PDR’s shift from a “land locked country” to a “land linked country”. In this regard, Lao PDR faces a great opportunity to encourage international logistics business. Taking cognizance of the afore-mentioned situation, the Lao Government has embraced development of a “land linked country” as a major policy essential to the country’s aspirations to graduate from a low developed country into a developed one. The action plan to foster this development is contained in Lao PDR’s sixth 5-year plan.

However, there are still several constraints in logistics in Lao PDR, in particular the insufficient logistics system. The current logistics system in Lao PDR still falls below acceptable levels in terms of efficiency, reliability and cost due to less than ideal performance by an immature domestic logistics industry. This ineffective logistics system will be a further constraint to the realization of development in Lao PDR.

In this regard, a national logistics strategy is required to determine development strategy and action for the logistics system in Lao PDR. Besides, the logistics parks in major urban areas such as Vientiane, Savannakhet and Pakse will be key logistics facility development projects in the realization of the national logistics strategy.

1.1.5 Study Objectives

The overall objectives of the Study are to improve the international and domestic logistics system in Lao PDR. The major focal points of this particular study are:

- To prepare national logistics strategy, consisting of a national logistics development plan, logistics demand forecast, projects and programs in major cities through careful analyses on transport networks, logistics demand, procedure and relevant legal frameworks in trade and cross border and regional economic development.
- To carry out a feasibility study on the logistics parks in Vientiane Savannakhet and Pakse which will become the hubs of logistic activities and network.
- To encourage capacity development of persons in the logistics industry in Lao PDR

1.1.6 Study Area

The national logistics strategy will cover the entire country, however, special attention shall be paid to the major regional cities such as Vientiane, Savannakhet, Pakse (Champasack), Thakhek (Khammuane), Luangprabang, Bokeo, Luangnamutha and Muang Xai (Oudomxay), which are supposed to become logistics hubs in Lao PDR. Meanwhile, a feasibility study on logistics parks focuses on Vientiane, Savannakhet and Pakse.

1.1.7 Study Schedule

The Study will take 23 months to complete; it commenced in March 2009 and terminates in January 2011. The Study consists of two major outputs: formulation of national logistics strategy (Task 1) and feasibility study on logistics parks in Vientiane and Savannakhet (Task 2). Task 1 will take 10 months from the commencement of the Study, while Task 2 will start from September 2010 and take 14 months to complete. The overall study schedule is shown in Figure 1.1.1.

Year	2009												2010											
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
Phase 0: Preparatory work in Japan																								
Phase 1: Planning of national logistics strategy																								
Phase 2: F/S on logistics park																								
Phase 3: Study completion work in Japan																								
Deliverables	▲					▲					▲									▲		▲		
	IC/R					P/R					IT/R									DF/R		F/R		

Source: JICA Study Team

Figure 1.1.1 Overall Study Schedule

1.2 Progress of the Study

1.2.1 Inception Report and Steering Committee Meeting

The Ministry of Public Works and Transport (MPWT) assigned the existing “National Transport Facilitation Committee” to supervise this study rather than organizing a new committee to carry out the task. Prior to the steering committee meeting, the Study Team distributed an inception report to the committee members in April 2009. The steering committee was then held on 21st April, 2009 for the main purpose of discussing the inception report. The steering committee accepted the inception report with the following comments:

- A logistics park in Champasack should be included as a target of the feasibility study since Champasack is increasingly important due to opening of international border with Cambodia and increase in export volume through Champasack.
- Seminars in Thailand and Vietnam should be postponed until the Lao Government makes a decision and the timing of which would be at the end of the study.
- Workshops and training for capacity development of government staff as well as study programs in logistics should be taken into account in the course of the study.

1.2.2 Progress Report and Steering Committee Meetings

The Study Team submitted Progress Report at the beginning of September 2009, and the 2nd steering committee was held on 7th September. The steering committee accepted the progress report with the following comments:

- The committee suggested that the study should cover not only road transport but also air and water transport. However, road transport is a major concern for Lao PDR as a land-link country, and should be the top priority for this study. The study team will start analysis on air and inland water transport, and prepare strategies in the Interim Report which will be prepared in December. .
- In regard to logistics development strategies in 7 major cities, the committee insisted that Luangnamtha should be replaced with Oudomxay because Oudomxay is at a crossroads of trunk road networks in the northern region and is connected to Thailand, China and Vietnam. JICA Study Team replied that the opinion would be conveyed to JICA Headquarters.
- As pointed out in the previous committee meeting, human resource development of public officials is as important as human resource development in private sector in terms of homogeneous institutional setting on logistics in the nation. In this context, the committee requested JICA Study Team to prepare action plans on training programs in logistics for public officials.
- The committee suggested that the study team consider not only the economic corridor authorized by ADB but also the economic corridor which is important for Lao PDR, such as connection from Saravane and Attapeu to Cambodia and Vietnam.

1.2.3 Interim Report and Steering Committee Meeting

The Study Team submitted Interim Report in the beginning of January 2010, and the 3rd steering committee was held on 21st January. The steering committee accepted the progress report with the following comments:

- Based on the demand forecast, the volume of export/import cargos through the Friendship Bridge will be tripled by the year 2025. The capacity of the Friendship Bridge will be over-saturated by that time and the alternative route (another bridge) crossing the Mekong River should be well considered by the Government of Lao PDR.
- The detailed design of the railway extension project was drafted in the Interim Report (January 2010) and will be finalized by March 2010. The logistics park which JICA recommended, is located in the east side of the future railway alignment and the other one railway study team recommended is in the west side. JICA and railway study team should sit together to confirm the optimum location for development of the Vientiane Logistics Park. Considering the recommendations made by the consultants, the Prime Minister will make a final decision.
- Special and urgent cargos, such as medicine and vaccination, should be well considered when designing the facility and planning operation of the Vientiane Logistics Park. One of the options is to reduce the charge for those special and urgent cargos, when transported through the Vientiane Logistics Park.
- The Vientiane Logistics Park should provide a facility to handle the petroleum.
- MPWT will coordinate related ministries and authorities for smooth implementation of the Vientiane Logistics Park. It is ideal that the government of Japan could announce a support to the Vientiane Logistics Park when the Prime Minister of Lao PDR visits Japan in March 2010.

1.2.4 Draft Final Report and Steering Committee Meeting

The Study Team submitted Draft Final Report in late October 2010, and the 4th steering committee was held on 2nd November. The steering committee accepted the progress report with the following major comments:

(1) National Logistics Strategy

- It is necessary to mention that the project cost for road projects include only improvement of roads in major corridors which enable large vehicles to drive effectively in the national logistics strategy. Therefore, the cost is lower than other infrastructure projects such as construction of new roads.
- Market expansion of the logistics sector is not easy. However, due to a geographical advantage, Lao PDR has an opportunity to become a center of logistics service for ASEAN countries. For this purpose, further development in logistics sector is necessary such as establishment of market alliance and among local and international investors.
- Development of logistics parks on major corridors in Lao PDR enables cargo flow which are directly linked among Thailand, China and Vietnam to stopover at these parks and receive benefit and value added services. In accordance with increase of handling commodities in future, such dynamic cargo flow will contribute to further economic development. Providing value-added services at the logistics parks might cause to

increase job opportunities. Therefore, Lao PDR Government needs to support the logistics industry in terms of infrastructure improvement and formulation of flexible government services.

- Final Report will show increased amount of cargo volume in Lao PDR if the Custom Department provides the latest data.

(2) Logistics Development Projects at Vientiane, Savannakhet and Champasack

- Design of the Vientiane Logistics Park (VLP) is prepared under a precondition of future expansion in accordance with increase of cargo volume, in particular, due to development of the Vientiane Industrial Park (VIP).
- Any ministries related to industry and logistics sector could be a project owner of the VLP. Since development of the VLP will make a significant impact on the national logistics, ministry or the same level of the government organization would be preferred.

CHAPTER 2 LOGISTICS IN LAO PDR

2.1 Freight Movement

2.1.1 Geographical Location of Lao PDR in GMS

Greater Mekong Sub-region (GMS) consists of 6 countries, namely: Cambodia, China (Yunnan and Guangxi-Chiwan Provinces), Myanmar, Thailand, Vietnam and Lao PDR. Lao PDR is geographically located in the center of the GMS region with road access to all the surrounding GMS countries.

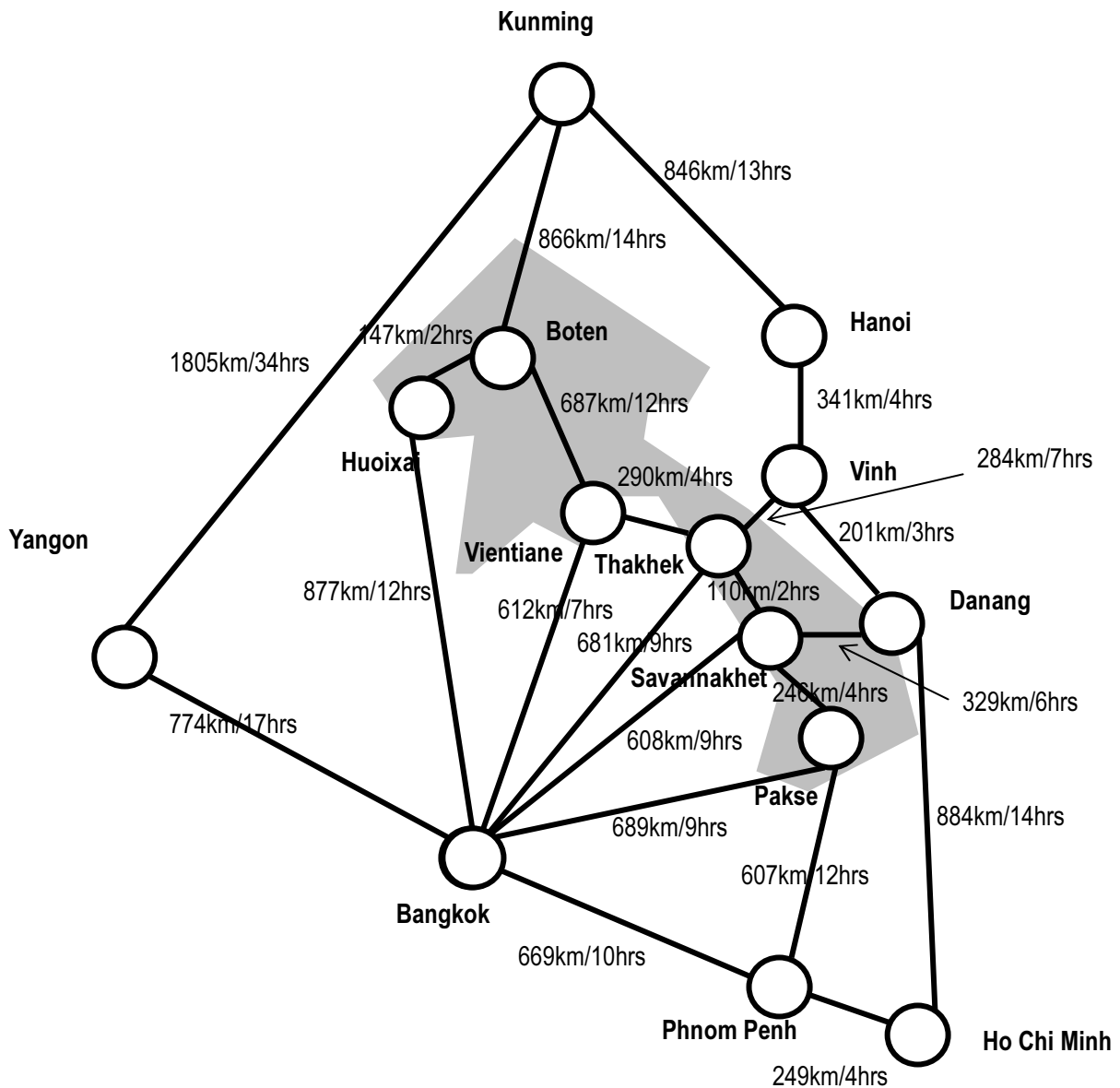
Figure 2.1.1 illustrates distances and travel times among major cities in the GMS. It should be noted that the travel times in the figure are measured from road condition and geographic condition in 2009. The findings from these distances and travel times are summarized below.

- Lao PDR provides alternative international corridors connecting Bangkok and Kunming, for example, via Huoixai and via Vientiane. When the Third Mekong Bridge is constructed at Thakhek, it will provide 2 alternative corridors connecting Bangkok and Hanoi: one via Savannakhet and the other via Thakhek in near future.
- Due to the geographical conditions (i.e. there are many mountainous areas) and poor road surface condition, the service of the road transport in Lao PDR is less efficient than that of other countries such as Thailand and Vietnam.

Table 2.1.1 Routes connecting Big Cities in GMS via Lao PDR

Section	Shortest Route Route and Distance	Alternative Route Route and Distance
Bangkok -Hanoi	NR-12 Route (Bangkok-Thakhek-Vinh-Hanoi) 1,306 Km	NR-9 Route (Bangkok-Savannakhet-Vinh-Hanoi) 1,479 Km
Bangkok -Kunming	NR-3 Route (Bangkok-Huoixai-Boten-Kunming) 1,890 Km	NR-13 Route (Bangkok-Vientiane-Boten-Kunming) 2,165 Km

Source: JICA Study Team



Source: JICA Study Team

Figure 2.1.1 Distances and Travel Times between Major Cities in GMS

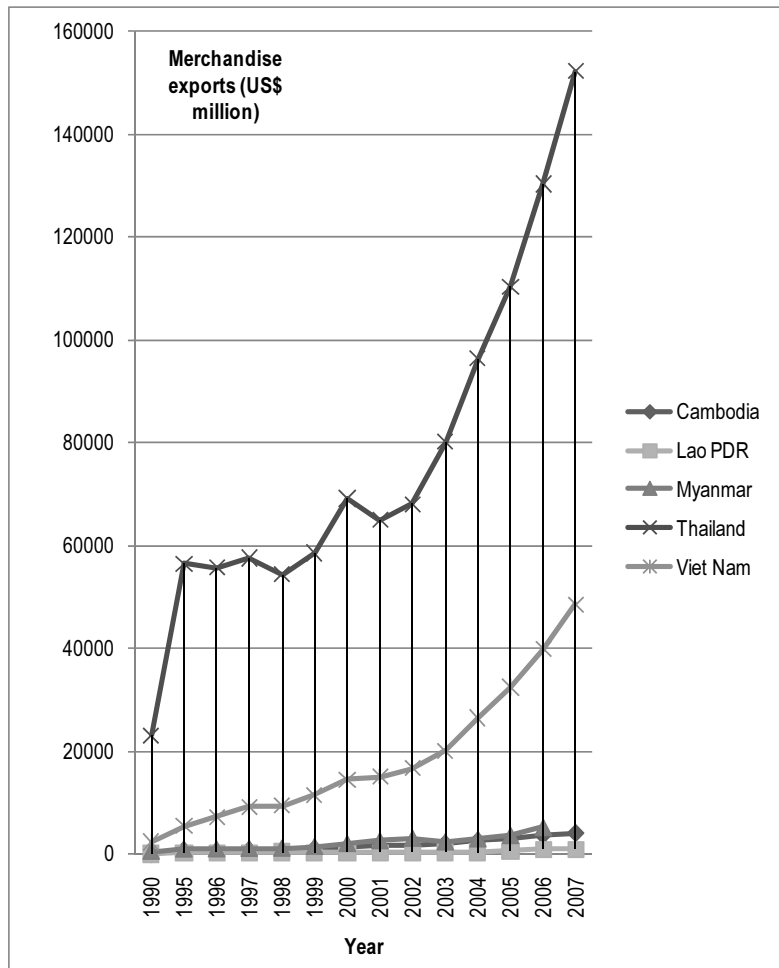
2.1.2 Transport Service Level in GMS

(1) Trend in Trade across GMS

Trade in the GMS countries has expanded significantly in the last decade mainly due to rapid expansion in manufacturing exports. From 1995 to 2007, the growth rate of merchandized exports in the GMS averaged 11% per annum, while that of merchandized imports was recorded at 9% per annum. Looking at trade by country, Thailand is the largest exporter/importer amongst GMS countries, with the exception of China, and accounts for 72% of the merchandized exports and 71% of the imports in the region. Following Thailand, Vietnam is the second largest country in both

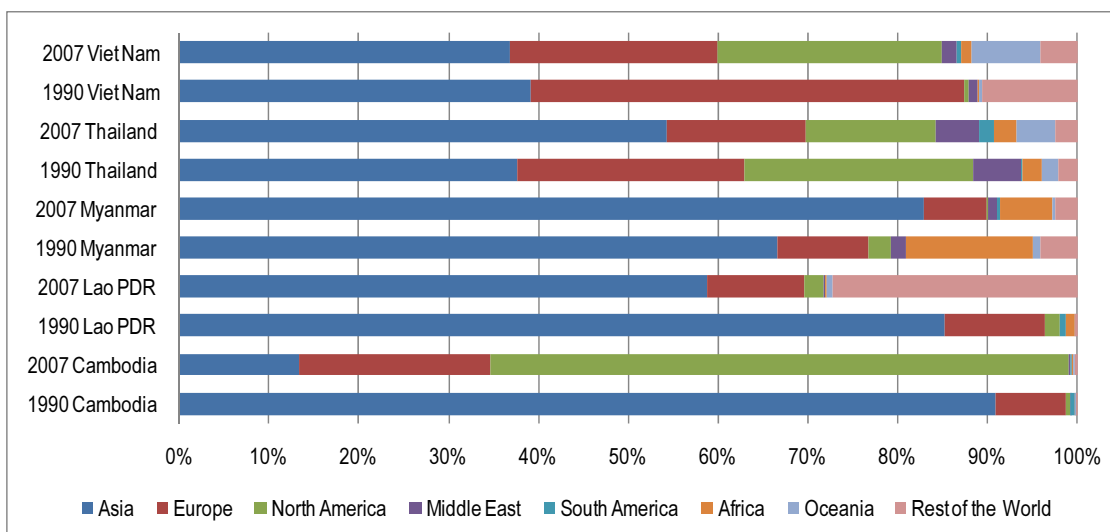
exports and imports, and accounts for 22% of the exports and 24% of the imports. Compared to these 2 countries, trade in other countries, including Lao PDR is minimal, accounting for 6% of exports and 5% of imports.

Though the direction of trade varies across the GMS, the share of trade among GMS and other Asian countries is higher in general, with the exception of exports in Cambodia. For instance, 59% of Lao exports and 92% of Lao imports were headed to/from neighboring Asian countries in 2007. Taking an example of Cambodian trade, only 13% of the exports were headed to Asian countries while 64% were destined for North America in 2007.



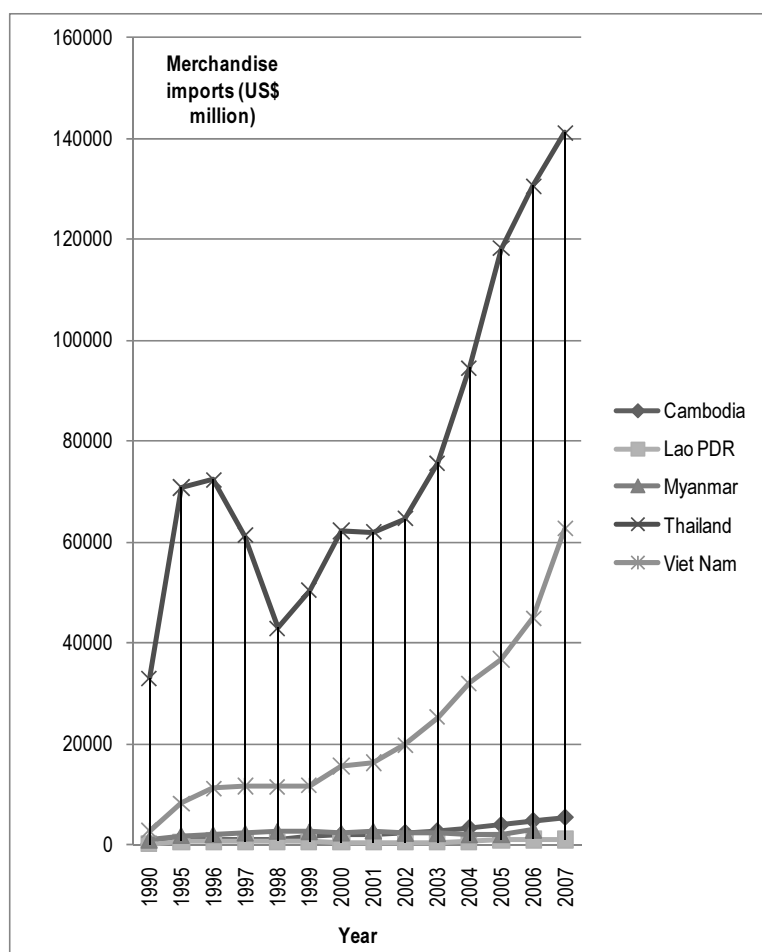
Source: ADB (2008) Key Indicators 2008

Figure 2.1.2 Merchandise Exports across GMS during 1990-2007



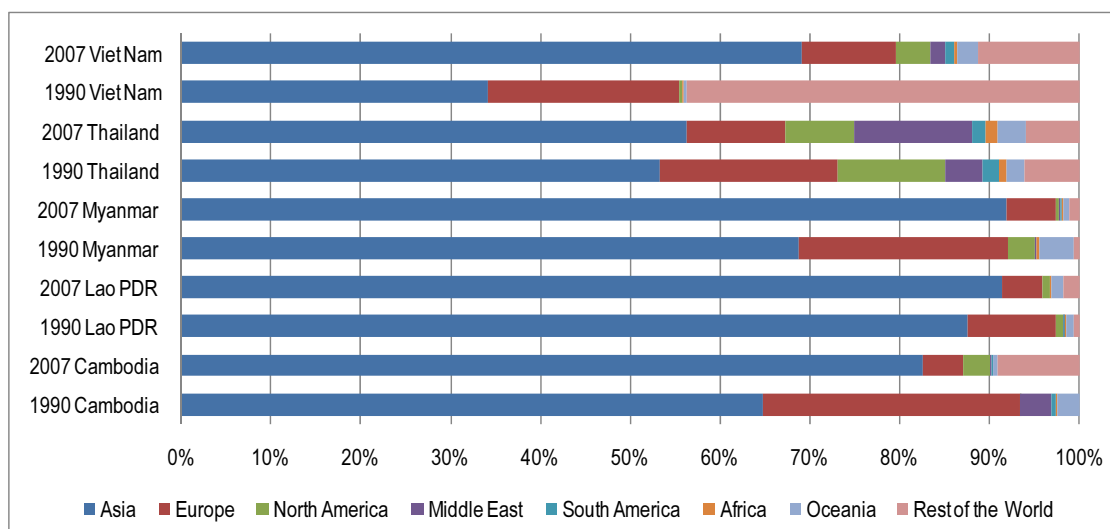
Source: ADB (2008) Key Indicators 2008

Figure 2.1.3 Direction of Trade across GMS (Export)



Source: ADB (2008) Key Indicators 2008

Figure 2.1.4 Merchandise Imports across GMS during 1990-2007



Source: ADB (2008) Key Indicators 2008

Figure 2.1.5 Direction of Trade across GMS (Import)

(2) Population, GDP and Trade across GMS

The following discussion identifies socio-economic characteristics of the GMS such as the variations in size of countries. Table 2.1.1 presents summary data for the GMS. Almost 310 million people inhabit the region. Populations range from under 6 million people in Lao PDR to over 90 million in Yunnan/Guanxi region of the People's Republic of China (PRC). Likewise the economies range widely in size, with Lao PDR's GDP valued at USD 3.4 billion while Thailand's GDP is around 60 times as large, at over USD 206.3 billion. Gross National Income (GNI)/GDP per capita ranges from USD 500 or under in Cambodia, Lao PDR, and Myanmar, to over USD 3,000 in Thailand.

Countries and regions in the GMS also vary in terms of population density and land area. Land area ranges from under 180 million km² in the case of Cambodia to over 650 million km² for Myanmar. Population density ranges from 25 people per km² in Lao PDR to over 270 people per km² in Vietnam.

Table 2.1.2 Socio-economic Conditions in GMS in 2007

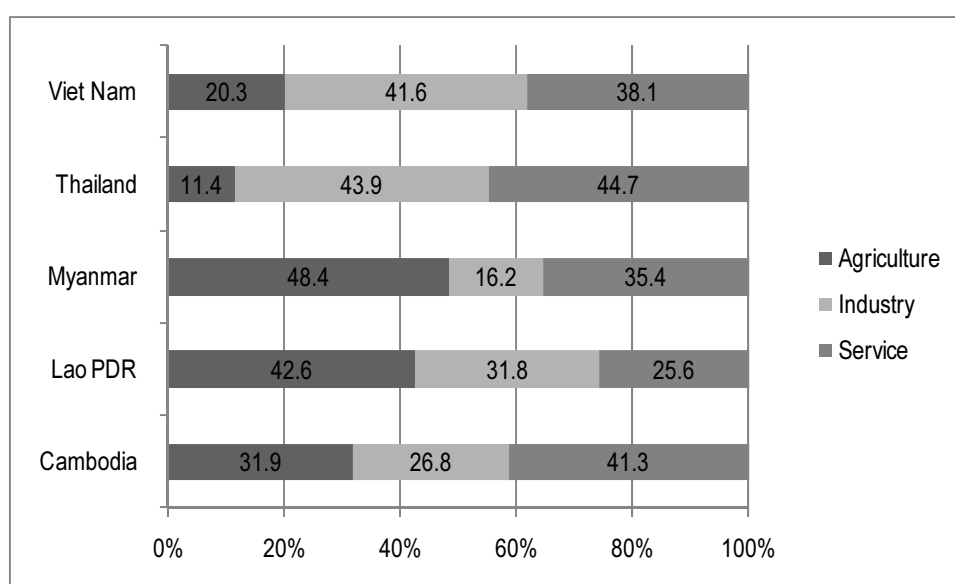
Country	Population (million)	GDP (billion USD)	GNI per capita (USD)	Land area (mil km ²)	Population density (per km ²)	Rural Pop (% total)
Cambodia	14.2	7.3	490	176.5	80.4	79.7
Lao PDR	5.8	3.4	500	230.8	25.0	79.0
Myanmar	48.4	N/A	281	657.6	73.6	68.7
Thailand	63.4	206.3	3,050	510.9	124.2	67.4
Vietnam	84.1	61	700	310.1	271.3	73.1
Yunnan/Guanxi	92.3	75.4	702	630.8	150.4	N/A
Total/Average	308.2	-	1,105	2,516.6	122.5	-

Source: ADB (2008) Key Indicators 2008

Like population and economy, industrial structure shows quite different features among countries. Thailand and Vietnam are both industrialized countries, where production of the industrial sector

accounts for over 40% of the total. The service sector has developed in Thailand, Vietnam and Cambodia and accounts for around 40% of the production of each country. The economies in Myanmar and Lao PDR rely heavily on agricultural products which account for over 40% of the economic production.

External trade in the GMS also varies widely in size. Amongst the GMS countries, Thailand leads the trade in terms of the amount of merchandise exports and its share of GDP. Thailand exports sharply increased in the last decade and reached USD 130 billion in 2006. Though the world financial crisis, which occurred in 2008, may adversely affect the export industry in Thailand, it is still an export leader among the GMS. On the contrary, the export industry in Myanmar and Lao PDR is relatively small and less developed, considering the sizes of population and economy. For instance, the export industry in Lao PDR contributes to only 8% of the economy whereas that in Thailand contributes to 27% of the economy.



Note: Figures shown above is in 2007 except Myanmar (2004) and Lao PDR (2006)

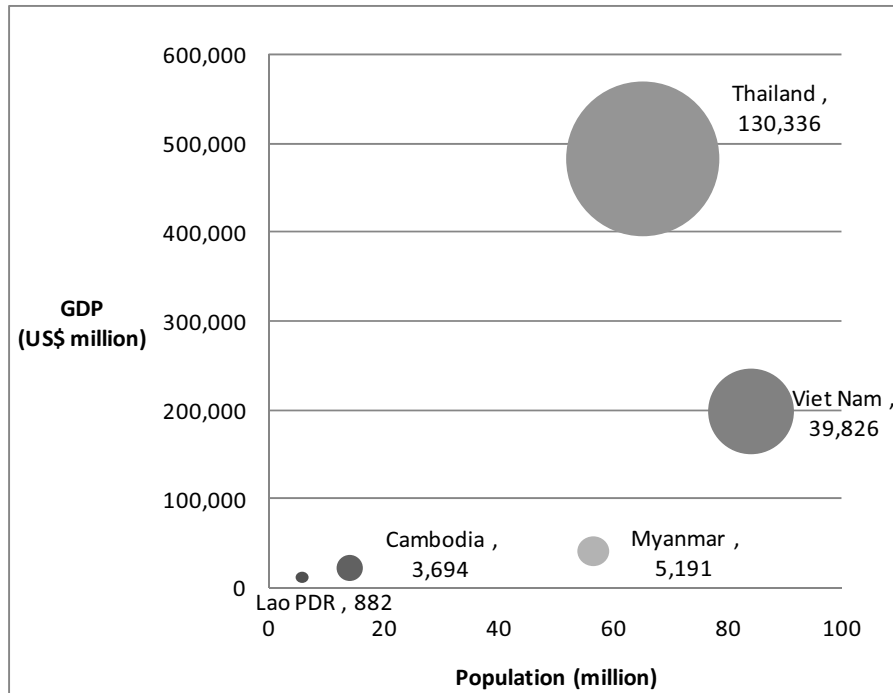
Source: ADB (2008) Key Indicators 2008

Figure 2.1.6 2007 GDP by Sector in GMS

Table 2.1.3 Population, GDP and Trade in GMS in 2006

Country	Population (million)	GDP (USD million)	Merchandise exports (USD million)	Export share in GDP
Cambodia	14.1	23,013	3,694	16%
Lao PDR	5.7	11,677	882	8%
Myanmar	56.5	40,747	5,191	13%
Thailand	65.2	482,936	130,336	27%
Vietnam	84.1	198,854	39,826	20%

Source: ADB (2008) Key Indicators 2008



Source: ADB (2008) Key Indicators 2008

Figure 2.1.7 Population, GDP and Trade in GMS (Unit: USD million) in 2006

2.1.3 Freight by Mode

(1) Freight Modal Share across GMS

ADB (2006) properly documented the features of freight traffic across the GMS countries and implied the dominance of road transport in terms of freight traffic volume by transport mode. Total freight traffic in 2004 was estimated at 145 billion ton-kilometers generated from the GMS countries, excluding China. Like the trade volume discussed above, freight volume in Thailand is much larger than those in other countries and was recorded at 93 billion ton-kilometers in 2004. Looking at the freight volume by transport mode, road transport is dominant and accounts for 83% of the total freight volume in the GMS. Following road transport, inland water transport, mainly along the Mekong River, accounts for 12% of the freight traffic while railway transport accounts for only 5% of the traffic in the GMS.

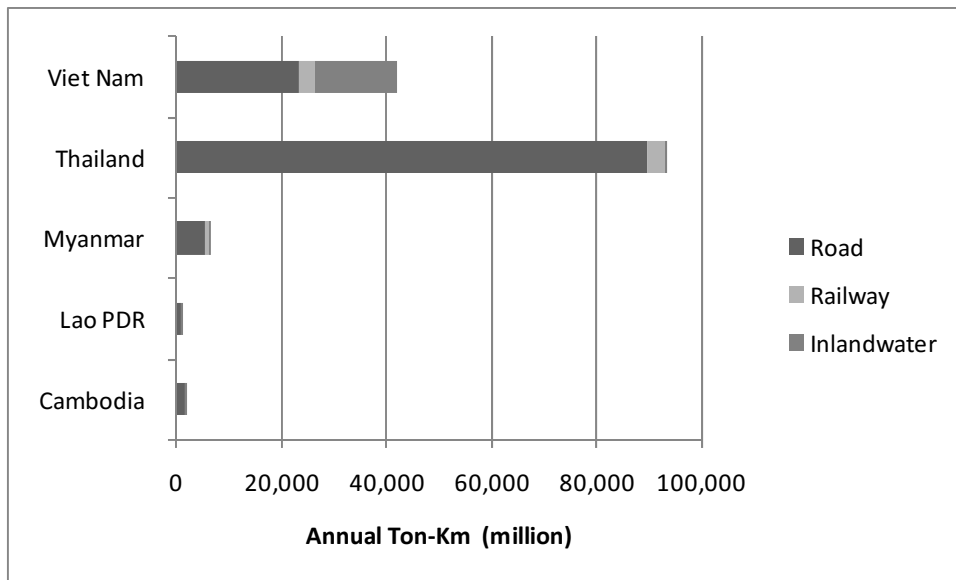
Table 2.1.4 Freight Volume by Transport Mode across GMS (million ton-km) in 2004

Country	Road	Railway	Inland water	Total
Cambodia	1,539	208	164	1,911
Lao PDR	897	0	471	1,368
Myanmar	5,352	789	582	6,723
Thailand	89,436	3,581	52	93,069
Vietnam	23,504	3,032	15,623	42,159
Total	120,728	7,610	16,892	145,230
Share	83%	5%	12%	100%

Source: ADB (2006) GMS Transport Sector Strategy Study

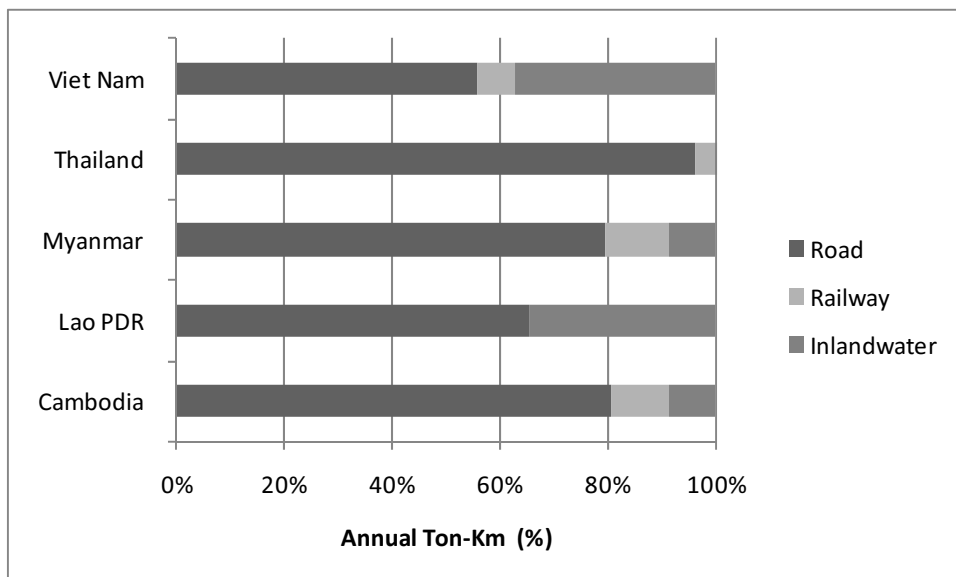
Cognizance of the fact that road transport is the major transport mode for freight traffic, it should

however be noted that modal share among road, railway and inland-water transport modes differs slightly across the GMS countries. In Thailand, Cambodia and Myanmar, truck transport is the major form of freight traffic and accounts for over 80% of the total freight traffic in 2004. On the other hand, modal share by road transport in Lao PDR and Vietnam is lower than those in other countries and a significant amount of freight traffic, accounting for 30% of all freight traffic, is transported by inland-water transport.



Source: ADB (2006) GMS Transport Sector Strategy Study

Figure 2.1.8 Freight Traffic by Transport Mode across GMS in 2004

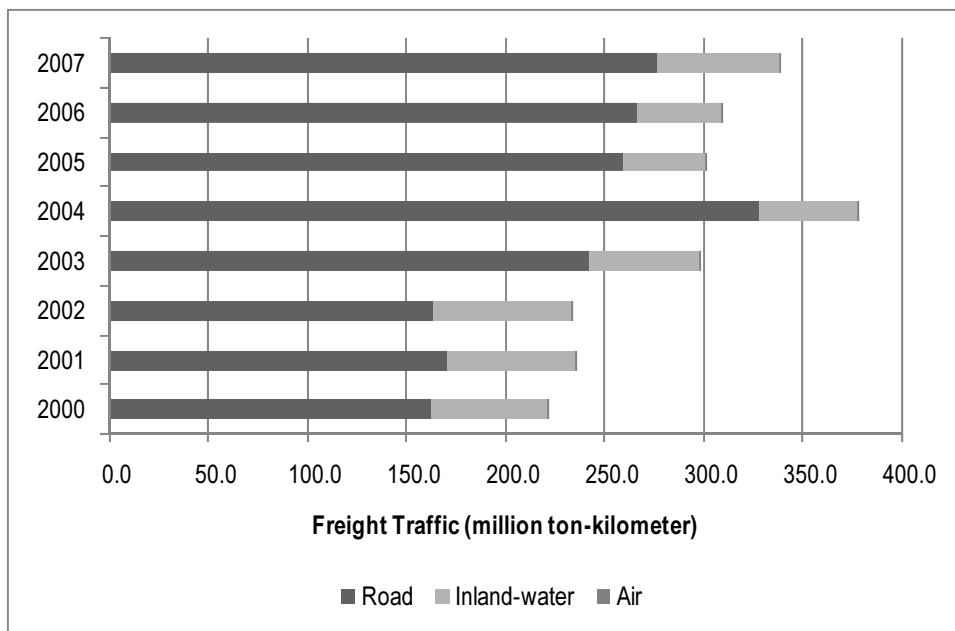


Source: ADB (2006) GMS Transport Sector Strategy Study

Figure 2.1.9 Modal Share in Freight Traffic across GMS in 2004

(2) Modal Share in Lao

Freight transport demand is growing and the aggregate freight demand reached 338 million ton-kms in 2007. Freight transportation depends primarily on road transport which is the dominant mode given its accessibility and flexibility in network development. Between 2000 and 2006, the road share increased from 73% to 86%. Admitting unreliable statistical information, road share dropped to 82% in 2007. Inland waterway is the alternative mode of freight transport but has dropped in share from 27% to 14% during the same period and then risen to 18% in 2007. The aviation sector, which plays a crucial role in transporting small parcels and valuable goods, has remained at 0.1-0.3% of demand.



Source: Lao (2008) Statistical Yearbook 2008

Figure 2.1.10 Freight Traffic by Transport Mode during 2000-2007

2.1.4 Trade and Freight Corridor

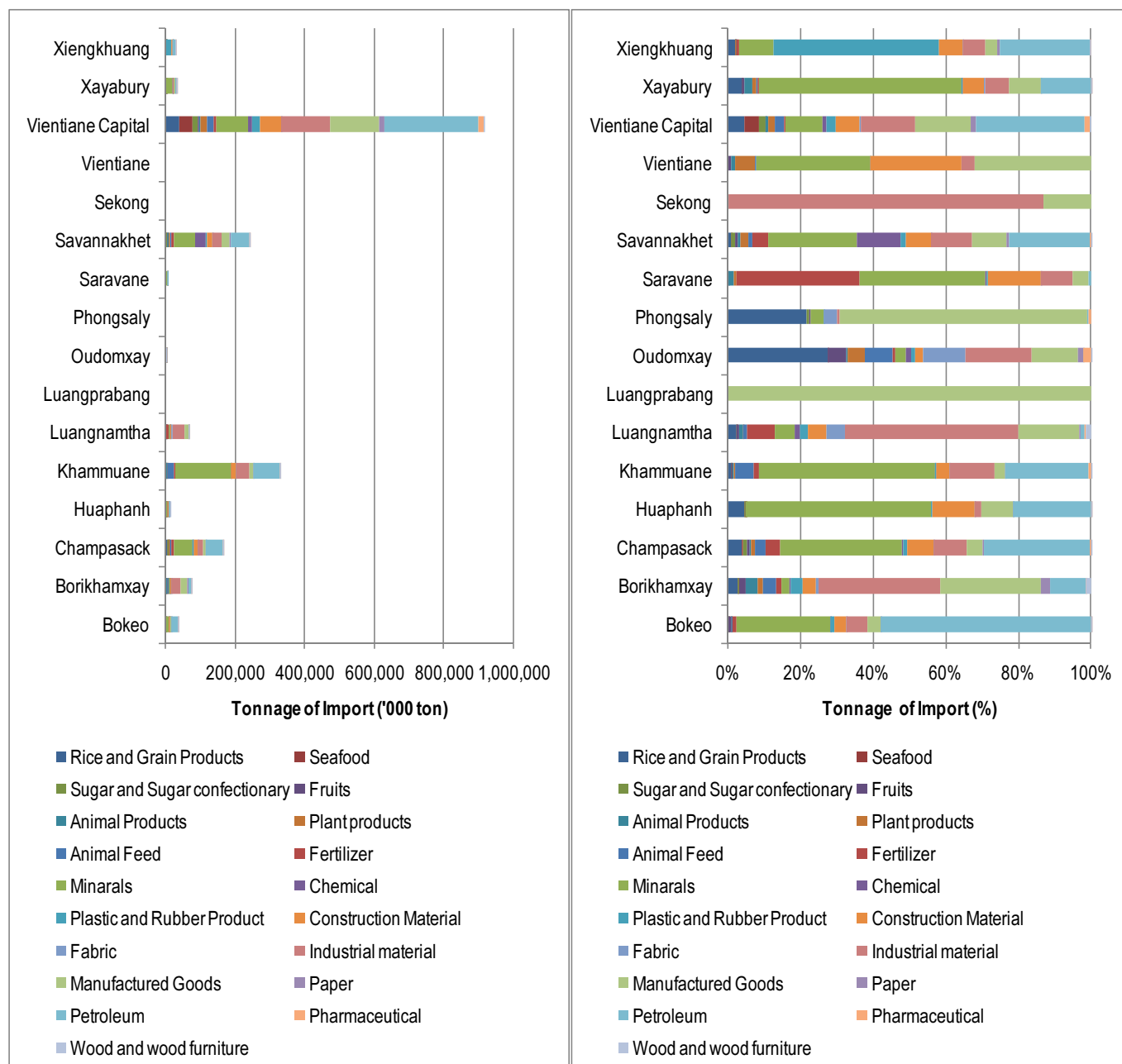
(1) Trade across Cross-Border Points

The following discussion expounds on trade characteristics at cross-border points, analyzing C2000, obtained from the Custom Department. Lao PDR imported 1,918 million tons (USD 1,498 million) of goods in 2007/08. The Friendship Bridge in Vientiane Capital is the busiest cross-border point where 48% of all imports were handled, followed by Khammuane (17%), Savannakhet (13%), Champasack (9%) and then Borikhamxay (4%) in terms of tonnage. This implies that Lao PDR imports most consumable goods and industrial materials from/through Thailand. This is supported by the statistics, which show that 80% of imports are made in Thailand. Major imported goods in Lao PDR include petroleum (26%), minerals (21%), industrial materials (15%), and manufactured goods (12%). Commodity-wise, there aren't any significant disparities across cross-border points.

Lao PDR exported 1,430 million tons (USD 900 million) through the following major cross-border points: Bokeo (30%), Khammuane (17%), Savannakhet (15%) and Vientiane Capital (14%) in

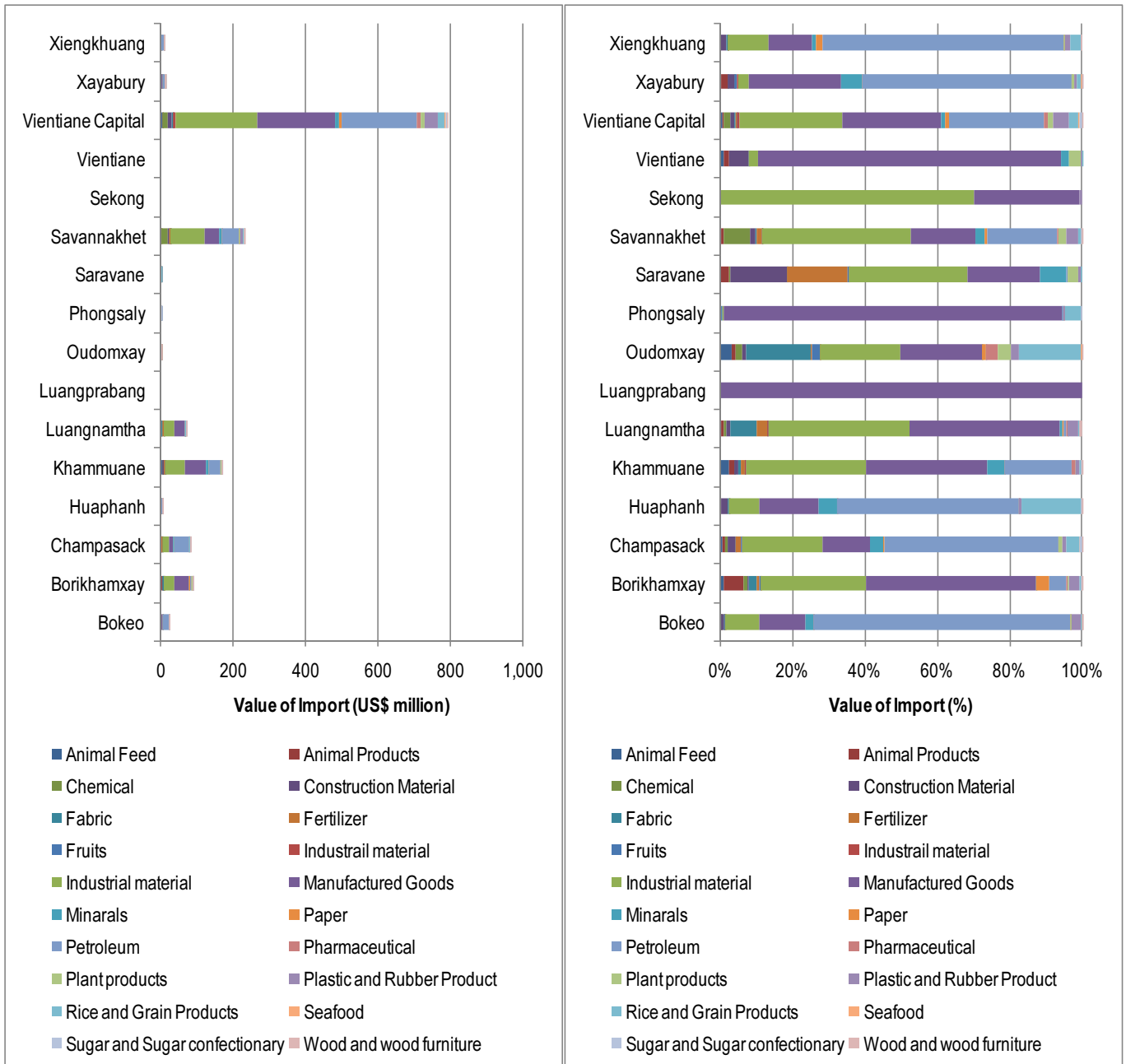
2007/08. The major commodities exported from Lao PDR are minerals (29%), petroleum (28%), rice and grain products (19%) and wood and wooden furniture (15%). The C2000 information should be carefully reviewed because some of the figures are unreliable. For instance, petroleum, which is supposed to be the major import item into Lao PDR, is exported through Bokeo.

The volume of transit cargo through Lao PDR reached 122 million tons through 2 major cross-border points: Savannakhet (71%) and Borikhamxay (16%) in 2007/08. The major commodities in transit are vegetable and plant products (35%), manufactured goods (22%) and sugar (16%).



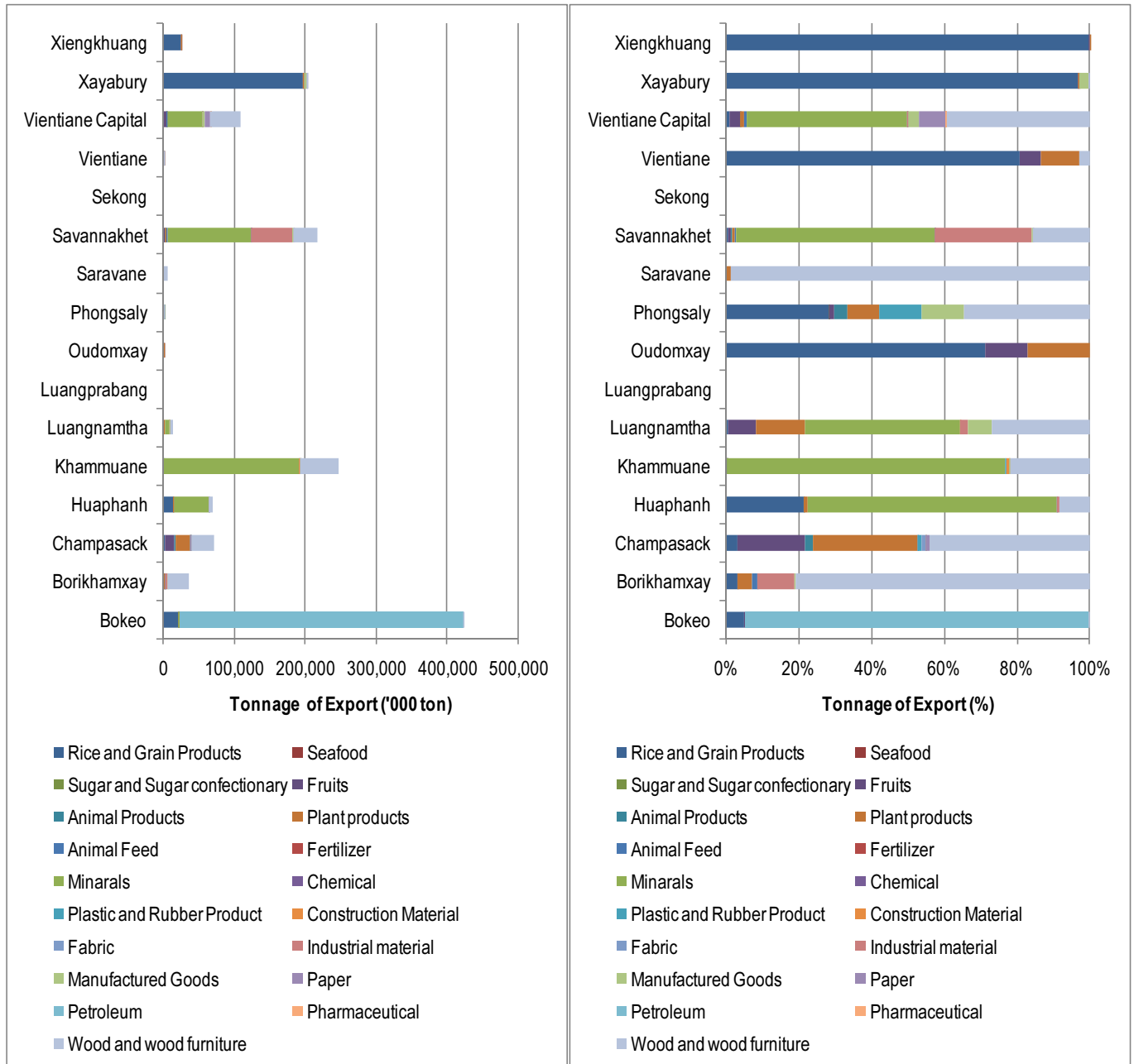
Source: Prepared by JICA Study Team based on C2000 data

Figure 2.1.11 Commodity-wise Apportionment of Imports at Cross-Border Points (Tonnage 2007/08)



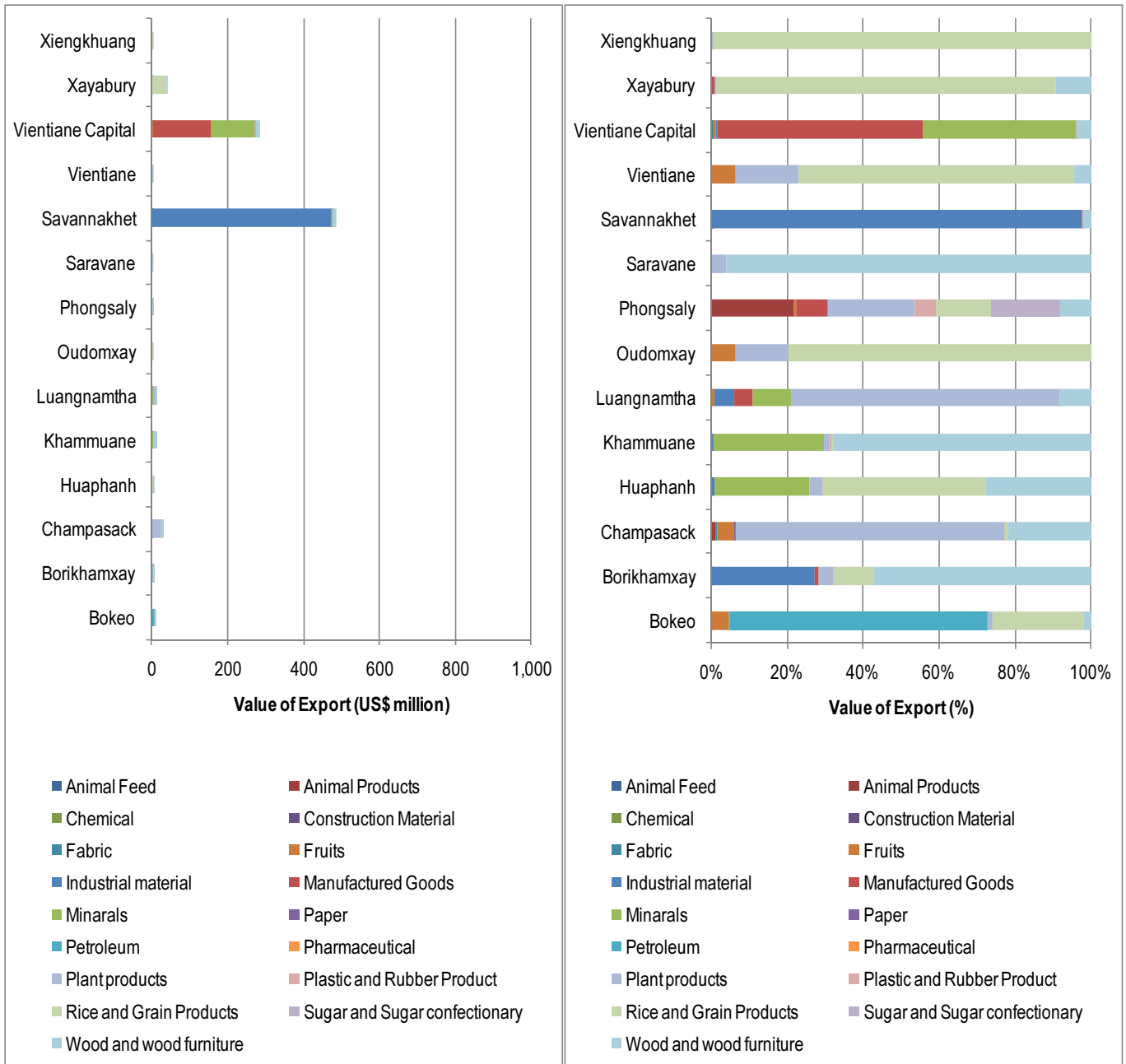
Source: Prepared by JICA Study Team based on C2000 data

Figure 2.1.12 Commodity-wise Apportionment of Imports at Cross-Border Points (Value 2007/08)



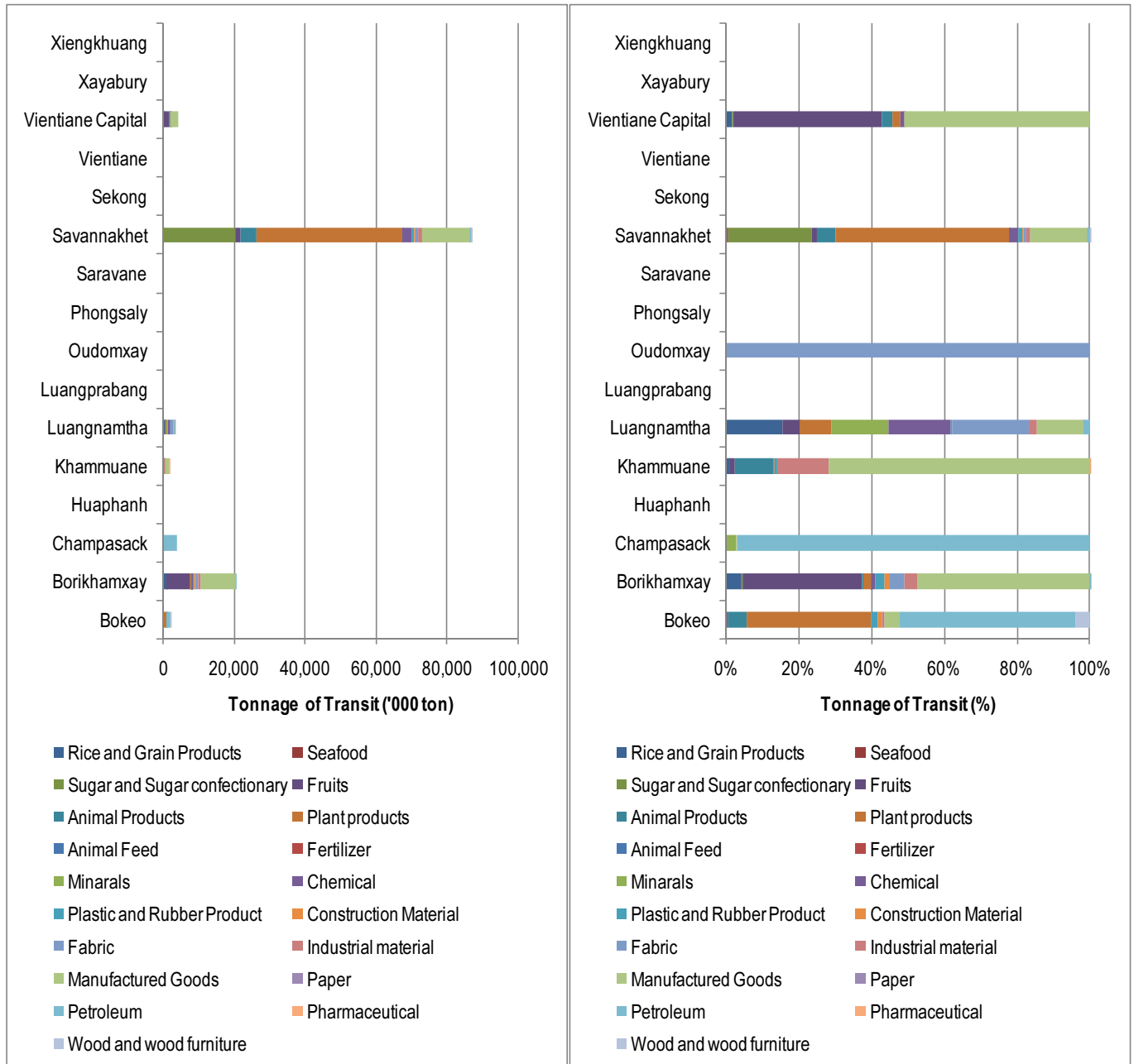
Source: Prepared by JICA Study Team based on C2000 data

Figure 2.1.13 Commodity-wise Apportionment of Exports at Cross-Border Points (Tonnage 2007/08)



Source: Prepared by JICA Study Team based on C2000 data

Figure 2.1.14 Commodity-wise Apportionment of Exports at Cross-Border Points (Value 2007/08)



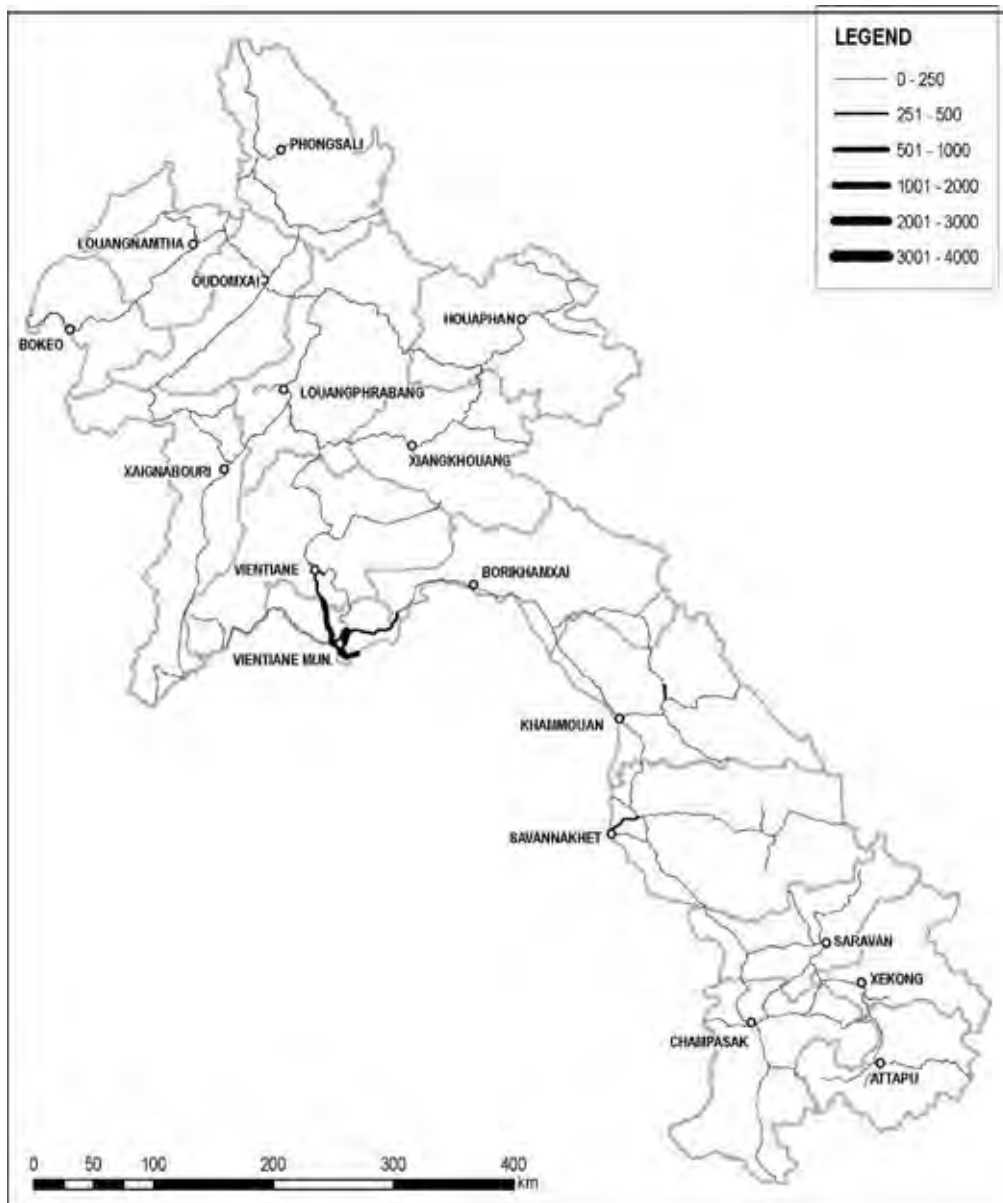
Source: Prepared by JICA Study Team based on C2000 data

Figure 2.1.15 Commodity-wise Apportionment of Exports at Cross-Border Points (Tonnage 2007/08)

(2) Freight Corridor

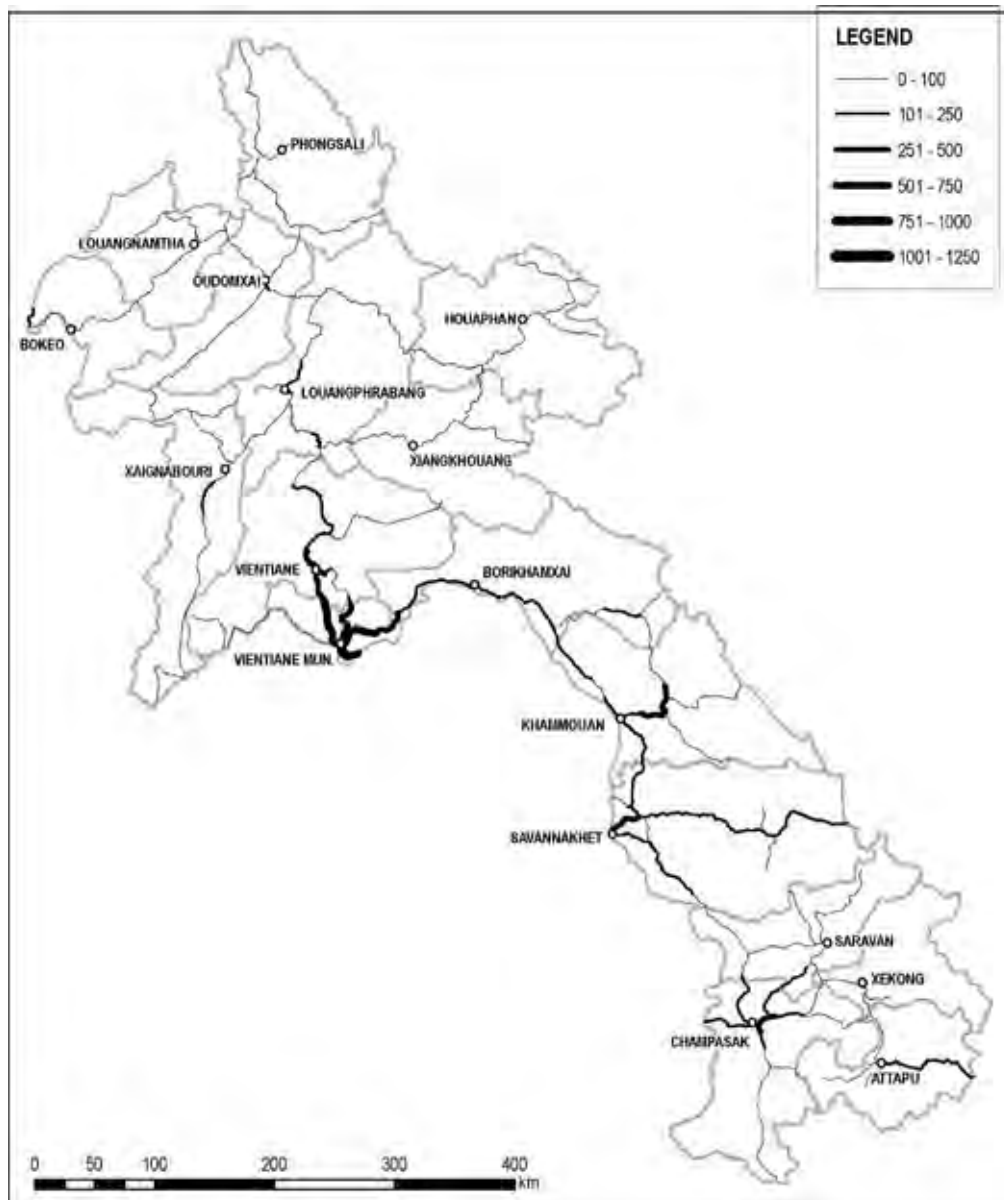
As seen above, the major-cross border points across Lao PDR include Vientiane Capital, Savannakhet, Khammuane, Champasack and Borikhamxay. Savannakhet, Khammuane, and Borikhamxay open international cross-border points to both Thailand and Vietnam. Vientiane Capital and Champasack have international cross-border points to Thailand alone. Traffic to/from these cross-border points may increase the traffic volume along the transport corridor in Lao PDR. Figure 2.1.16 illustrates 6-hour traffic on PCU (passenger car unit) basis: a large volume of traffic is observed on NR-13 around Vientiane Capital and on NR-9 in Savannakhet. Figure 2.1.17 illustrates the number of trucks observed in 6 hours and shows that a large number of trucks

transport goods along NR-13, NR-8, and NR-9. These national roads are considered as the freight corridor across Lao PDR.



Source: Prepared by JICA Study Team based on Road Management System

Figure 2.1.16 Traffic Volume (Unit: PCU/6hours) in 2008



Source: Prepared by JICA Study Team based on Road Management System

Figure2.1.17 Traffic Volume (Unit: Truck/6hours) in 2008

2.2 Transport Network and Logistics Infrastructure

2.2.1 Transport Network in GMS

(1) Transport Corridor

The GMS regional economic corridors program was undertaken to stimulate the effective and efficient regional development through identification of corridors for major transport infrastructure development. This economic corridor approach to sub-regional development was adopted as a fundamental strategy to accelerate the pace of GMS cooperation and to help realize the region's potential. 3 corridors were identified as pilot programs under this approach: the North-South

Economic Corridor (NSEC), East-West Economic Corridor (EWEC), and Southern Economic Corridor (SEC). In 2007, the GMS ministers agreed to expand the program to a total of 9 economic corridors. There are 4 economic corridors crossing Lao PDR: the North-South Economic Corridor (part of NR-3 in Lao PDR), East-West Economic Corridor (NR-9), Central Economic Corridor (NR-13), and North-Eastern Economic Corridor.



Figure 2.2.1 GMS Regional Economic Corridors

(2) Transport Network and Services in GMS

The transport network conditions and standards over a large part of the GMS remain inadequate to meet the rapidly growing demand for transport facilities and services. The least developed country in terms of transport network and services in the GMS is Lao PDR. For instance, only a small portion of the road network in Lao PDR is paved and the railway network and service in Lao PDR is minimal and is not available for most of the nation. Amongst the countries in the GMS, Thailand is relatively advanced in its transport network and services. Almost all road networks in Thailand are paved and the density of paved roads is much higher than those for other countries. Railway and aviation are also well developed in terms of size of transport.

In terms of the service level of surface transport, one of the factors to determine transport service is topography. Figure 2.2.2 illustrates the topography in the GMS countries and shows that only Thailand enjoys a geographical advantage in that 57% of its road network is located in flat terrain. The rest of the GMS countries suffer topography-associated disadvantages whereby over 60% of their road networks are either in mountainous or rolling areas. Another determinant for transport service is road conditions. Figure 2.2.3 classifies road conditions into 3 categories: fair, good and poor. The Thai Government long made an effort to improve its road network and the entire road network in Thailand is now evaluated as either fair or good. On the other hand, the road network in Lao PDR and Cambodia still requires a considerable amount of investment since nearly 60% of the road network in those countries is still in poor condition.

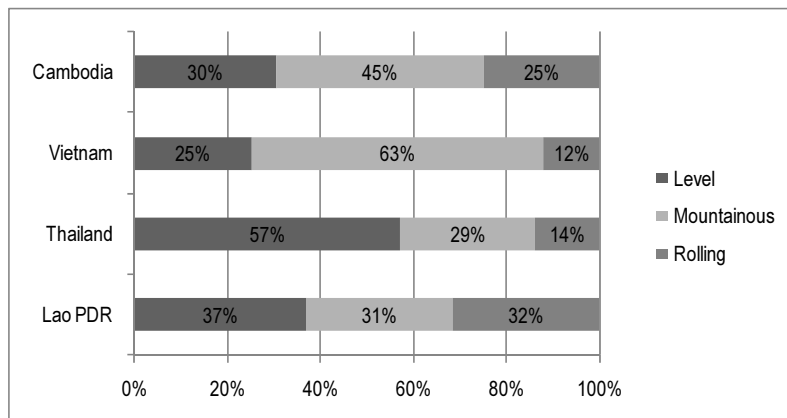
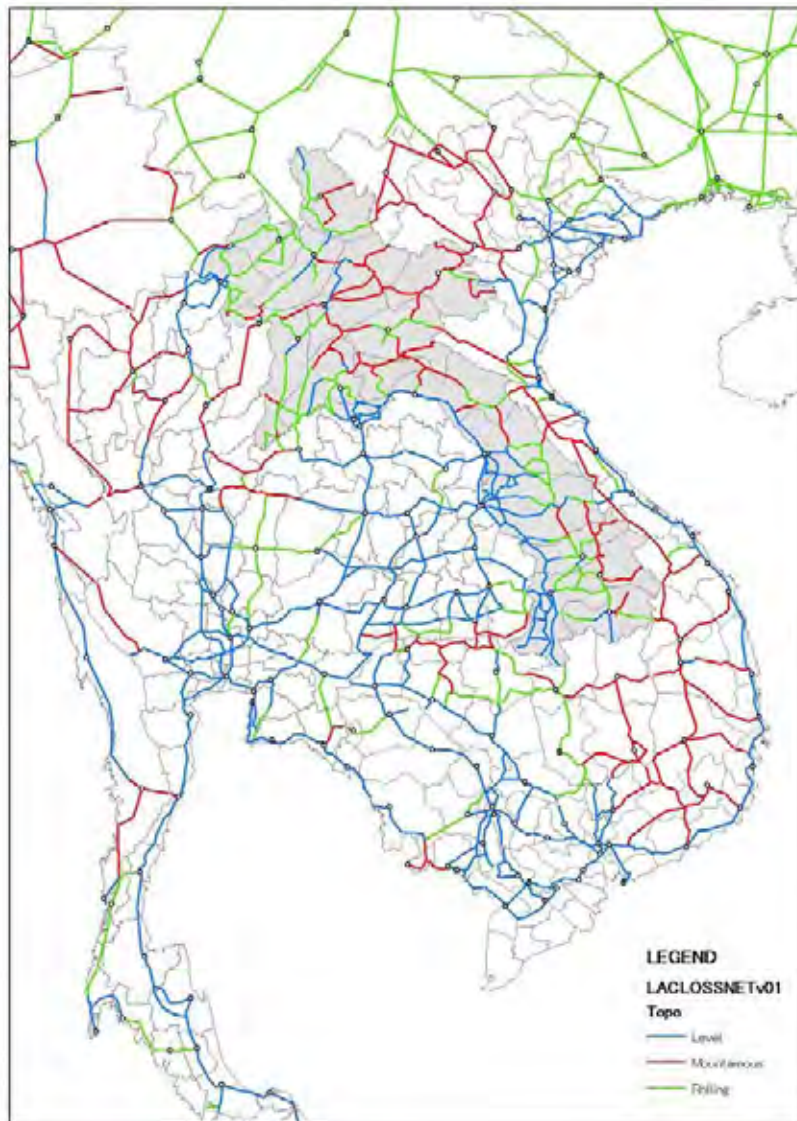
Table 2.2.1 Transport Network and Services across GMS

	Cambodia	Lao PDR	Myanmar	Thailand	Vietnam
Surface Area km ²	181,040	236,800	676,580	513,120	331,690
Land Area km ²	176,520	230,800	657,740	511,770	325,360
Population	13,404,000	5,659,800	49,362,000	62,014,000	81,314,000
Roads					
Total Length km	12,323	32,620	30,000	57,403	215,628
% Paved	16%	14%	n/a	99%	n/a
km Paved	1,996	4,590	n/a	56,542	n/a
km Unpaved	10,327	28,030	n/a	861	n/a
Network Density: km per km ²	0.07	0.141	0.046	0.112	0.663
Paved Network Density: km per km ²	0.011	0.02	n/a	0.11	n/a
Railways					
Total length km	602	3	3,955	4,071	2,600
Electrified km					
Standard Gauge km					178
Narrow Gauge km	602		3,955	4,071	2,169
Dual Gauge km					253
Network Density: km per km ²	0.003	0	0.006	0.008	0.008
Waterways					
Total Length km	2,400	4,600	12,800	4,000	17,702
Network Density: km per km ²	0.014	0.02	0.019	0.008	0.054
Airports					
Total Number	20	44	78	109	24
Number with Paved Runway(s)	6	9	19	65	23

Source: ADB (2006) GMS Transport Sector Strategy Study

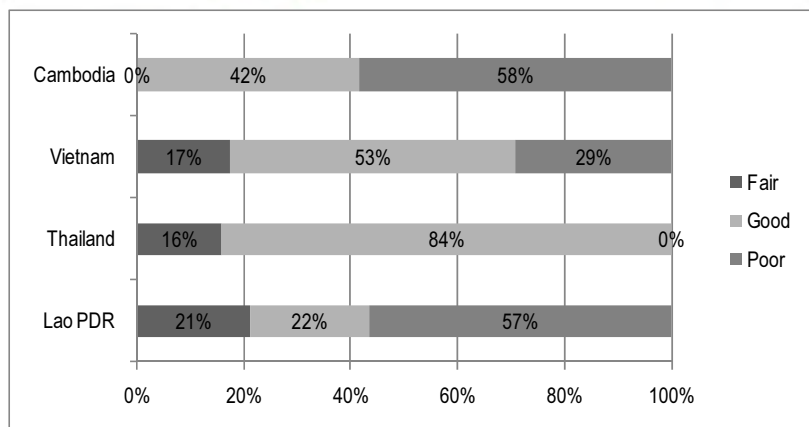
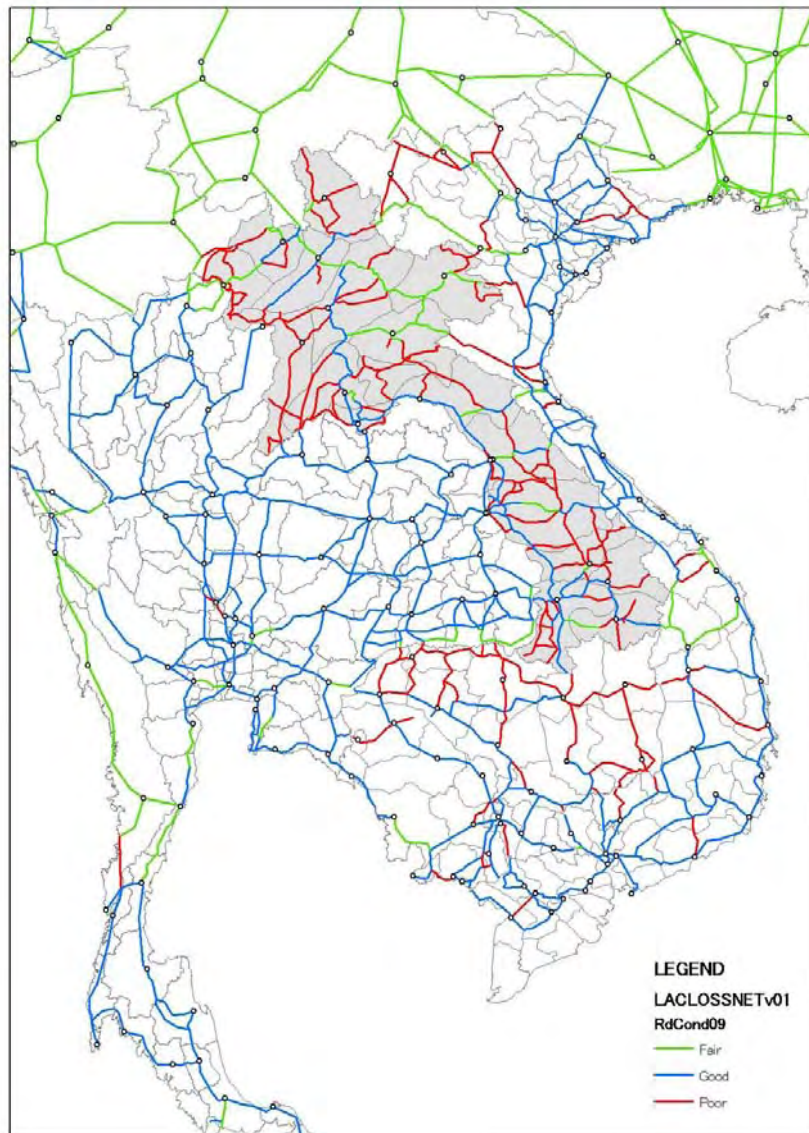
Banomyong (2007) compared and evaluated the current transport network and services in the GMS. Among the 6 countries and regions in the GMS, excluding Cambodia, only the roads in Thailand and railway in Thailand and Yunnan/Guangxi were evaluated as being in good condition.

In contrast, the airports in Lao PDR and Myanmar as well as roads and ports in Myanmar were all evaluated as being in poor condition.



Source: JICA Study Team

Figure2.2.2 Road Network by Topography in GMS



Source: JICA Study Team

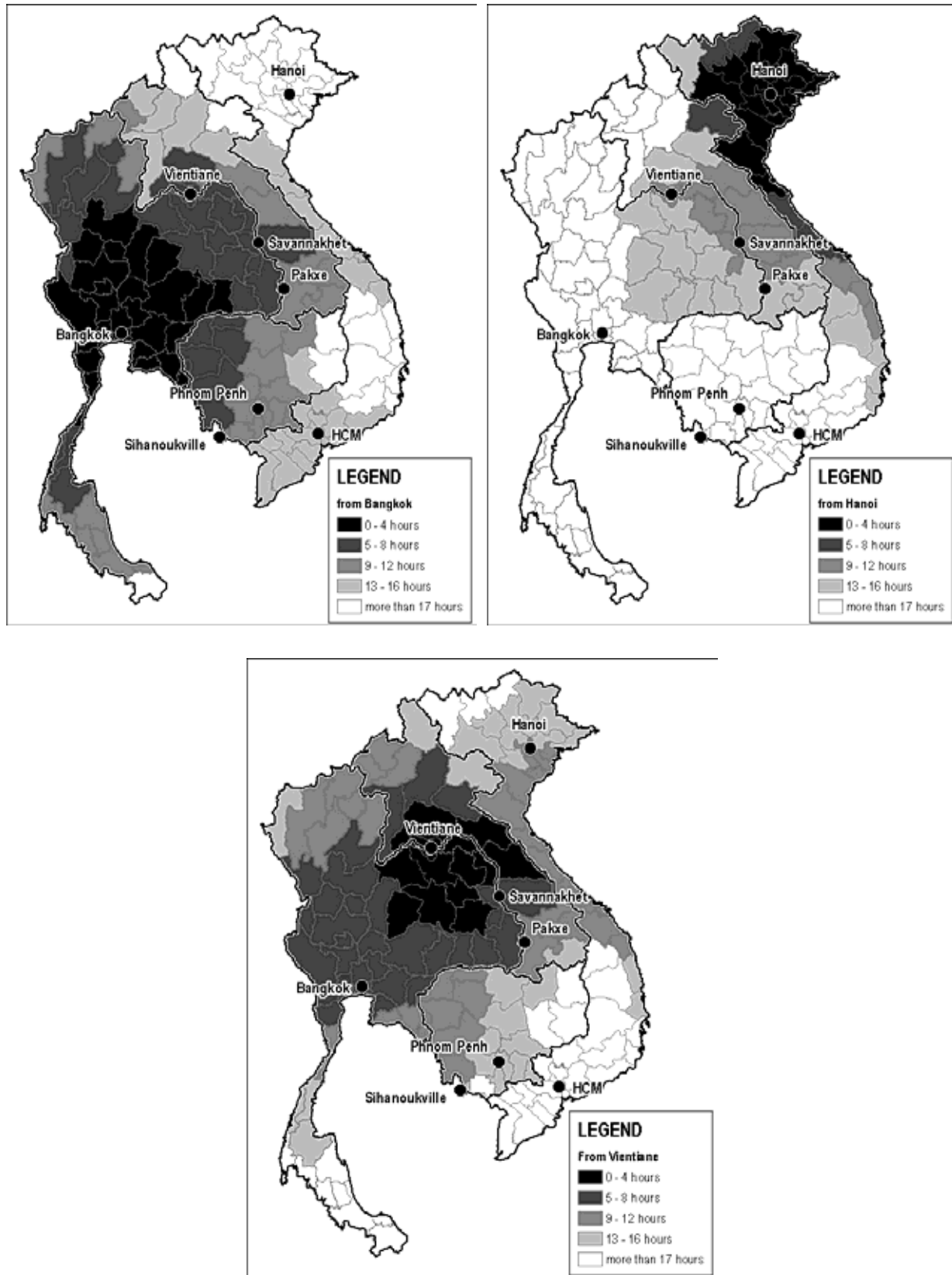
Figure 2.2.3 Road Network by Road Condition in GMS

Table 2.2.2 Evaluation of Transport Network and Services across GMS

Country	Road	Port	Inland-water	Airport	Railway
Lao PDR	Fair/Poor	N/A	Fair/Poor	Poor	N/A
Myanmar	Poor	Poor	Fair	Poor	Fair
Thailand	Good	Fair	Fair	Good/Fair	Good
Vietnam	Fair/Poor	Fair	Fair	Fair	Fair
Yunnan (PRC)	Fair/Good	Fair	Fair	Good/Fair	Good
Guangxi (PRC)	Fair/Good	Fair	Fair	Good/Fair	Good

Source: Banomyong (2007) Development Study of the North-South Economic Corridor

The following figures and tables describe the level of service in transportation of goods by road from major cities in the GMS. Time zone by travel time was estimated assuming that the goods are transported at maximum design speed (without any delay caused by traffic congestion and custom clearance). For instance, in transporting goods from Bangkok, most of the GMS region is covered within a 16-hour travel distance, excluding northern and southern Vietnam. 74% of the population in the GMS is covered within 16-hour travel distance from Bangkok. The efficient road network in Thailand greatly contributes to this and most areas in Thailand and other major cities of the GMS, such as Vientiane, are located within an 8-hour travel distance from Bangkok. On the other hand, the level of service in transporting goods from Hanoi is relatively lower than that from Bangkok. Only 46% of the population in the GMS is covered within the 16-hour travel distance from Hanoi and much of the regions in Thailand including Bangkok and all regions in Cambodia are left out of the 16-hour travel distance from Hanoi. Due to its geographical location, the level of service in transporting goods from Hanoi relies heavily on connectivity of the road network in other countries, especially that in Lao PDR. Vientiane, in theory, enjoys benefits reaped from its geographical location whereby all the major cities in the GMS region are located within a 16-hour travel distance. Like Bangkok, all the GMS regions, excluding the southern part of Vietnam and eastern part of Cambodia and southern part of Thailand, are covered within the 16-hour travel distance from Vientiane, which amounts to 71% of the population in the GMS.



Source: JICA Study Team

Figure2.2.4 Zones by Travel Time (Up-left: From Bangkok, Up-right: Hanoi and Down: Vientiane)

Table 2.2.3 Time Zones and Population Covered (From Bangkok)

Time Zone (hours)	Population Covered (000 persons)	Share
0-4	32,834	20%
5-8	25,949	35%
9-12	21,199	48%
13-16	43,391	74%
17-	44,084	100%

Source: JICA Study Team

Table 2.2.4 Time Zones and Population Covered (From Hanoi)

Time Zone (hours)	Population Covered (000 persons)	Share
0-4	36,603	22%
5-8	5,016	25%
9-12	10,391	31%
13-16	24,352	46%
17-	91,094	100%

Source: JICA Study Team

Table 2.2.5 Time Zones and Population Covered (From Vientiane)

Time Zone (hours)	Population Covered (000 persons)	Share
0-4	13,651	8%
5-8	36,555	30%
9-12	42,581	55%
13-16	26,616	71%
17-	48,054	100%

Source: JICA Study Team

2.2.2 Transport Network in Lao PDR

(1) Road Network

1) Pavement Condition

In Lao PDR, road transportation occupies a great portion of passenger and cargo freight traffic. A mass transportation railway system does not exist except for 3.5km in Thanaleng crossing the friendship bridge from Nong Khai in Thailand. There exist 3 bridges over the international Mekong river, namely: Thai-Lao PDR friendship bridge, the second Mekong international bridge and Pakse bridge. Many areas become inaccessible and isolated by floods during the rainy season. 80% of area in the country is mountainous and hilly yet there aren't any tunnels.

The total extension of roads in the entire country reaches 37,769.76 km as of 2008. The road network is classified into 6 categories: (i) National Road, (ii) Provincial Road, (iii) District Road, (iv) Urban Road, (v) Rural Road, and (vi) Special Road in accordance with road management classification stipulated by the Law on Roads. The lengths of the road network by pavement

category for road management classification as of 2008 are shown in Table 2.2.6.

Table 2.2.6 Road Length by Pavement Category by Road Classification

Unit: km

Road Classification	Length	Pavement Category				
		Concrete	Asphalt	DBST	Gravel	Earth
National Road	7200.25	2.89	430.02	3530.56	2457.14	779.64
Provincial Road	7255.24	-	-	470.97	3774.54	3009.73
District Road	4914.33	1.09	-	110.73	2529.40	2273.11
Urban Road	1870.04	28.76	51.11	448.45	886.87	454.85
Rural Road	15,754.30	-	-	77.66	3255.16	12421.48
Special Road	775.60	1.00	-	95.69	290.89	388.02
Total	37,769.76	33.74	481.13	4734.06	13194.00	19326.83
Approx. Ratio	100%	0.001%	1.3%	13%	35%	50%

Source: Summary of Road Statistics, Department of Roads, MPWT (2008), Summarized by JICA Study Team

Table 2.2.7 Road Length by Pavement Category by Province

Unit: km

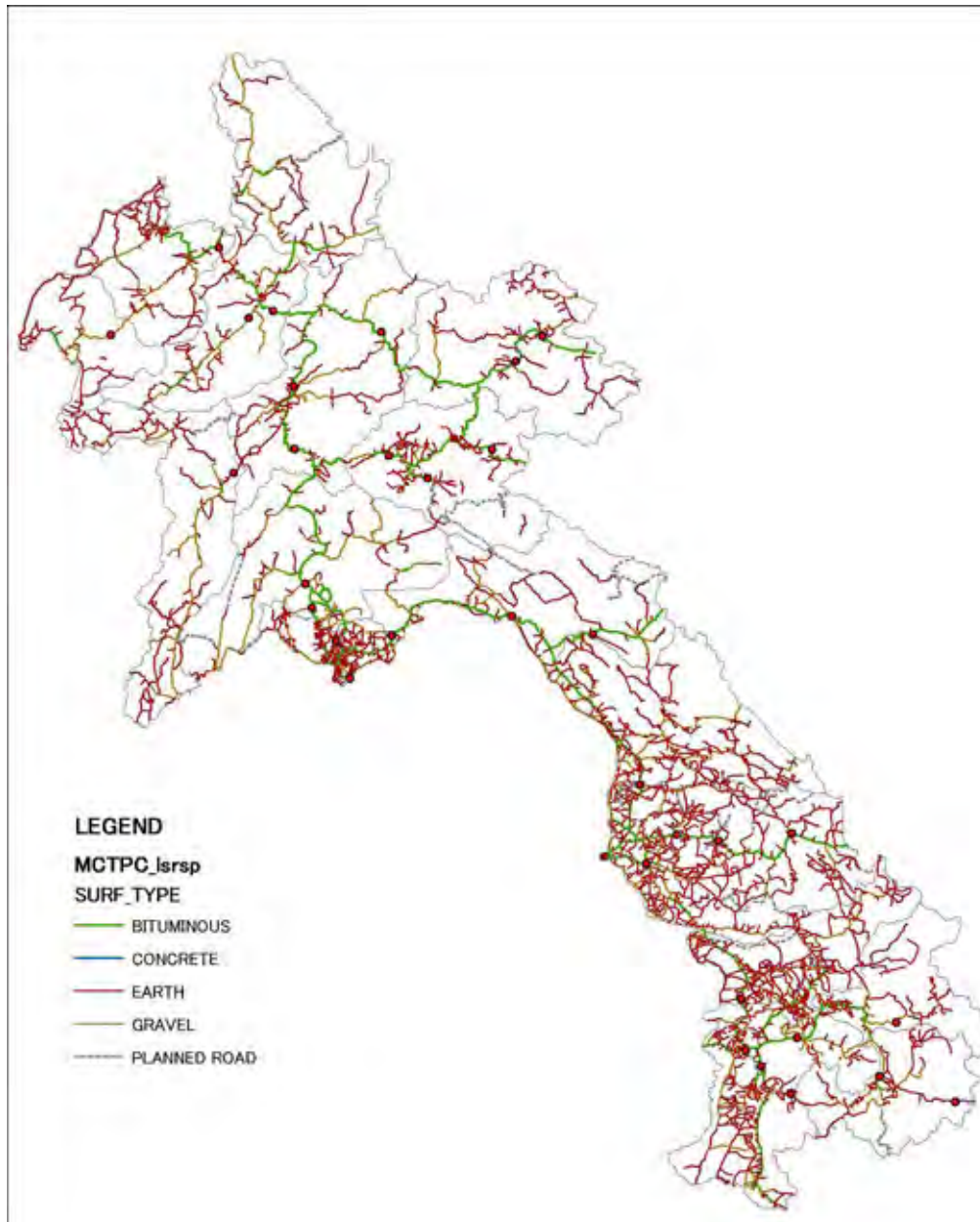
Province	Length	Pavement Category				
		Concrete	Asphalt	DBST	Gravel	Earth
Vientiane Capital	1968.30	10.5	67.40	366.50	1199	324.90
Phongsaly	1363.40	-	-	134.50	526.80	702.10
Luangnamtha	1500.91	-	156.72	85.57	432.24	826.38
Oudomxay	1699.55	-	-	320.06	795.31	584.18
Bokeo	1056.16	-	-	71.24	350.19	634.73
Luangprabang	2498.87	1.12	15.01	491.02	825.67	1166.05
Xayabury	2406.09	-	-	50.77	686.77	1868.55
Houaphanh	2248.90	-	-	452.40	679.80	1116.70
Xiengkhuang	2216.60	-	-	363.00	653.92	1199.68
Vientiane	3196.75	-	-	570.45	1502.01	1124.29
Borikhamxay	1822.77	-	-	339.66	738.59	744.52
Khammuane	3138.30	-	-	223.09	947.92	1967.29
Savannakhet	5394.90	9.66	242.00	427.71	1525.43	3190.10
Saravane	2143.61	-	-	164.34	842.94	1336.33
Champasack	3149.12	12.46	-	515.83	1168.68	1452.15
Sekong	845.14	-	-	79.45	170.90	594.79
Attapeu	1120.39	-	-	78.47	347.83	694.09
Total	37,769.76	33.74	481.13	4734.06	13194.00	19326.83

Source: Summary of Road Statistics, Department of Roads, MPWT (2008), Summarized by JICA Study Team

As shown in the table, approximately 85% of all road networks are non-paved: either gravel or earth. Almost all non-paved roads become inaccessible during the rainy season, seriously affecting accessibility of the residents. Many areas of paved roads are reported to become impassable, as well, due to floods during the rainy season.

Moreover, nearly 90% of the paved roads are Double Bituminous Surface Treatment (DBST). It is generally used for protection of asphalt pavement in case of deterioration or cracking caused by sunlight or water immersion. Nearly 55% of the national road, of which the total length is 7,200km, is paved. However, more than 89% of the paved national roads are paved by DBST. Most of these DBST-paved national roads are major routes for logistic networks and defects in

the form of rutting, potholes, cracking and corrugations caused by increasing traffic volume and overloaded trucks can be observed in a number of locations. While the initial cost of DBST pavement is relatively low, the repair work becomes a huge burden for Lao PDR such that road defects remain unrepaired which further shortens the life cycle of the DBST-paved roads.



Source: Prepared by JICA Study Team based on MPWT's Road Inventory

Figure2.2.5 Road Network by Pavement Type

2) Road Conditions

Figure 2.2.6 illustrates road conditions categorized into 4 classes: bad, poor, fair and good. Looking at the north-south corridor in Lao PDR, most road sections along NR-13, excluding those between Vientiane and Luangprabang, are evaluated as being in good condition. On the other hand, most road sections of the east-west corridor, including NR- 9 and 12, are evaluated

as being in bad condition mainly because of the mountainous topography.



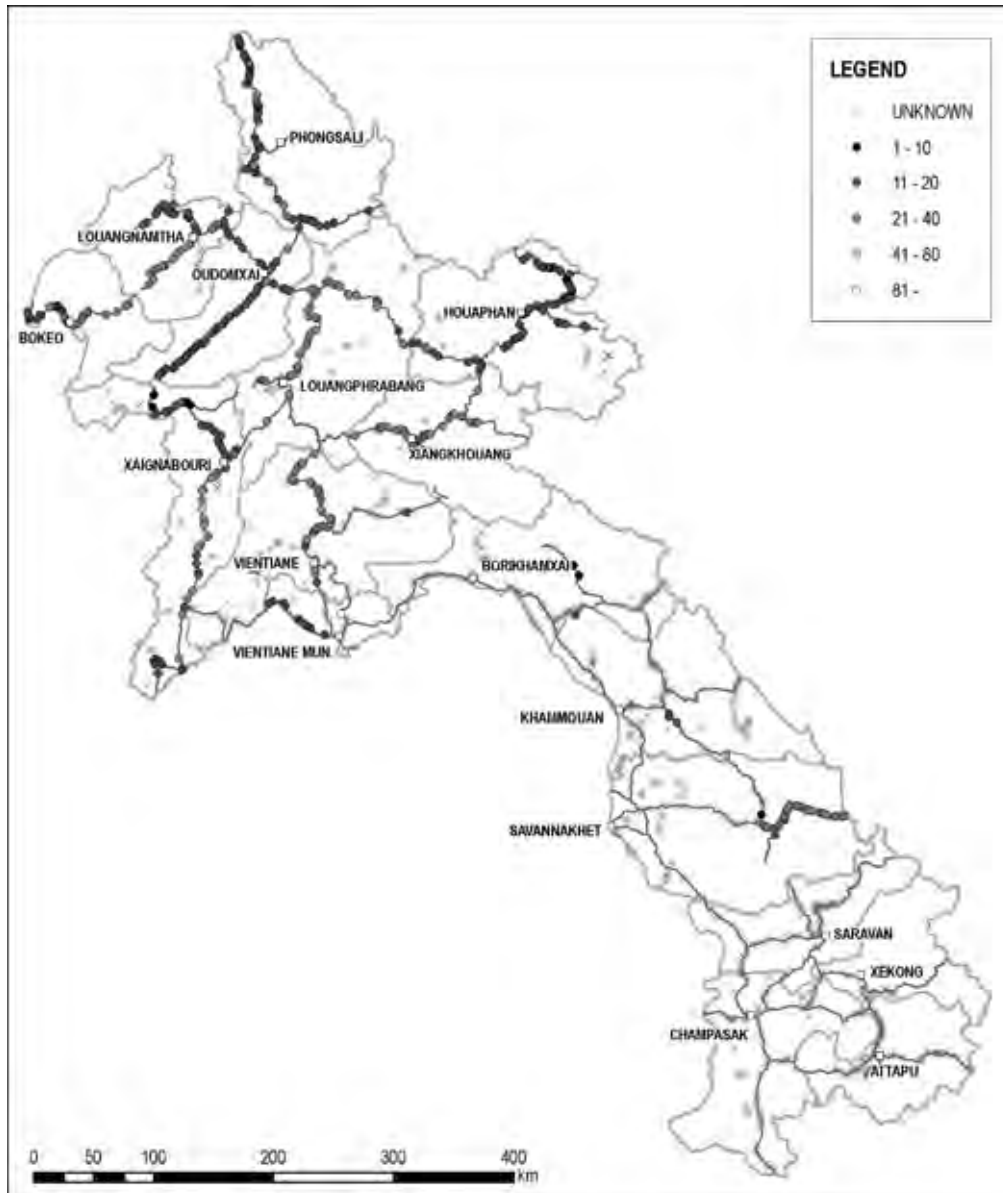
Source: Prepared by JICA Study Team based on MPWT's Road Inventory

Figure2.2.6 Road Network by Road Condition

3) Maximum Axle Load

The pavement of the trunk road network in Lao PDR is designed for a legal axle limit of 9.1 tons per axle, referring to the road design manual prepared in 1996. However, the pavement of the trunk roads in other GMS regions, including Thailand and Vietnam, is designed for a higher axle load, limited to 11.0 tons per axle. The dissonance in design has contributed to the deterioration of trunk roads in Lao PDR. For instance, most sections along NR-9 are parts of the South-West Economic Corridor and as a consequence of passage of international cargos/trucks, the sections suffer severe deterioration caused by heavily-loaded trucks from

Thailand and Vietnam.



Source: Prepared by JICA Study Team based on Road Management System

Figure2.2.7 Bridge’s Maximum Axle Load

(2) Major Trunk Roads in Lao PDR

1) National Road 1

It is a national highway of 1800km length. The total extension runs through north and south Lao PDR and is classified from A to J for every junction with major national roads. The road conditions are generally severely adverse throughout the entire section and there exist many locations which are inaccessible during all seasons.

2) National Road 13

It is the most important trunk road running in a North to South direction in Lao PDR. It has a

length of 1,543 km. It is classified into NR-13 North and NR-13 South bordering Vientiane, and specified as Asian Highway No. 11 and No.12 respectively. Most sections are paved with DBST and the sections, specifically those in the northern mountainous areas, are seriously damaged by overloaded vehicles.

3) National Road 13 North

It is the section from Vientiane to Boten, Chinese border, via Luangprabang and Oudomxay. The sections from Vientiane up to approximately 70km northwards are located in the plains while the northern sections are located in mountainous areas. The northern sections, specifically those north of Oudomxay, have adverse road conditions with high gradients and sharp curves and narrower widths such that only a single large-sized vehicle can pass at a time.

4) National Road 13 South

It is the section from Vientiane to the Cambodian border in the south. Most sections are located in plains and are composed of more straightened alignments compared to the NR-13 North. However flooded sections during the rainy seasons are sometimes reported. The replacement of existing bridges with Prestressed Concrete Bridges is being implemented in the sections in the South.

5) National Road 3

It is the section from Luangnamtha to Huoixai, Thailand border with a length of 250km. It is divided into 3 sections. They were built with support from China, ADB and Thailand from the north respectively and opened in February 2008. The NR-3 is expected to function as one of the major trade corridors in the northern region; connecting Bokeo, Thai Border and Boten, Chinese border through Lao. However specifically in the section of Thailand, the road surface conditions have become seriously deteriorated with potholes and roadside collapses only nearly 2 years after the completion; affecting the smooth traffic flow of cargo transport.

6) National Road 8

It is the section from the junction point of NR-13 South nearly 250km south of Vientiane and it reaches the Vietnamese border after meandering through a length of 260km. This route connects Vientiane and the northern area in Vietnam with the shortest distance and has been long used for cargo transportation. The distance between Bangkok and Hanoi by the NR-8; Bangkok – Vientiane – NR-13 South – NR-8 – Vinh in Vietnam to Hanoi, is nearly 150km shorter than the route through NR-9, GMS East-West Economic Corridor as well. However, the road conditions generally feature sharp curves, high gradients and narrow widths in the mountainous areas throughout most sections. However, the prevalence of holes and subsidence is relatively minimal compared with the conditions of NR-3.

7) National Road 12

It is the section from Thakhek to the Vietnamese border with a length of nearly 150km. The conditions of roads on most sections are generally fairly good with enough width and a generally straight alignment. However, the sections in the mountainous areas near Vietnam, nearly 20% of the road length, become narrower with sharp curves and high gradients which

affect the passage of large-sized vehicles. Fallen rocks and landslides have also been observed in this section.

The construction of the international bridge connecting Thakhek in Lao PDR and Nakhon Phanom in Thailand is under consideration. When it is completed, the distance between Bangkok and Hanoi will be approximately 1,300km and will be the shortest distance connecting the 2 cities: running through Bangkok – Nakhon Phanom/Thakhek – NR-12 – Route No.1 in Vietnam to Hanoi

8) National Road 9

It is the section from Savannakhet to the Vietnamese border with length of nearly 300km, specified as GMS East-West Economic Corridor. In the Strategic Plan of Road Maintenance and Improvement 2000 – 2015 formulated by the Lao government, the improvement of the NR-9 is considered as one of the highest priorities. In accordance with the Strategic Plan, the alignment improvement and asphalt pavement on the whole section was implemented under the ADB loan and Japanese Grant-Aid. However due to large traffic volume and increment of the overloaded trucks, intensive damage on the surface on some sections has been observed.

(3) Bridges in Lao and over the Mekong River

There exist 1,113 bridges along the national roads with a total length of 36,936m according to Bridge Statistics on the National Road 2003. Nearly 70% of the bridges are located in the Southern area. There are 3 bridges over the Mekong River as of 2008, with other 7 bridges planned under the 6th five-year plan of road and bridge construction (2006-2010).

1) Thai-Lao Friendship Bridge

It is an international bridge which connects Vientiane in Lao PDR and Nong Khai in Thailand, and is used together with the railroad. It was built by Australia for about 30 million US dollars and was opened for traffic in 1994. It is constructed at a total length of 1170m, with 3.5m width for vehicle lanes, 1.5m width for sidewalks and a single railway track at the centre of the section. The operational railway terminates after 3.5km from the border in Thanaleng in Lao PDR.

2) Second Thai-Lao Friendship Bridge

It is the second international bridge which connects Mukdahan in Thailand and Savannakhet in Lao PDR, constructed under a Japanese ODA Loan in 2006. It is constructed at a length of 2050m together with 1,600m of river cross section and 450m of access roads on both the Thai and Lao sides. It is expected to function as a East-West Economic Corridor connecting Vietnam, Lao PDR and Thailand and contributes to development in the region through human and material exchange, together with the NR-9.

3) Pakse Bridge

It is the second bridge constructed over the Mekong river in Lao that crosses the Mekong River inside Pakse. It is constructed at a length of 1,380m with 2 lanes for vehicles and sidewalks on both sides.

The 6th five-year plan of road and bridge construction (2006-2010) formulated by MPWT plans the following major bridges as shown in Table 2.2.8.

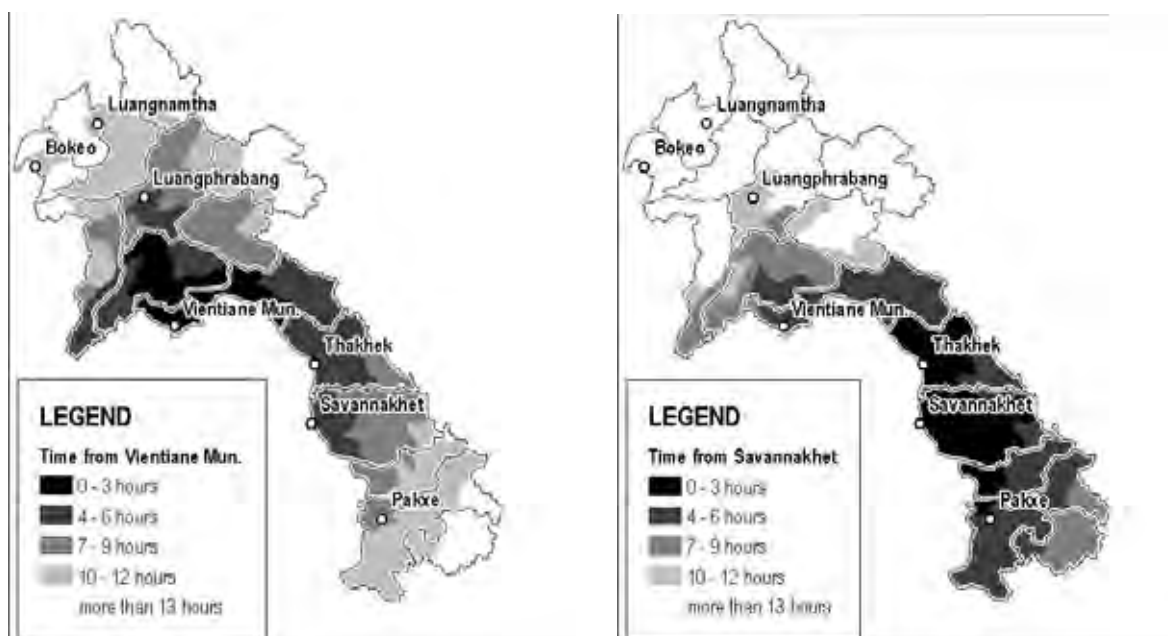
Table 2.2.8 Planned Bridges under the 6th Five-Year Plan

Provinces	Name of Bridge
Huixai	Huixai –Xiengkhuang Mekong Crossing Bridge
Champasack	Ban Had – Ban Na Mekong Crossing Bridge
Luangprabang	Mekong Crossing Bridge
Luangnamtha	Lao – Myanmar Mekong Bridge
Xayabury	Thadeua – Pakkhon Mekong Bridge
Vientiane	Paklai – Khokkhaodo Mekong Bridge
Khammuane	Khammuane – Nakhonphanom Mekong Crossing Bridge

Source: 6th five-year plan of road and bridge construction, MPWT (2008)

(4) Level of Road Transport Service

The following figures and tables describe the level of service in transportation of goods by road from major cities in Lao PDR. As discussed above, time zones by travel time were estimated assuming that the goods are transported at maximum design speed (without any delay caused by traffic congestion and custom clearance). For instance, in transporting goods from Vientiane, most regions in Lao PDR are covered within a 12-hour travel distance, excluding northern and southern Lao. 86% of the population in Lao PDR is covered within the said travel distance from Vientiane. On the other hand, the area of service in transporting goods from Savannakhet and Pakse is relatively shorter than that from Vientiane. Around 60% of the population in Lao PDR is covered within the 12-hour travel distance both from Savannakhet and from Pakse. Many of the regions in northern Lao lie outside the 12-hour travel distance.





Source: JICA Study Team

Figure 2.2.8 Zones by Travel Time (Up-left: From Vientiane, Up-right: Savannakhet and Down: Pakxe)

Table 2.2.9 Time Zones and Population Covered (From Vientiane)

Time Zone (hours)	Population Covered (000 persons)	Share
0-3	1,005,549	18%
4-6	1,261,044	42%
7-9	1,228,368	64%
10-12	1,168,910	86%
13-	779,564	100%

Source: JICA Study Team

Table 2.2.10 Time Zones and Population Covered (From Savannakhet)

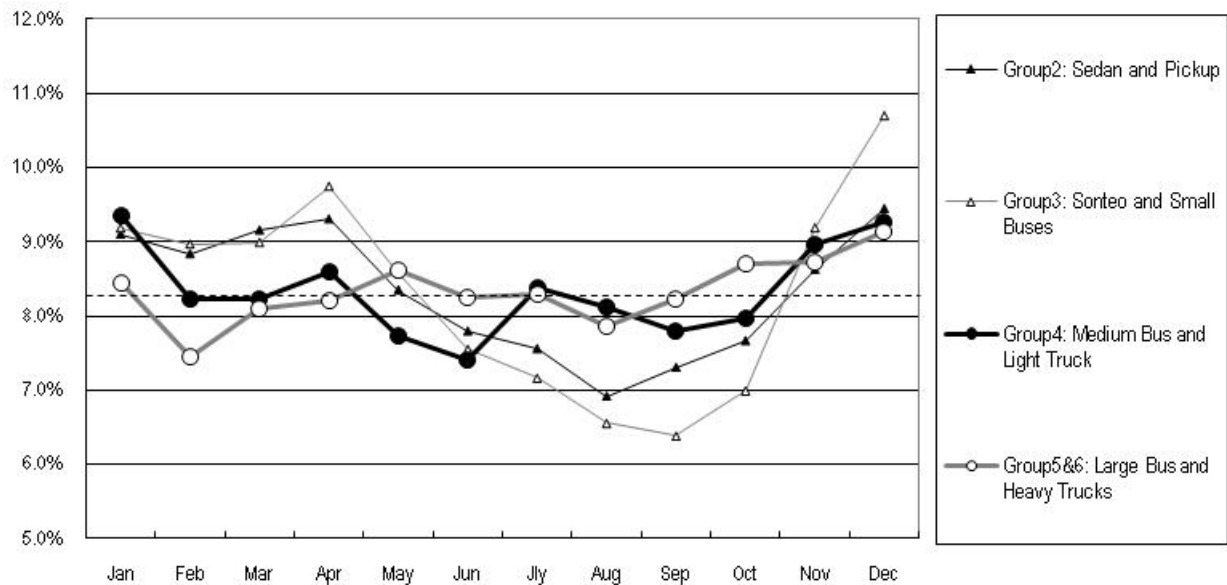
Time Zone (hours)	Population Covered (000 persons)	Share
0-3	1,252,792	23%
4-6	1,683,305	54%
7-9	486,192	63%
10-12	236,426	67%
13-	1,784,720	100%

Source: JICA Study Team

Table 2.2.11 Time Zones and Population Covered (From Pakxe)

Time Zone (hours)	Population Covered (000 persons)	Share
0-3	912,067	17%
4-6	1,052,949	36%
7-9	778,342	50%
10-12	517,352	60%
13-	2,182,725	100%

Source: JICA Study Team



Source: Prepared by JICA Study Team based on toll collection data

Figure 2.2.9 Monthly Traffic Volume by Vehicle Type

(5) Railway Network

Railway service in Lao PDR is minimal and not available for most of the nation. Only the 3.5km section between Friendship Bridge and Thanaleng is open to the public and connects twice a day with Nong Khai, Thailand. A railway extension project is now under negotiation between the Lao PDR and Thai Governments. The Thai Government is a potential financier for the railway infrastructure, and the railway will be extended by 9km up to the east edge of Vientiane Capital. According to the interview with the Railway Authority, the Lao Government has approved the railway development master plan with a target year of 2020. The priority projects in this master plan include a Northern Line connecting Vientiane and Yunnan, China, and a Southern Line connecting Vientiane with Pakse parallel to the NR-13. The development of railways in Lao could be considered as an alternative to the road system, particularly in the north-south corridor, and its area of influence, where most of the limited local rail traffic could be generated. However, the progress of railway development is not viable since the capital cost, much of which would be borne by the Lao government, would be high.

(6) Aviation

The Lao Government, through the Lao Airport Authority (LAA), directly operates and manages all major airports in Vientiane, Luangprabang, Pakse, Savannakhet, and Luangnamtha. The remaining minor airports are under the responsibility of the provincial governments, subsidized from the central government to meet their capital expenditures. The airports in Vientiane and Luangprabang handle international traffic and provide basic customs, immigration and quarantine services. It is expected that Pakse will become a regional airport in the near future providing similar services. The fourth significant airport is Savannakhet. All four main airports were recently upgraded. There are ten recognized minor airports located in the provincial capitals and thirty-nine other airports with unpaved runways.

International services to Lao PDR are operated by Lao Airways, Thai Airways International, Vietnam Airlines, and China (Yunnan) Airlines. Domestic services are operated exclusively by Lao Airways.

(7) Inland Water Transport

The Mekong River and its feeders, the Nam Ou River and Se Kong River, flow through the country for over 2,000 km. But rapids, falls, and low water levels during the dry season reduce the navigable length for river transportation to only 1,300 km. There are 21 river port facilities on the Lao PDR side of the river. With the exception of one river port (Kaolia) which is operated privately, all facilities are under the responsibility of the Provincial Department of Public Works and Transport.

For navigation purposes, the Mekong in Lao PDR is divided into 7 sections. The first 2 sections, China border – Huoixai – Luangprabang, have many small rapids that are a barrier to navigation in the dry season. The section between Luangprabang and Vientiane is navigable throughout the year but also has rapids in some sections, even at high water levels. The most navigable section is from Vientiane – Thakhek – Savannakhet, despite the fact that it has several dangerous rapids. The main barrier along the Mekong River is the Khemarat rapids between Savannakhet and Pakse, which completely close the river in dry season and severely limit wet season navigability. In the Pakse – Don Deth section, navigation is easier only as far as the Cambodia border where the Khone Falls are an impassable obstacle. A 5-km rail line used to operate in colonial times on Khong Island to transship goods between the top and bottom of the falls.

Vessels up to 400 DWT can operate throughout the year on the northern section of the Mekong River, while elsewhere operations are limited to barges of 200 DWT or less. In the dry season, most of the river is navigable only by small, shallow-draft, narrow-beam passenger vessels. Vessels of 300 DWT or greater capacity carry mainly industrial and agricultural products. The main commodities handled are sand, rock, wood products, food grains, steel products, and logs. The majority of the traffic is domestic, but international traffic is important on the upper section among China, Lao PDR, Myanmar and Thailand.

Governance of river infrastructure lies with the Department of Waterways of the MPWT. Its main responsibilities include river gauging, flood hydrology, bank protection, and maintenance of port and navigational aids. River transport is governed by a waterway transport regulation. However, apart from an annual inspection of the fleet, there are no specific safety regulations or requirements, nor do waterway transport regulations conform to any international standard.

2.2.3 Logistics Infrastructure in Lao PDR

In order to accomplish the cross border transport facilitation, border facilities play an important role. According to the CBTA agreement, the role of border facilities is defined as providing the following services:

- For customs procedure: Single Stop/Single Window Inspection (Annex 4)
- For vehicles: Repair/maintenance services, fuel station and parking lots (Annex 12)
- For cargo: Loading/unloading, trans-shipment, cargo inspection, container depot and customs warehouse (Annex 12)

- Miscellaneous services: Communication and telecommunication facility, bank, police, vehicle weighing bridge, X-ray inspection machine, automated license plate reader (Annex 12)

Beside the above requirements, the custom facility and cargo handling facility are core-competences.

According to the World Bank's report¹, currently import cargo is unloaded and held at customs' controlled warehouses at the 3 cross-border checkpoints² out of the 6 crossing points surveyed³. In reference to the World Bank Report, no information on the remaining border checkpoints is available. This implies that common and standardized procedures and facilities in customs clearance do not exist in Lao PDR. If border customs warehouses are not developed, customs procedures are likely to be conducted with the cargo loaded on trucks, instead of unloading the cargo. Considering cross-border checkpoints in Lao PDR, the open yard customs checks as well as road side trans-shipment are common, even when standardized facilities have been developed. In order to accomplish cross-border transport facilitation, it is preferable to clear customs without unloading the cargo.

2.3 Cross-Border Procedure for Freight Transport

2.3.1 Customs Procedures

(1) Outline

The facilitation of custom procedures is a critical issue for cross-border transport. Lao PDR has 13 cross-border points where import/export and transit procedures are available. The current accomplishments in cross-border facilitation are summarized below:

- Export procedures are already facilitated.
- Transit procedures are also facilitated at major border checkpoints.
- Import customs clearance is available at borders. However, the facilitation of import customs clearance has not been fully achieved. While the lead-time for import customs procedures has been reduced, prior procedures and negotiations for import goods are not available yet.

Table 2.3.1 summarizes the average time and cost for customs procedures in exporting and importing general cargo to/from Vientiane through the Friendship Bridge. It shows that a considerable amount of time is required for document preparation for normal importing procedures. On the other hand, export procedures require a minimum amount of time and are already facilitated.

¹ 'Lao PDR customs and trade facilitation project: consultancy service for import and export process mapping in Lao PDR' March.2008

² Thanaleng, similar system is adopted at Vangtao and Huoixai

³ Nateu in Luangnamtha province, Kaisonphomvihan at the Second Mekong International Bridge and Denesavanh-Laobao in Savannakhet. Thanaleng: similar system is adopted at Vangtao and Huoixai

Table 2.3.1 Customs Procedure in Lao PDR

Export Procedures	Time	Cost (USD)
Document Preparation	1 day	50.00
Customs clearance and technical control	half day	100.00
Port and terminal handling		
Inland transport and handling	2 hours	150.00
Import Procedures	Time	Cost (USD)
Document preparation	1. By temporary procedure (1 day) 2. By normal procedure (20-30 days)	100.00 80.00
Customs clearance and technical control	1 hour	50.00
Port & terminal handling	2-4 hours	80.00
Inland transport and handling	2 hours	150.00

Source: ADB Country Assessment Report (Lao PDR) RETA 6450: Enhancing Transport and Trade facilitation in the GMS-Development of national and regional Logistics Plans

Another issue pertaining to customs procedures is the customs operation hours. According to the GMS meeting held in June 2009 at Kunming, many complaints about customs operation hours were raised by private business people, pointing out;

- Early closing
- Long lunch break
- Difficulty to get permission for over time operation as well as weekend operation

Many logistics players consider operation hours to be very short in practice. Although institutional facilitation has been improved, such a basic and important issue has not been resolved yet.

Even at major customs points, it is possible to estimate lead-time required for standardized procedures. Considering current customs procedures in Lao PDR, customs facilities and human resources are insufficient, such that it is difficult to estimate transit time.

For example, when importing new items which are unfamiliar with the local custom office, customs procedures for such new items may require considerable time at the cross-border point. In order to avoid this, prior negotiations are proposed as the most effective measure.



Not enough facility (customs office)



Small facility and open-yard check points in front of customs office

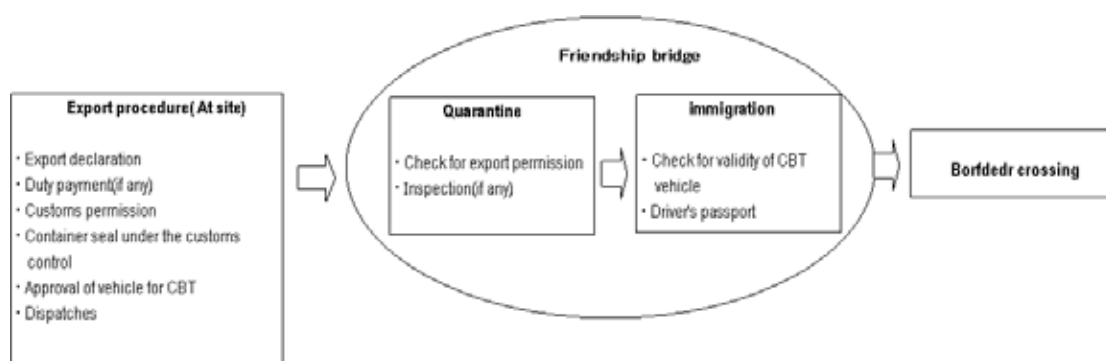
Figure 2.3.1 Natyuey Customs (Substantial Main Office for Boten Checkpoints)

(2) Export Procedures

Recently export procedures have been improved to some extent and most exporters and investors are satisfied with the current practice in Lao PDR. Unnecessary processes have been eliminated especially for garments, toys and electronic appliances. Export procedures are divided into 2 steps: export customs procedures on site; and quarantine and immigration at border checkpoints.

Figure 2.3.2 illustrates the export procedures in Lao PDR. Procedures in exporting cargo require the following steps:

- Export declaration
- Customs permit
- If permeated, cargo stuffing and seal under customs control
- Move cargo to the border, and quarantine, and immigration check
- Cleared cargo can cross the border



Source: World Bank 'Lao PDR customs and trade facilitation project: consultancy service for import and export process mapping in Lao PDR' March.2008

Figure 2.3.2 Export Procedures in Lao PDR

Table 2.3.2 compares export procedures amongst the GMS countries and Singapore. Like other GMS countries, the factory vaning service is available in Lao PDR and it significantly reduces the shipper's cost and burdens. As indicated in the table, lead-time for export procedures in Lao PDR is not inferior to that in other countries. Procedures in Lao PDR remain manual, while other ASEAN or GMS countries have already installed the EDI system.

Table 2.3.2 Export Customs Procedure in Asian Countries

	Lao	Thailand	Viet Nam	China	Cambodia	Singapore
Factory vaning	Yes	Yes	Yes	Yes	Yes (for promotion cargo)	Yes
Place of cargo for export procedures	At site	At site	At site	At site	At site	At site
Double check between port and factory customs	Yes	Yes	Yes	Yes	Yes	Yes
Declaration method	Manual	No	No	No	No	No
Paper less	No	Yes	No	No	No	Yes
Bank attestation	Need	No	No	No	No	No
Data transmission for border	Impossible	Possible	Impossible	Possible	Impossible	Possible
Prior declaration	Impossible	Possible but	Possible but	Impossible	Impossible	Possible

	Lao	Thailand	Viet Nam	China	Cambodia	Singapore
Average time for customs procedure	Within a day	not practical 1-2 days (10 minutes 3 hours for EDI portion)	not practical 1-3 days	1-2 days	2 day (for export promotion goods)	10 minutes
Necessary document	Declaration - Invoice - Packing list - Application for importation of goods -Approval form from ministries -P/O -Technical and registration permit - B/L (In case of machinery, electrical equipment and transport equipment)	Declaration - Invoice - Packing list - Declaration for foreign currency control - License (if any) -Materials for explaining cargo details (Catalogue, etc.)	Declaration - Invoice - Packing list - P/O -Power of attorney -Consumption list (for export oriented exporters using tax exempted materials) - License (if any) - Materials for explaining cargo details (Catalogue, etc.)	Declaration - Invoice - Packing list -P/O -Power of attorney - Certificate of product quality	Declaration - Invoice - Packing list - Authorization Letter - License (if any)	Declaration - Invoice - Packing list
Customs working time	Daytime in weekdays	Daytime in weekdays	Daytime in weekdays	Daytime in weekdays (Extension is difficult.)	Daytime in weekdays	24 hours in 365 days

Source: JICA Study Team

Lao PDR has 2 disadvantages in terms of export procedures.

1) Bank attestation is required

Lao PDR has adopted a bank attestation scheme for significant number of commodities, including raw materials, textiles (material), footwear (material) and electrical parts. Lao PDR promotes the export of these commodities. A certificate authorized by a bank is required, proving all transactions of payments through the bank. Although similar practices for a limited number of commodities are observed in many ASEAN countries, bank attestation is required for many commodities in Lao PDR.

2) Documents are not standardized

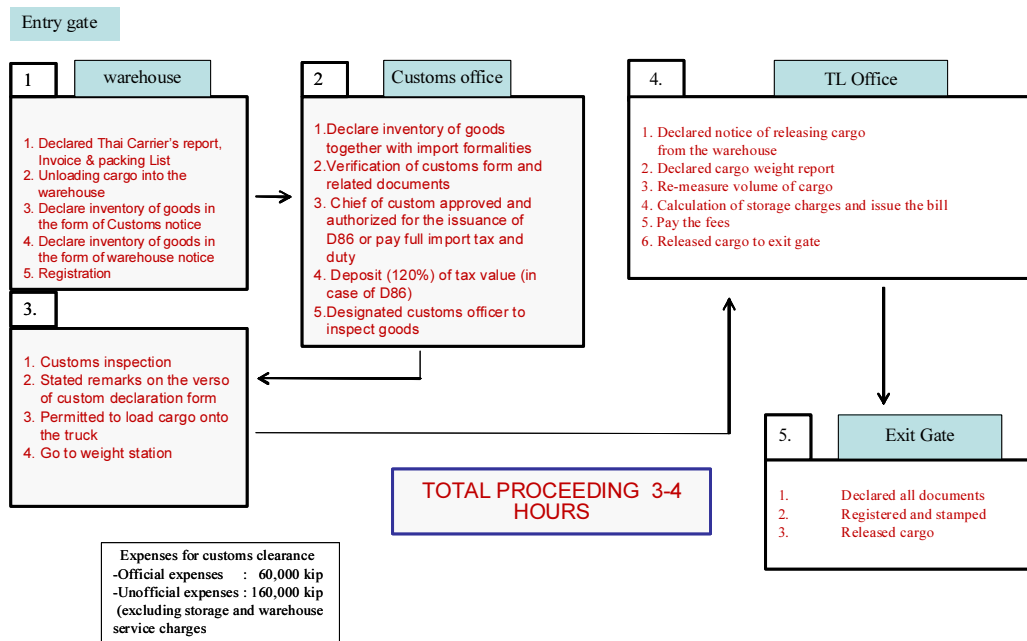
The documents required for export procedures vary by commodity, resulting in complex operations by exporters. Customs procedures for export cargo are still not standardized. Some documents require detailed information, including confidential information by exporters. Preparing such information or documents becomes a burden for shippers.

(3) Import Procedures

An empirical study by the World Bank surveyed import procedures at the following 6 cross-border points: Thanaleng and Friendship Bridge in Vientiane, Vangtao in Champasack Province, Huoixai in Bokeo Province, Nateu in Luangnamtha Province, Kaisonphomvihan at the Second Mekong Bridge and Denesavanh-Laobao in Savannakhet.

Figure 2.3.3 illustrates the import customs procedure at Thanaleng. A similar procedure is practiced at Vangtao and Huoixai. As seen in the figures, border-crossing cargo should be unloaded at the warehouse controlled by customs, where customs procedures are available. The

required documents vary and procedures are not standardized at the border checkpoints.



Source: World Bank 'Lao PDR customs and trade facilitation project: consultancy services for import and export process mapping in Lao PDR' March 2008

Figure 2.3.3 Import Procedures in Lao PDR

The study pointed out some disadvantages in terms of import procedures: 1) Customs procedure is manually demonstrated using papers and documents. 2) A physical check is necessary by customs officers before releasing the cargo. 3) The lead-time itself is not too long. However, considerable human resources and time are required to prepare the documents in order to release the cargo in a short time. Prior negotiation or preparation is crucial in order to reduce time consumed at customs clearance. Transparency should also be enhanced in customs procedures in Lao PDR.

Table 2.3.3 summarizes the import customs procedures in GMS and Singapore. Like other ASEAN countries, Lao PDR has been trying to meet the International standards, adopting the HS code system and self-assessed taxation system. This implies classification and duty calculation are dependent on the declaration submitted by exporters/importers as well as customs brokers. Lead-time for import customs procedures are not too long compared to other countries while other countries have adopted the EDI system. This implies that paperless custom procedures do not reduce lead-time significantly.

Many documents are required for import procedures in Lao PDR. This results in a complex process for importers and standardization remains insufficient. Some documents require detailed information. Preparing such information or documents becomes a burden for shippers. And some of the information required is considered confidential.

In ASEAN countries, a registered customs system is widely available. This system allows importers and exporters to register local customs where they locate and register customs to acquire priority on import and export procedures. Lao PDR has not adopted the registered system yet. Border customs offices in Lao PDR consist of 2 kinds, namely: frontier offices and inland offices. The inland offices are usually main customs offices to monitor and evaluate import/export customs

procedures. If the procedure at border checkpoints is not facilitated, the customs procedure becomes complicated because procedures tend to overlap between the 2 border checkpoints.

Another issue in Lao PDR is that cargo is required to be unloaded at the customs warehouse or customs controlled warehouse. Similar practices are not observed in other ASEAN countries. This requirement in Lao PDR contributes to increased costs and idle time for customers. The green channel system has been introduced in many ASEAN countries, including Lao PDR. It aims at providing facilitated customs checks for qualified declarants. Such declarants may enjoy the benefit of being exempted from a physical check. In Lao PDR, some companies are already exempted from unloading of their cargo at the customs warehouse.

Table 2.3.3 Import Customs Procedure in Asian Countries

	Lao	Thailand	Viet Nam	China	Cambodia	Singapore
Main office for judging import/export procedures	Border customs	Border customs	Registered customs	Registered customs	Border customs	Port
EDI	No	Yes	No	Yes	Yes	Yes
Document Submission	Yes	No (Paperless is promoting.)	No	No (Paperless is promoting.)	No	Yes
Physical Check	Yes	Yes (Exemption is promoting.)	Yes	Yes (Exemption is promoting.)	Yes	No
Obligation for cargo unloading	Yes	No	No	No	No	No
Import code system	HS	HS	HS	HS	HS	HS
Duty calculation value	Transaction value	CIF	CIF (depending upon customs value)	CIF	Pre-shipment inspection value	CIF
Data transmission for border customs	Impossible	Possible	Impossible	Possible	Impossible	Possible
Prior Declaration	Within a day	1-2 days (10 minutes 3 hours for EDI portion)	1-5 days	2 days	7 day (for export promotion goods)	10 munities
Necessary document	Declaration - Invoice - Packing list - Bank attestation -Export application letter to Customs Dept. - Importation inventory of imported raw material using in the production process - Loading inspection report (In case of raw materials for raw materials, footwear and toys, and electronic parts)	Declaration - Invoice - Packing list - Declaration for foreign currency control - Customs card (Certificate of qualified declarant) - B/L -Materials for explaining cargo details	Declaration - Invoice - Packing list - P/O -Power of attorney -Investment license - License (if any)	Declaration - Invoice - Packing list -P/O (contract) -Power of attorney - Certificate of product quality - B/L	Declaration - Invoice - Packing list - Pre-shipment inspection result - B/L	Declaration - Invoice - Packing list B/L
Green Line system	Yes	Yes	Yes	Yes	No	No
Duty Payment	Before permission	Before permission	After release payment	Before permission	Before declaration	Before permission

Source: JICA Study Team

(4) Transit

At the initial stage, the transit procedure was complex and time consuming. It come from the following reasons:

- Transit procedures required transit approval at the main office in Vientiane prior to cargo dispatch, regardless of where the transit was made.
- Original documents are required at and sent to the border branches.

Considering EWEC, the transit time between Hanoi and Bangkok was reduced to 3 days. However, similar or longer time is required to obtain transit permission. The transit procedure has been improved in Lao PDR. For instance, the main office at Vientiane delegated the function of transit permit issuance to local offices. This contributes to reducing the lead-time to obtain transit permission to 20-30 minutes. Currently, this is also available along NR-3 where transit procedure is locally managed at local cross-border checkpoints.

Like import and export procedures, transit procedures are not standardized across cross-border checkpoints. Accordingly, it is difficult to estimate necessary procedures and lead-time. This is mainly because facilities and human resources are insufficient at local checkpoints.

(5) Other Issues

1) Import Licensing

Former General Agreement on Tariffs and Trade (GATT; WTO at present) established restrictions for member countries, employing an import licensing system to increase transparency and predictability. For example, these restrictions require member countries to provide sufficient information to traders. It also provided guidelines on the import licensing system.

Lao PDR Government (former Ministry of Commerce) eliminated licensing of imported and exported goods in 1994. Companies were then requested to submit a periodic plan of imports which were then declared and approved on a shipment-by-shipment basis at the entry ports and/or customs warehouses. The volume of trade was carefully restricted by the Ministry of Commerce. Accordingly, companies were often forced to buy approval of another company's plan.

GATT defines import licensing as “administrative procedures used for the operation of import licensing regimes requiring the submission of an application or other documentation (other than that required for customs purposes) to the relevant administrative body as a prior condition for importation into the customs territory of the importing member.” Clearly, the periodic plan required in Lao PDR constitutes an import license and is not in conformity with GATT.

A duty exemption scheme is also a critical issue in terms of cross-border facilitation. To obtain a duty exemption certificate still requires complex preparation from governmental agencies and takes a long time. This bureaucratic and inflexible governmental control remains one of the constraints for cross-border facilitation.

2) Prior Negotiation

In order to get permission from customs in a short time, customs brokers are likely to depend

on negotiation with customs in order to avoid confusion when the actual import/export procedures transpire. Prior negotiation in this case is crucial. However, this service is not yet available in Lao PDR mainly because the customs procedures are not standardized as yet. In particular, local customs tend to deal with very limited items of cargo by frequent users. In that case, in importing and exporting items new to the local customs, it takes considerable time to obtain a customs clearance permit. In order to avoid this, prior negotiation with customs is extremely important.

3) Low Qualified Declaration

Another issue underlying customs procedures in Lao PDR is the low quality of declarations. The capacity of the customs brokers and freight forwarders are not sufficient, resulting in inappropriate document preparation for customs procedures. This contributes to considerable time consumption by overly precise inspection by customs officers. This also creates mutual mistrust among exporters/importers and customs.

In order to accomplish improved quality in declarations, it is recommended to develop a customs broker system. This is a common practice worldwide. The authorized customs broker can guarantee the quality of the declaration. The development of such a customs border system can benefit both customs and users as follows:

- Customs can reduce their check operation time
- Exporters and importers can benefit from fast and simplified clearance

In addition, an assessment system for customs broker's performance is essential to maintain quality declarations. This can promote the green channel system for qualified customs brokers as well as exporters/ importers.

Although Article 20 of the Customs Law states the guidelines for customs brokers (agents), concrete actions have not yet been made in Lao PDR.

2.3.2 Vehicle

(1) Institution

Lao PDR is geographically located in a strategic position, connecting 5 neighboring countries: Cambodia, Thailand, Myanmar, China and Vietnam. Lao PDR has been actively involved in signing bilateral, GMS, and ASEAN agreements in order to facilitate cross-border transport. As a result, foreign vehicles, mainly trucks and buses, are allowed to enter Lao territory while Lao vehicles are also able to drive into neighboring counties. In particular, bilateral transport is liberalized such that Lao trucks can deliver almost anywhere in the neighboring counties under bilateral agreements⁴. Currently, trilateral transport among Thailand, Vietnam and Lao PDR has also become serviceable under the trilateral agreement. Lao trucks, accordingly, have an advantage in cross-border transport.

⁴ Details are in Chapter 3.1.1.

Table 2.3.4 Requirements for Vehicle Registration

Vehicle	Engine
- Brand/trade mark	Brand (if different from body)
- Model code	Number of cylinder
- Year of manufacture	Capacity
- Chassis serial number	Horsepower
- Empty weight	
- Gross weight	
- (3 rd party liability)	

Source: GMS agreement annex 2

In order to conduct cross-border transport business, Lao transporters are required to register their vehicles in Lao PDR under the agreements of CGM, ASEAN and bilateral agreements. The concepts of these 3 agreements are almost identical. Registered vehicles are automatically approved by counterpart countries on a mutual recognition basis. Table 2.3.4 shows the requirements for vehicle registration designated in GMS agreements.

1) Permitting domestic usage for registered trucks

Registered trucks are available to use domestic transport, not necessarily for exclusive use in cross-border transport. Such flexible management is beneficial for truck operators, resulting in a high turnaround of vehicles. Practically, it is difficult to invest limited resources only on international transport because the cross-border transport business remains a small portion of business for Lao truckers.

2) Permitting the combination of single tractor with multiple trailers

Transporters are concerned with how to improve the turnaround rate of vehicles to make profits from the transport business. In order to accomplish this, Lao regulation allows the combination of a single tractor and multiple trailers. If the permitted combination were restricted to only that between a single tractor and single trailer, flexibility in transport would be limited, resulting in a low turnaround rate. In order to avoid this, Lao PDR has allowed the combination of single tractor and multiple trailers. As a result, the tractors can operate more frequently.

3) Permitting the combination of Lao trucks with foreign trailers

Lao PDR also allows Lao tractors to carry foreign trailers. This improves the frequency of equipment utilization. Referring to the bilateral transport agreement, Thailand allows Lao trucks to carry Thai trailers. Lao trucks, accordingly, can realize efficient turnaround of equipment. Referring to the trilateral transport agreement, it is still uncertain whether local tractors can tow counterparts' trailers.

(2) Business Barrier

Despite the improvement of institutional framework, Lao transporters are not actively involved in cross-border transport. Although trans-shipment operations are provided by Lao service providers, the actual transport is handled by foreign truckers. The reasons for this are summarized below:

1) Limited Return Cargo

In terms of transport charges, Lao trucks are generally less competitive than Thai trucks

because there is no back haulage cargo for Lao trucks.

2) Few Trucks

The number of registered trucks in Lao PDR is relatively small such that trucks are mainly engaged in domestic transport business and no extra fleet for cross border transport is available.

3) Inferior Quality

Lao truck fleets tend to be aged with very small number of modern trucks. Since the quality of trucks is inferior to that of neighboring countries, it is difficult to provide quality service to customers.

4) Few Resources

A considerable amount of investment is required to replace equipment. Nevertheless, the resources for transport operators in Lao PDR are few. In addition, the loan and subsidy scheme in Lao PDR is not enough to induce investors to improve their equipment. While many logistics providers consider investment on equipment a top priority, the reality is that they cannot invest sufficiently without government financial support.

2.4 Logistics Services

2.4.1 Logistics Services

As shown in Table 2.4.1, the current logistics services in Lao PDR can be categorized into the following 6 patterns in terms of origin and destination of cargo: (Category 1) Out-In-Out, (2) Out-In-In, (3) In-In-Out, (4) In-In-In, (5) Out-In and (6) Out-Out Pattern. Categories 1 to 4 include the production process in Lao PDR, while categories 5 and 6 don't include the production process in Lao PDR. Category 5 represents import cargo which is comprised of nondurable consumer goods (e.g., food products, convenience goods) and durable consumer goods (vehicle, household electrical goods). Category 6 represents transit cargo transported through Lao PDR.

Table 2.4.1 Categories of Current Logistics Services in Lao PDR

Origin (raw material or Goods)	Logistics Services in Lao PDR	Destination (Goods)
Category1: Out - (In)* - Out Pattern		
Foreign (raw materials)	In-coming Haulage & Documents Trans-shipment (lift on &off) Production Storage Out-coming Haulage & Documents	Foreign (Productions)
Category2: Out - (In) - In Pattern		
Foreign (raw materials)	In-coming Haulage & Documents Storage* Trans-shipment (lift on &off) Out-coming Haulage	Domestic (Productions)
Category3: In - (In) - Out Pattern		
Domestic (raw materials)	In-coming Haulage Production Storage Trans-shipment (lift on &off) Out-coming Haulage & Documents	Foreign (Productions)
Category4: In - (In) - In Pattern		
Domestic (raw materials)	In-coming Haulage	Domestic (Productions)

Origin (raw material or Goods)	Logistics Services in Lao PDR	Destination (Goods)
	Production Storage* Out-coming Haulage	
Category5: Out - In Pattern (Import Goods)		
Foreign (goods)	In-coming Haulage & Documents Trans-shipment (lift on &off) Storage* Out-coming Haulage	Domestic (Productions)
Category6: Out - Out (Transit Cargo)		
Foreign (goods)	Trans-shipment Haulage & Documents Trans-shipment (lift on &off)	Foreign (Productions)

Note: *1: (In) means that the production base is located in Lao PDR.

*2: In case of domestic delivery of production, there are 2 typical logistics patterns: first pattern is to deliver directly to the customer, e.g., dealer, wholesale shop, detail shop and private, etc ; another is to deliver to customer via central market place which is located in urban area.

Source: JICA Study Team

The following discussion expounds on characteristics of the industry and necessary logistics procedures by category.

(1) Category 1 to 4

Table 2.4.2 shows the types of industry and their associated production for categories 1 to 4 by type of capital. The logistics procedure is divided into 7 components: 1) prepare import documents, 2) import trans-shipment, 3) carrying raw materials in, 4) store raw materials, 5) export documents, 6) carrying product out and 7) storage of products.

Table 2.4.2 Types of Industry and Production by Category

	Out - (In) - Out	Out - (In) - In	In - (In) - Out	In - (In) - In	Name of Major Factory
Foreign Capital Industry					
Consumption Goods	Garment Shoes	Motorcycle Vehicle	Sugar		YAMAKI SUZUKI
Capital Goods	Machinery Parts				Tokyo Coil YAZAKI
JV Capital Industry					
Consumption Goods		Beer Tobacco Vehicle	Garment		Beer Lao Lao Tobacco Co. HONDA
Capital Goods			Mining		XEPON Cupper Co.
Local Capital Industry					
Consumption Goods		Beverage	Garment Handy craft Silk	Vegetable Coffee	Lao Soft Drink Dao Coffee
Capital Goods			Wood Charcoal Mining	Cement Wood	White Charcoal
Factory Location	Near Border	Near Border Inner City	Local Origin	Inner City	

Source: JICA Study Team

Category 1 (Out-In-Out)

The factories are almost all foreign owned companies, e.g., YAMAKI, MIDORI, Tokyo Coil, Sante,

etc. In many cases, the mother factories are located in Thailand and headquarters are located in developed countries. These factories tend to engage in labor-intensive manufacture, e.g., garment, and machinery parts. Accordingly, most factories are located near the international border within highly populated areas. In Vientiane, some major forwarding companies, such as LFF and SMT, transport imported goods from the Thanaleng warehouse to the factories in Lao PDR and manage broker business for import cargo. These factories tend to use foreign logistics companies for international haulage and broker business. Major forwarding companies (LFF, SMT, etc.) under LIFFA and Province Truck Association are contracted for domestic cargo haulage when transiting at Thanaleng warehouse.

Table 2.4.3 Current Condition of Logistics Services (Category 1)

	Current Condition of Logistics Market
1) Import Document Procedure	Conducted mainly by Foreign-owned companies.
2) Import Trans-shipment	In case of VTR, 70% of imported goods are transited cargo at Thanaleng warehouse, and other 30% is transported directly to the factories in Lao PDR without transit.
3) Production Carrying In	Foreign owned company conducts mostly.
4) Raw Material Storage	Most is stored in factory-owned warehouses currently; this market has a high probability of being conducted by logistics company in near future.
5) Export Document Procedure	Conducted mainly by Foreign-owned companies.
6) Product Carrying Out	Conducted mainly by Foreign-owned companies.
7) Product Storage	Currently most factories own warehouses for products, furthermore there is no need to keep the products because of shipment of products at regular intervals.

Source: JICA Study Team

In terms of logistics, the current concern for these foreign-owned companies lies in the cross-border procedure. Most of the factories are located near the border and regularly transport their goods to mother factories in neighboring countries. Currently, the logistics market in this category (1) is quite limited and small for logistics companies in Lao PDR.

Category 2 (Out-In-In)

These factories are mostly monopolistic and oligopolistic firms, such as Shell, Honda, Yamaha (foreign owned), Beer Lao, Lao Tobacco, Lao Soft Drink, KOLAO (joint venture), Lao Soft Drink, Dao Coffee (domestic owned) and Lao State Fuel Company (state owned). The factories are also located in highly populated areas for better access to larger markets and near the border to import goods. The factories own trucks and drivers in most cases. Most factories own trucks and warehouses and domestic haulage is managed autonomously. Due to recent economic growth, the domestic consumption market is expected to expand. Accordingly, the demand for domestic haulage and storage is also expected to expand. Also, the logistics function is expected to be outsourced in the future because the manufacturing industry tends to concentrate on production in order to increase production efficiency.

In terms of logistics, the current issues for these factories vary widely, including road infrastructure, domestic transport, logistics facilities, institutions, and logistics business entities. Most imported cargo is transported directly to these factories without transit at Thanaleng warehouse; hence cross-border procedures are not their main concern.

Some manufacturing companies have to acquire the documents from the Ministry of Finance including import certificates and tax certificates to transport manufactured goods to other provinces. It takes around 2 weeks to obtain these documents and hence the need to store the

manufactured goods in a warehouse, which then increases inventory costs. Another issue pertaining to domestic haulage and storage is non-reliability of domestic logistics companies.

Table 2.4.4 Current Condition of Logistics Service (Category 2)

	Current Condition of Logistics Market
1) Import Document Procedure	There are various types of patterns in terms of import document procedure, namely: market, conducting by themselves, and commission to not only domestic companies but also foreign companies.
2) Import Trans-shipment	Most imported cargo is transported to the factories directly. If it needs to be transited at Thanaleng warehouse, the cargo is trans-shipped from foreign truck to domestic truck.
3) Production Carrying In	Most imported cargo as bounded cargo is transported to the factories directly; there is limited cargo to be trans-shipped at the border. In case of transit cargo, most of domestic haulage is commissioned to domestic logistics companies.
4) Raw Material Storage	Most is stored in factory-owned warehouses currently; this market has a high probability of being conducted by logistics companies in near future.
5) Export Document Procedure	-
6) Product Carrying Out	Most companies of Category 2 are major manufacturers, e.g., Honda, Kolao, Beer Lao, and Lao Soft Drink etc. Many companies have privately-owned trucks and drivers. If the domestic haulage increased due to market demand and the privately owned trucks fell short, the companies would commission out the domestic haulage.
7) Product Storage	Most is stored in factory-owned warehouses currently; this market has a high probability of being conducted by logistics companies in near future.

Source: JICA Study Team

Logistics companies and associations, including private truckers, have no financial capability to improve trucks, warehouses, and other logistics facilities. Furthermore, the quality of truckers in Lao PDR is still low compared to truckers in neighboring countries. Domestic logistics companies face a risk of losing the logistics market in Lao PDR.

These factories have their own warehouses/depots. However, the factories tend to outsource the logistics function, and hence the logistics park has a potential to deal with raw materials and manufacturing products of these factories.

Category 3 (In-In-Out)

The factories in this category mainly consist of mining (e.g., copper, iron ore, gypsum), wood processing and agricultural production (e.g., rice coffee beans, vegetables). These factories are located near the origin of resources and production. These factories are capital intensive and require heavy machinery for their production. These factories, except for mining, store considerable amounts of inventory. Their products tend to be transported by their own trucks. International haulage in exporting their products is outsourced to domestic logistics companies, e.g., Provincial Truck Association or private forwarding companies under LIFFA in Vientiane.

In most cases, their products are exported to the nearest provinces of neighboring countries. Most domestic truckers don't transport to major trade ports (Leam Chabang, Thanlong, Ho Chi Min Port) and major ICD (Lat Krabang). Most factories are located near the origin of resources and production, especially mining factories. Raw materials for food processing (coffee beans, sugar, rice, etc.) are transported by the contracted farmers, and these farmers usually incur the haulage costs from the farm to the factories.

The major issue for these factories is international haulage by domestic truckers in exporting their products. It is usually difficult to haul from the factories directly to major trade ports in neighboring

countries due to domestic truckers being less able and unreliable.

Table 2.4.5 Current Condition of Logistics Service (Category 3)

	Current Condition of Logistics Market
1) Import Document Procedure	-
2) Import Trans-shipment	-
3) Production Carrying In	No costs expended in transporting the raw materials to the factory because the factories are generally located at raw material sources. Raw materials tend to be transported by the contract farmer (wood, agricultural goods, etc.) who pays the cost of transport as well.
4) Raw Material Storage	Most is stored in factory-owned warehouses currently; this market has a high probability of being conducted by logistics companies in near future.
5) Export Document Procedure	Depending on international haulage, if international haulage (out-coming cargo) is conducted by company's own trucks, the procedure of export is also conducted by the company. If international haulage (out-coming cargo) is conducted by separate logistic company, then the procedure of export is conducted by separate company.
6) Product Carrying Out	In case of being transported by co.'s own trucks, the destinations of international haulage to Thai side consist of only neighboring provinces in Thai. Meanwhile the destinations of international haulage to Vietnam side consist not only of neighboring provinces but also trade ports (Thanlong, Bin, Hue, Danang port, etc.).
7) Product Storage	Most factories, except mining development companies, own their own warehouses. In actuality, there's no need to store a large amount of warehouse stock.

Source: JICA Study Team

Category 4 (In-In-In)

The goods in this category are convenience goods (e.g., agricultural goods, foods, instant coffee, and charcoal for households) also, construction material and capital goods (e.g., wood, cement). These convenience and capital goods are normally low quality products that cannot be supplied to the international market. Most factories that produce these goods are located near the origins of the resources and production.

Domestic haulage of capital goods (construction materials) tends to be conducted by the companies' own trucks or the logistics section of their companies. Sometimes, domestic haulage is contracted out to local private truckers under the Provincial Truck Association.

Table 2.4.6 Current Condition of Logistics Service (Category 4)

	Current Condition of Logistics Market
1) Import Document Procedure	-
2) Import Trans-shipment	-
3) Production Carrying In	No costs expended in transportation of the raw materials to the factories because they are generally located near source of raw materials. Raw materials tend to be transported by the contract farmers (wood, agricultural goods, etc.) who incur the cost of transport as well.
4) Raw Material Storage	Most is stored in factory-owned warehouses currently.
5) Export Document Procedure	-
6) Product Carrying Out	Consumption goods tend to be transported toward the major domestic market places by factory-owned trucks or local truckers, while capital goods like construction materials tend to be transported mainly by factory-owned trucks, sometimes with supplementary haulage transported by local truckers. The inter-province haulage of consumption goods is transported by bus mainly, while inner-province haulage is transported by registered truckers to Province/District Association mainly.
7) Product Storage	Many consumption goods, except products for export, are transported to the central market place in urban areas without storage; hence most factories have no warehouses. Meanwhile most capital goods such as construction materials are stored before the haulage to the site; however the warehouses for construction materials aren't currently used for storage.

Source: JICA Study Team

(2) Category 5 and 6

The logistics procedure is divided into 9 components: 1) preparing import documents, 2) import trans-shipment, 3) carrying raw materials in, 4) storing raw materials, 5) export documents, 6) carrying products out and 7) storing products, 8) preparing transit documents and 9) transit transport.

Category 5 (Out-In)

This category represents the logistics of import products, e.g., home electronics, finished vehicles, daily consumables. These imported products are stored in an import agent's warehouse or central market place in an urban area. Most goods are transported directly from neighboring countries to the retail shop located in an urban area.

Petroleum products are transported to the storage depots located near the border and distributed to nationwide gas stations from these depots.

Table 2.4.7 Current Condition of Logistics Service (Category 5)

	Current Condition of Logistics Market
1) Import Document Procedure	Most is conducted by the company itself
2) Import Trans-shipment	Most imported cargo is trans-shipped at the border.
3) Production Carrying In	Most imported cargo is transported by foreign truck company from neighboring countries to the border, and then trans-shipped and transported by company-owned trucks or local truckers from the border.
4) Raw Material Storage	-
5) Export Document Procedure	-
6) Product Carrying Out	Bus transport plays an important role in inter-province haulage of convenience goods, while Tuk-Tuk, Sentio and private pick-ups play an important role in inner-province haulage of goods.
7) Product Storage	Most Import goods are stored in warehouses owned by import agents or central market place.
8) Transit Document Procedure	-
9) Transit Transport	-

Source: JICA Study Team

Category 6 (Out-Out)

The volume of transit cargo from Thailand to Vietnam is observed to be larger than that from Vietnam to Thailand. This implies a trade imbalance between Thailand and Vietnam and hence most trucks from Vietnam to Thailand are empty.

With the progress of economic integration and cross-border facilitation, e.g., AFTA, CBTA, FDI, trade volume among the ASEAN and GMS countries should increase. FDI from China and Vietnam to the GMS countries is expected to increase; hence transit cargo from the GMS to China and Vietnam will also increase.

Due to expansion of transit cargo within the GMS region, trans-shipment cargo demand in Lao PDR is expected to increase as well. Accordingly, domestic logistics companies in Lao PDR have a major opportunity to develop trans-shipment business.

Table 2.4.8 Current Condition of Logistics Service (Category 6)

	Current Condition of Logistics Market
1) Import Document Procedure	-
2) Import Trans-shipment	Trans-shipment demand at Thai border is positive, while the demand at Vietnam border is negative.
3) Production Carrying In	-
4) Raw Material Storage	-
5) Export Document Procedure	-
6) Product Carrying Out	-
7) Product Storage	-
8) Transit Document Procedure	Most trans-shipment haulage through Lao PDR is conducted by foreign logistics company.
9) Transit Transport	Most transit cargo haulage through Lao PDR is conducted by foreign logistics companies.

Source: JICA Study Team

2.4.2 Evaluation of Logistics System in Lao PDR by Logistics Performance Index

(1) Analysis of LPI against Economic Performance

Table 2.4.9 indicates the output of LPI (Logistics Performance Index) analysis between landlocked countries and non-landlocked countries. The number of landlocked countries is 33 out of a total of 155 targeted countries. However, the study team excluded 3 countries, namely: Montenegro, Cuba and Somalia, because the required data for comparison analysis between LPI and socio-economy data was not available. Therefore, the number of targeted countries fell to 152; of which 33 are landlocked and 119 are non-landlocked. Landlocked countries with high LPI ranks are mostly European Union nations, e.g., Luxemburg, Switzerland, Austria, Czech Republic, Slovak Republic, etc. The LPI ranking of Lao PDR is 21 out of the 33 landlocked countries. However, Lao PDR has an LPI ranking of 118 out of the 152 countries. Comparing the GDP per capita between landlocked countries and non-landlocked countries reveals that the average GDP per capita of non-landlocked countries is higher than that of landlocked countries. LPI exhibits a high degree of correlation to GDP per capita.

Table 2.4.9 LPI comparison between Landlocked and non-landlocked countries

		Landlocked	Non-landlocked
No of Countries		33	119
LPI Average	Score	2.681	2.941
	Rank	95.5	71.5
Ave. GDP/capita (USD)		10,862	15,359

Source: JICA Study Team based on World Bank report of LPI

Table 2.4.10 indicates the output of correlation analysis between LPI and GDP per capita as an economy index. The correlation factor between LPI and GDP per capita of landlocked countries is higher than that for non-landlocked countries. The correlation factors indicate that there is a high degree of correlation between logistics performance and economic activity; especially in landlocked countries where the correlation is more pronounced than in non-landlocked countries. It is therefore important that the government of Lao PDR improves the accessibility to markets and international ports located in neighboring countries through development of transport infrastructure and improvement of border facilities. Consequently, the potential of industrial

development and foreign firm location would be realised.

Table 2.4.10 Correlation factors between LPI and Economic Performance

	Index of Correlation	No. of Countries
Whole Sample of Landlocked and Non-landlocked countries	0.770	151
Sample of Landlocked countries	0.868	32
Sample of Non-landlocked countries	0.743	119

Source: JICA Study Team

Table 2.4.11 LPI and Socio-Economic conditions in Landlocked Countries

Country	LPI		Population (million)	GDP (USD billion)	GDP per capita (USD)
	Rank	Score			
1 Luxembourg	5	3.98	0.499	39.295	78,747
2 Switzerland	6	3.97	7.332	320.762	43,748
3 Austria	19	3.76	8.317	328.916	39,547
4 Czech Republic	26	3.51	10.428	261.62	25,088
5 Slovak Republic	38	3.24	5.417	121.783	22,482
6 Hungary	52	2.99	10.02	187.244	18,687
7 Slovenia	57	2.87	2.018	58.704	29,090
8 Kazakhstan	62	2.83	15.584	183.296	11,762
9 Uganda	66	2.82	34.39	42.946	1,249
10 Uzbekistan	68	2.79	28.067	84.53	3,012
11 Macedonia, FYR	73	2.77	2.067	19.31	9,342
12 Paraguay	76	2.75	6.402	30.132	4,707
13 Bosnia and Herzegovina	87	2.66	4.016	30.603	7,620
14 Kyrgyz Republic	91	2.62	5.444	12.502	2,296
15 Togo	96	2.60	6.965	5.822	836
16 Ukraine	102	2.57	45.252	307.07	6,786
17 Moldova	104	2.57	3.55	10.002	2,817
18 Armenia	111	2.52	3.299	16.499	5,001
19 Bolivia	112	2.51	10.426	47.754	4,580
20 Chad	115	2.49	10.223	17.739	1,735
21 Lao PDR	118	2.46	6.497	15.132	2,329
22 Ethiopia	123	2.41	83.188	84.281	1,013
23 Bhutan	128	2.38	0.671	4.112	6,128
24 Tajikistan	131	2.35	6.536	14.15	2,165
25 Botswana	134	2.32	1.824	25.568	14,018
26 Zambia	138	2.28	12.2	19.711	1,616
27 Mali	139	2.27	13.981	16.923	1,210
28 Mongolia	141	2.25	2.734	10.049	3,676
29 Afghanistan	143	2.24	29.662	27.706	934
30 Burkina Faso	145	2.23	14.696	19.782	1,346
31 Sudan	146	2.21	40.134	99.538	2,480
32 Nepal	147	2.20	28.185	35.327	1,253
33 Rwanda	151	2.04	9.998	11.427	1,143

Source1: LPI sourced from 'Connecting to Compete 2010', Trade Logistics in the Global Economy, World Bank

Source2: Estimated Population and GDP sourced on IMF website

(2) Current Condition of LPI in GMS Countries

Table 2.4.12 shows the LPI rankings and GDP per capita of GMS countries. China has the highest LPI rank; Thailand is the next best ranked country to China within the GMS. Myanmar has the lowest LPI value followed by Cambodia and Lao PDR. GDP per capita has a high degree of correlation to logistics performance.

Table 2.4.12 LPI of GMS countries

Country	Logistics Performance Index		GDP per capita (USD)
	Rank	Score	
Thai	35	3.29	8,339
Vietnam	53	2.96	3,099
Cambodia	129	2.37	2,095
Myanmar	133	2.33	1,254
Lao PDR	118	2.46	2,329
China	27	3.49	7,210

Source1: LPI sourced from 'Connecting to Compete 2010', Trade Logistics in the Global Economy, World Bank

Source2: Estimated Population and GDP sourced on IMF website

2.5 Logistics Industries

2.5.1 Major Transporters in Lao PDR

As shown in the list of cargo transport companies registered at the Ministry of Public Works and Transport (MPWT), the number of logistics companies in Lao PDR is 54: with 20 of these located in Vientiane Capital. On the other hand, Provincial Truck (Cargo Transport) Associations and District Truck (Cargo Transport) Associations are observed in the other provinces.

Table 2.5.1 shows the licenses required to run a logistics business in Lao PDR. A trade license is required only in the case of international trading business. As for the legal framework of logistics business, Lao PDR has adopted a registration system rather than a licensing system. This implies that supply and demand of logistics entities is centrally controlled and a logistics business license is always provided when the requirements are fulfilled.

As regards domestic/foreign share within a logistics company, this regulation doesn't exist (though the MPWT is to adopting a new regulation that limits foreign share in a logistics company to 49%). For that reason, even a 100% foreign capital company can run a logistics business in Lao PDR.

Table 2.5.1 Licenses Required for Logistics Business

Type of License	Jurisdiction	Remarks
Patent License	Ministry of Finance	General
Business License	Ministry of Industry and Commerce	General
Transport Business License	Ministry of Public Works and Transportation	Only transport company
Trade License	Ministry of Finance	In case of trading business

Source: Interview Survey by JICA Study Team

From the early 1990s, the Lao Government has privatized state-owned companies: freight transport companies have also been privatized. However, privatized companies in Lao PDR are

mostly privately owned by just a sole proprietor or entity since the stock market has not been developed as yet (the stock exchange in Lao PDR will go into operation from 2010).

In Vientiane, logistics companies are mostly private forwarding and trucking companies. These companies established the Lao International Freight Forwarder Association, called LIFFA. On the other hand, in other provinces, logistics companies are run by owner-drivers and they tend to belong to the Provincial Truck (or Transport) Association (PTA) or the District Truck (or Transport) Association (DTA). Apart from the PTA and DTA, major cement factories and wood processing factories have umbrella trucking companies that transport their cargo. The Provincial and District Truck Associations play an important role in local logistics. In Vientiane, the Provincial Truck Association has disintegrated such that private logistics companies have joined LIFFA.

Many owner-truckers run their businesses in Lao PDR without proper licenses authorized by the MPWT; hence the actual number of owner-truckers remains unclear.

Buses in Lao PDR are another player that transports inter-city cargo, especially daily consumption goods. Furthermore, Tuk-Tuks, Sentos, private pick-ups, and private motorcycles are available for inter-city transportation in rural areas.

Table 2.5.2 Registered Logistics Companies in Lao PDR

	Name of Logistics Business Entity	Business Domain	No. of Vehicles
Vientiane Capital			
1	Societe Mixte de Transport Co., ltd	Domestic & Cross-border Transport	20
2	Lao Freight Forwarder	Domestic & Cross-border Transport	5
3	Sooksavath Goods Transport Co., ltd	Domestic & Cross-border Transport	9
4	Bounlum Goods Transport Service Co.	Domestic & Cross-border Transport	24
5	No.1 Goods Transport Service Co.	Domestic & Cross-border Transport	31
6	Chansy Goods Transport Service Co.	Internal Transportation	4
7	Vienxayniyom Goods Transport Service Co.	Domestic & Cross-border Transport	4
8	Kharungrod Transportation Co.	Domestic & Cross-border Transport	3
9	Lanexang International Transport & Freight Co.	Domestic & Cross-border Transport	3
10	Machinery Transport Service Co.,ltd	Domestic Transportation	12
11	Keoudom Transport Service Co.	Domestic & Cross-border Transport	10
12	Khankham Fuel Transportation Co.	Domestic & Cross-border Transport	5
13	Sen Oudom Transport Company	Domestic & Cross-border Transport	10
14	Asian Goods Transport Co.	Domestic & Cross-border Transport	6
15	Daoneua Transport Service Co.	Domestic & Cross-border Transport	8
16	Daviseko Transport Co.	Domestic & Cross-border Transport	11
17	Deuansavan Transport Co.	Domestic & Cross-border Transport	5
18	No.4 Fuel Transport Co.	Domestic & Cross-border Transport	23
19	Lao State Fuel Transport Enterprise	Domestic & Cross-border Transport	37
20	No.4Land -River Transport Enterprise	Domestic & Cross-border Transport	37
	Sub-Total No. of Trucks		267
Phongsaly Province			
1	Passenger Cargo Transport Association	Domestic & Cross-border Transport	63
Luangnamtha Province			
1	Borten Goods Transport Association	Domestic Transportation	63
Oudomxay Province			
1	Oudomxay Passenger-Goods Transport Association	Domestic Transportation	85

Name of Logistics Business Entity	Business Domain	No. of Vehicles
Bokeo Province		
1 Petaloun Passenger-Goods Transport Co.	Domestic & Cross-border Transport	12
Luangprabang Province		
1 Xiengthong Goods Transport Co.	Domestic & Cross-border Transport	23
2 Provincial Goods Transport Association	Domestic Transportation	221
Sub-Total No. of Trucks		244
Xayabury Province		
1 Goods Transport (Private Company)	Domestic & Cross-border Transport	325
Huaphanh Province		
1 Cross border Transport Co.	Domestic & Cross-border Transport	15
2 Provincial Goods Transport Association	Domestic Transportation	96
3 Viengthong District Goods Transport Association	Domestic Transportation	23
4 Samtay District Goods Transport Association	Domestic Transportation	79
Sub-Total No of Trucks		213
Xiengkhuang Province		
1 Lorduangkham Goods Transport Association	Domestic Transportation	53
2 Sisommay Goods Transport Association	Domestic & Cross-border Transport	15
3 Sen Oudom Transport Company., ltd (Branch)	Domestic & Cross-border Transport	5
Sub-Total No of Trucks		73
Vientiane Province		
1 Kham District Passenger-Goods Transport Association	Domestic Transportation	69
2 Saysomboun Goods Transport Association	Domestic Transportation	35
Sub-Total No of Trucks		104
Borikhamxay Province		
1 Paksan District Goods Transport Association	Domestic & Cross-border Transport	45
2 Borlikhamsay Goods Transport Co.	Domestic & Cross-border Transport	10
3 Khamkerd Passenger-Goods Transport Co.	Domestic & Cross-border Transport	120
4 Khamkerd Goods Transport Co.(Branch)	Domestic & Cross-border Transport	16
Sub-Total No of Trucks		191
Khammuane Province		
1 Mahasay Passenger-Goods Transport Association	Domestic Transportation	33
2 Ngommalath Passenger-Goods Transport Association	Domestic Transportation	24
3 Hinboun Dist Passenger-Goods Transport Association	Domestic Transportation	73
Sub-Total No of Trucks		130
Savannakhet Province		
1 Goods Transport Association	Domestic & Cross-border Transport	330
2 Savan Goods Cross border Transport Co.	Domestic & Cross-border Transport	18
Sub-Total No of Trucks		348
Champasack Province		
1 Dafi Co	Domestic & Cross-border Transport	19
2 Provincial Goods Transport Association	Domestic & Cross-border Transport	40
3 Transport Development Co.	Domestic & Cross-border Transport	49
4 Phonthong Goods Transport Association	Domestic & Cross-border Transport	39
5 Saymungkhun Transport Co.	Domestic & Cross-border Transport	40
6 Khampavong Co.	Domestic & Cross-border Transport	24
Sub-Total No of Trucks		211
Saravane Province		
1 Khong Dist Passenger-Goods Transport Association	Domestic Transportation	202

Name of Logistics Business Entity	Business Domain	No. of Vehicles
Sekong Province		
1 Provincial Goods Transport Association	Domestic Transportation	29
2 Thateng District Goods Transport Association	Domestic Transportation	19
Sub-Total No of Trucks		48
Attapeu Province		
1 Provincial Goods Transport Association	Domestic Transportation	37
Total No of Trucks		2,616

Note: Based on the interview in May 2009, the number of registered trucks in some companies is different.

Source: Transport Department, MPWT (as of August 2008)

Considering the cross-border transport business, Lao capital owned operators are not evident. The Agreement requires that the operators of cross-border transport should have sufficient financial resources and management capability. The requirements for cross-border transport operators are listed in Annex 2 of CBTA. However, detailed requirements are determined by each home country.

The ability of service providers greatly depends on the competence of the individual companies. In fact, trucking operators in Lao PDR are small, do not have appropriate vehicles, and lack the ability to invest in their own resources. They mostly operate in the local market, and are not ambitious to start cross-border transport business.

Table 2.5.3 Requirements for Cross-Border Transport Operator in CBTA

Item	Requirements
Legal issues	Corporation law, fiscal law, tax law, labor law, contracts
Operation management	Price setting, cost calculation, payment and finance, insurance, cargo collection, operation management, marketing
Technical aspects	Vehicle size, weight, maintenance, selection of vehicles, loading and unloading, environmental considerations
Road safety	Measures to prevent traffic accidents, etc.

Source: Annex2 in CBTA

2.5.2 Categories of Logistics Companies

Based on interviews, the characteristics of major logistics business players in Lao PDR are summarized as follows.

(1) Lao Capital Company

The logistics business entities in Vientiane consist of privately and domestically owned logistics companies registered by LIFFA, logistics companies or sections operated by major foreign companies and joint venture companies, e.g., KOLAO, Beer Lao, Lao Soft Drink, and small medium-sized trucking companies. The headquarters of most companies are located in Vientiane, and some companies, such as Lao Freight Forwarder and SMT have branch offices, located in major cities, such as Thakhek, Savannakhet and Pakse.

Some major forwarding companies, such as Lao Freight Forwarder and SMT, employ drivers and possess trucks, warehouses and cargo handling facilities (incl. cranes and reach-stackers). As

regards logistics business schemes for most domestic cargo, the major forwarding companies re-commission owner truckers or small and medium trucking companies. The business domain of the major forwarding companies is broker business, for example, development of trading documents and processing of trading procedures.

The business market of major forwarding companies mainly covers major cities, including Vientiane, Thakhek, Savannakhet and Pakse along National Road 13. In addition, the cargo handled by these companies is not only domestic haulage but also international haulage. The international haulage operation is mainly observed in neighboring provinces in neighboring countries, such as Non Kai in Thailand. Rarely, part of the international haulage operation is observed along the routes to foreign trade ports, Hai Hong, Bin Fue, or Da Nang in Vietnam. In recent years, Chinese logistics companies have expanded their business markets into northern areas, such as Luangprabang, Oudomxay, and Bokeo.

(2) Foreign Capital Companies

The Lao Government accepts foreign logistics companies owned by 100% foreign capital to run a logistics business in Lao PDR. However, most foreign logistics companies are located in neighboring countries (Thailand, Vietnam and China). Because the current logistics market in Lao PDR is too small for foreign logistics companies. The major customers of foreign logistics companies are foreign manufacturing companies.

SDV is a global forwarding company financed by French capital. The headquarters of SDV are located in Paris. SDV invested in the establishment of an associated company in Vientiane a decade ago. The major customers are foreign companies, especially mining companies. The business domain in Lao PDR is haulage of heavy machinery for the mining industry from neighboring countries to project sites of mines. The company re-commissions the haulage of heavy machines to a Thai logistics company. SDV has no trucks in Lao PDR.

Foreign direct investment and international trade in Lao PDR may increase along with the progress of cross-border trade and transport facilitation. Foreign logistics companies are expected to invest and expand their business in Lao PDR and become strong competitors to domestic logistics companies.

(3) State-Owned Logistics Companies

This group consists of state-owned and controlled companies mostly located in Vientiane Capital.

State Land River Transport Enterprise (SLRTE) is 100% state-owned and the business domain of this company is domestic mail delivery, domestic haulage of state cargo (study materials, medical products, medical appliances, etc). Recently, the company has reinforced operations for private cargo owners.

The company has logistics facilities, including over 40 trucks supplied by SAGAWA, warehouses, depots and truckers. However, the logistics facilities are in poor condition. The company is supported by the Government when the company incurs a loss.

The Lao State Fuel Company is one of the state-owned companies and owns State Fuel Transport Company, the former transport section of Lao State Fuel Company. The business domain of this company is strictly domestic fuel transport.

(4) Province Truck Association

Provincial Truck (Transport) Associations (PTAs) of most provinces were established in the mid 1970s. The PTA is a union established by individual truckers, mostly small and medium trucking enterprises.

The PTA gets orders from domestic cargo owners, and re-commissions them to registered individual truckers based on cargo owner's requests, e.g., type of cargo, transport terms and destination.

Major customers of the PTA are domestic cargo owners and the business domain is export and import cargo transportation and export and import broker business. PTA plays an important role in the provincial logistics market except in Vientiane.

PTA evaluates individual truckers and small medium trucking companies when joining the PTA. The requirements to join the PTA include truck license, truck type, age of truck, and driver's experience.

In Vientiane Capital, 5 truck associations existed 3 years ago: now only 3 truck associations exist. Beside the PTA, Lao International Freight Forwarder Association (LIFFA) consisting of major private forwarding companies, e.g., Lao Freight Forwarder (ex- state owned company) and SMT, was established in the 1990s.

In Champasack Province, the District Truck Association still operates together with the PTA; sharing the logistics market in the province. Most trucks registered by the PTA in Champasack Province are old, and do not meet the requirements for international haulage, especially for containerized cargos. This is because most truckers are individuals or small and medium trucking companies and they don't have enough investment to replace container trucks and trailers.

(5) District Trucking Association

In some provinces such as Luangprabang, Vientiane, Borikhamxay, Khammuane and Champasack provinces, the District Truck Association (DTA) still operates together with PTA. DTA in Champasack Province doesn't have a transport business license registered by the MPWT (based on interviews in Pakse). Major customers for the DTA are domestic cargo owners as well as the PTA, and business domain is mainly inner-province and inter-province haulage, which is relatively small. Trucks used at the DTA are mainly pick-up trucks and cargo carried by the DTA is, mainly convenience goods, such as, charcoal, vegetables and drinking water.

(6) Owner Drivers

Owner-truckers are characterized into 2 types: Registered and unregistered in PTA and/or DTA. Unregistered truckers still exist and operate throughout the country, mostly in Vientiane Capital. The registered truckers in Vientiane Capital receive orders from LIFFA, the specified cargo owners and the factories.

(7) Bus Companies

All bus companies in Lao PDR are state-owned with the exception of one in Vientiane, which belongs to the Province Passenger Transport Association. Buses are also a key player in the transportation of consumption goods. The routes of these buses cover inner provinces,

inter-city/provinces as well as international routes. Home delivery and postal delivery are conducted by bus. When transporting small goods, the transport charge for buses is less expensive than that for trucks.

(8) Tuk-Tuks and Sentios

Tuk-Tuks and Sentios are passenger transport modes in Lao PDR and are registered under associations. In terms of freight transport, both transport inner city cargo, and carry consumable goods from central markets to retail shops and households.

2.5.3 Transport Business License

MPWT issued Regulation 1413/MPWT, 22 June 1996, entitled 'Regulation on Establishment of State-owned, Joint Venture, Private and Individually-owned Transport Businesses, Freight Forwarders. To operate business it is necessary to have a business license. Transport business licenses are issued by MPWT or the DPWT. Based on this regulation, a clear guideline to obtain transport business licenses was prepared by the DOT in February 2008; however, it currently awaits enactment. Table 2.5.4 summarizes requirements which need to be fulfilled for the transport business licenses in this draft guideline.

Table 2.5.4 Requirements for Transport Business License

Type of Business	Domestic/ International	Requirements
Trucking	Domestic goods transporter	<ul style="list-style-type: none"> - Manager should be a bachelor degree holder and have at least 5 years experience. - Technical staff should make up 20% of staff and should not be foreigners. - Capital of the company should exceed 1.5 billion Kip. - A company should own at least 30 vehicles (If foreign company, 100% new and if domestic company, 80% new) - Representative should be Lao native. - Foreign share can be 100%.
	International goods transporter	<ul style="list-style-type: none"> - Manager should be a bachelor degree holder and have at least 5 years experience. - Technical staff should make up 20% of staff and should not be foreigners - Capital of the company should exceed 3.0 billion Kip. - A company should own at least 30 new vehicles. - Representative should be Lao native. - Foreign share shouldn't exceed 50%.
Forwarding	Domestic forwarder	<ul style="list-style-type: none"> - Manager should be a bachelor degree holder and have at least 5 years experience. - Technical staff should make up 20% of staff and should not be foreigners - Capital of the company should exceed 1.5 billion Kip. - A company should own at least 30 vehicles (If foreign company, 100% new and if domestic company, 80% new) - Representative should be Lao native - Foreign share shouldn't exceed 50%.
	International forwarder	<ul style="list-style-type: none"> - Manager should be a bachelor degree holder and have at least 5 years experience. - Technical staff should make up 20% of staff and should not be foreigners. - Capital of the company should exceed 3.0 billion Kip. - A company should own at least 30 new vehicles. - Representative should be Lao native - Foreign share shouldn't exceed 50%.
Warehouse		<ul style="list-style-type: none"> - Manager should be a bachelor degree holder and have at least 5 years experience. - Technical staff should make up 20% of staff and should not be foreigners. - Capital of the company should exceed 1.5 billion Kip (in case of domestic company) or 3.0 billion Kip (foreign share company). - A company should own at least 30 new vehicles. - Representative should be Lao native - Foreign share shouldn't exceed 50%.

Source: Prepared by JICA Study Team based on Lao (2008)

2.5.4 Multilateral Agreement on International Transport (GMS Cross-border Agreement)

Under the initiative of ADB, a Cross-Border Transport Agreement (CBTA) is currently in practice among GMS⁵ countries to facilitate the cross-border transport of goods and people. Initial Implementation of CBTA was initially agreed upon in the GMS in 2003 and 7 cross-border points were identified as the priority projects that would accelerate cross-border transport. As part of CBTA, Bilateral Road Transport Agreements are signed between 2 or more concerned countries: such as agreement determines the quota of vehicles exchanged between concerned countries.

In case of Lao PDR, the Lao government has already signed a Bilateral Road Transport Agreement with Vietnam, China, Thailand and Cambodia. It has also signed a Multilateral Road Transport Agreement with Vietnam and Thailand; and China and Thailand. (See the details in Table 2.5.5) The CBTA is expounded upon in Section 3.1.

Table 2.5.5 Agreements & Annexes of International Transport

Name of Agreement/Annex	Contracting Parties	Date	Progress
Agreement on Road Transport Between Lao PDR and Vietnam	Lao PDR–Vietnam	24 Feb 1996	
Protocol	Lao PDR–Vietnam	18 Jul 2001	Implementing
Agreement on Road Transport Between Lao PDR and China	Lao PDR–China	12 Mar 1993	
Protocol	Lao PDR–China	11 Sep 1994	Implementing
Agreement on Road Transport Between Lao PDR and Thailand	Lao PDR–Thailand	03 May 1999	
Protocol	Lao PDR–Thailand	17 Aug 2001	Implementing
Agreement on Road Transport Between Lao PDR and Cambodia	Lao PDR-Cambodia	21 Oct 1999	
Protocol	Lao PDR-Cambodia		Implementing
Agreement on Road Transport Between Lao PDR, Thailand and Vietnam	Lao PDR-Thailand-Vietnam		
Protocol	Lao PDR-Thailand-Vietnam		Implementing
Agreement on Road Transport Between Lao PDR, Thailand and China	Lao PDR-Thailand-China		
Protocol	Lao PDR-Thailand-China		
Agreement on River Transport on Mekong River and Lancang River	Lao PDR–China, Myanmar-Thailand	20 Apr 2000	
5 Regulations on River Transport & Guidelines for Improving Navigation Channels	Lao PDR–China, Myanmar-Thailand	15 Mar 2001	Implementing
Agreement on the Transit Transport of GMS (Greater Mekong Sub-region) Countries	Lao PDR–Vietnam–China –Myanmar–Cambodia–Thailand	26 Nov 1999	
Protocol and 12 Annexes	Lao PDR–Vietnam–China –Myanmar–Cambodia–Thailand		Lao PDR & Vietnam implemented
7 Protocols of ASEAN Transit Transport - Hazardous materials - Type and Quality of Vehicle - Technical Condition of Vehicle - ASEAN Highway Development Projects - Transit Goods Facilitation - Air Transport Services - Recognize Technical Inspections by Contracting Parties	10 Nations of ASEAN	10 Sep 1998	Not yet implemented

Source: Prepared by JICA Study Team based on ADB (2004)

⁵ The Governments of the Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, the Union of Myanmar, the Kingdom of Thailand, and the Socialist Republic of Vietnam

(1) Eligibility of International Transport Operator under CBTA

Annex 9 of CBTA states clearly the conditions that the international transport operators need to fulfill. For instance, more than half of the transport operation enterprise's capital must be owned by national citizens of the home country (Article 3). The international transport operator needs to verify their professional competence, including legal matters relevant to road transport business (e.g., contracts, company law, accounting law, labor law) transport operation management (e.g., cost and price calculation, payment and financing methods, insurance), technical matters (e.g., size and weight of vehicles, maintenance of vehicles), and road safety.

(2) Designation of Corridors, Routes and Points of Entry and Exit

Protocol 1 prescribes corridors/routes and border crossing agreed within the GMS. In addition to this, GMS countries are entitled to open additional border crossings and routes through a memorandum of understanding between or among them (Article 2).

(3) Charges for Transit Traffic

Protocol 2 clearly states the conditions when the GMS charges a transit fee for transit traffic. The host country can levy the following charges on cross-border traffic (Article 6).

- Tolls: direct charges for the use of road sections, bridges, tunnels and ferries;
- Charges for excess weight, where permissible under the national law and/or regulations of the host country;
- Charges for administrative expenses;
- Charges for the use of other facilities or services;
- Taxes on fuel purchased in the host country; and
- Road maintenance charges.

However, the least developed country can apply preferential toll rates and other charges to the vehicles registered within their territories, when undertaking domestic transport (Article 2).

2.6 Assessment of Current Logistics System in Lao

2.6.1 Issues

From the development goal point of view, it is required to re-assess current logistics system in Lao, which is described in Chapter 2. In other words, it is necessary to assess the current state of logistics system in order to achieve the development goal. The development goal consists of 3 important key mantras: "Efficiency of logistics", "Utilization of geographical advantages in GMS" and "Contribution to sustainable economic growth". From these 3 points of view, Lao's logistics system is still inadequate as regards efficiency: it is also insufficient as regards costs and flexibility to contribute to economic activities.

These inadequacies associated with the logistics system in Lao are caused by many prevalent problems in infrastructure, market, logistics industry, logistics and cross-border administration. The major problems are highlighted as follows:

- Lack of transparency and standardization of cross-border procedures
- Insufficient roads and road facilities
- Small logistics market
- Insufficient logistics facilities
- Inadequate return cargo (Empty return haulage)
- Small & medium-sized companies in logistics business
- Insufficient capacity of logistics administration

(1) Lack of transparency and standardization of Cross-Border Procedures

Cross-border procedures, in particular customs clearance, have large room for improvement. The current customs clearance procedure is in non-transparent and un-standardized. Many private companies complain that the cross-border procedure in Lao is unreliable since the actual procedure sometimes deviates from operation rules and varies depending on the person in charge.

(2) Insufficient Roads and Road Facilities

Although trunk routes of national highways in Lao have been improved, road conditions are still problematic. One problem is the existence of many sections which are impassable during the rainy season; hence hampering all-year round transport. The other problem is the existence of many sections with sharp curves which are not suitable for passage of heavily loaded trucks in mountainous areas. Another problem is the lack of street lights, which hinders night-time transportation.

(3) Insufficient Logistics Facilities

Logistics facilities such as warehouses and truck terminals are not readily available with the exception of ICD facilities in Vientiane. This encumbers business opportunities in logistics in Lao.

(4) Inadequate Return Cargo

One of the biggest factors contributing to high transport costs in Lao is the lack of return-cargo from Lao. This causes imbalance between exports and imports of Lao. Due to insufficient industrialization as well as insufficient agricultural products for export, goods transported from Lao are very limited with the exception of woods and wood products. As a consequence of the economic and population growth of Lao, demand for necessary imports has drastically increased which has exacerbated the imbalance between imports and exports.

(5) Small Logistics Market

Lao has under-developed manufacturing and service sectors coupled with small population, such that domestic transport demand is very limited. Small freight transport demand negatively affects transport costs due to lack of return-cargo from Lao on one hand and small logistics industry on the other hand.

(6) Small & Medium-sized Companies in Logistics Business

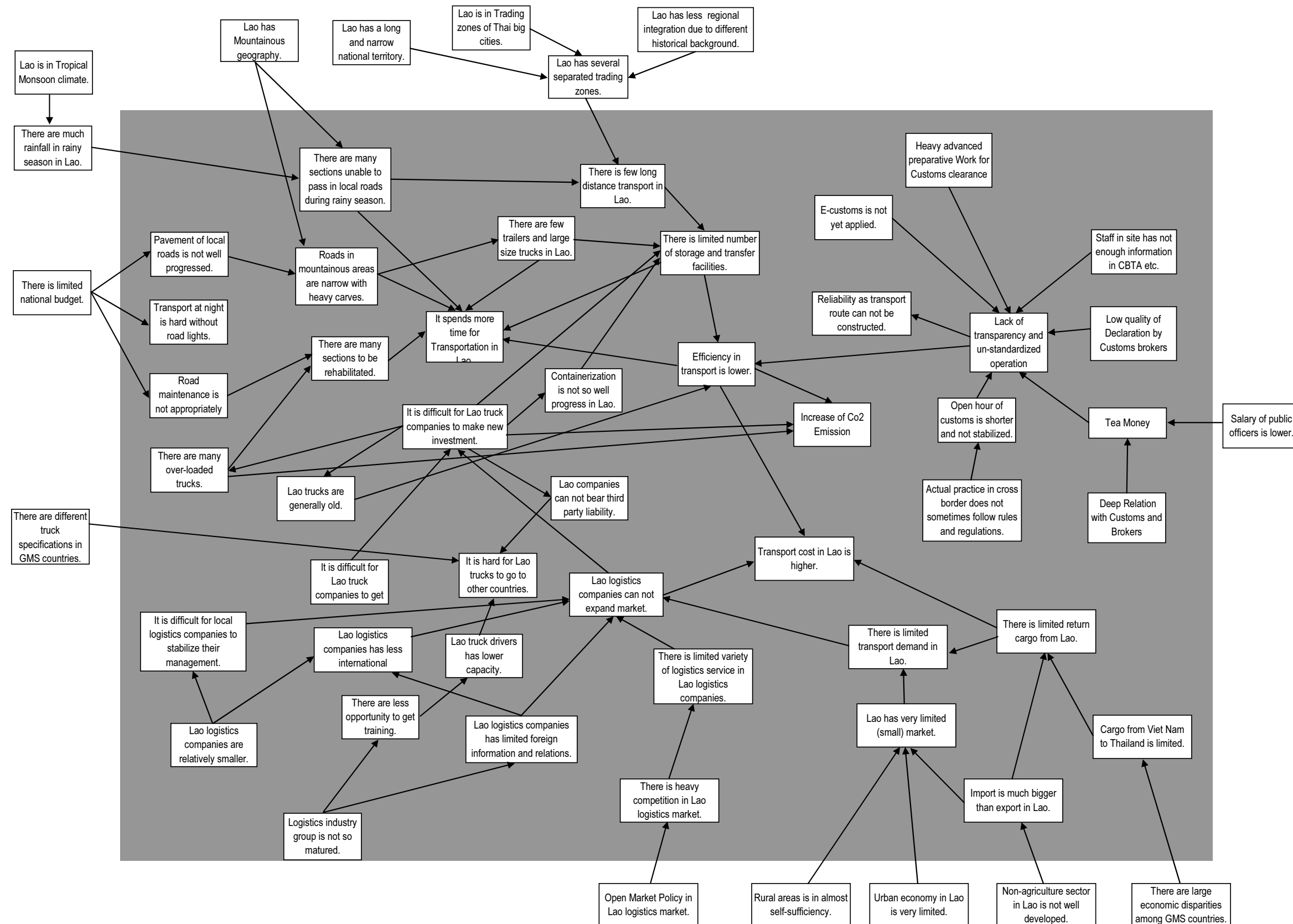
Since logistics companies in Lao are relatively small and medium-sized companies, most of them are unable to invest in the exploitation of new markets and services as well as funding the training of their own employees. This results in the loss of business opportunities arising from the opening-up of Indochina economic corridors under the CBTA.

(7) Insufficient Capacity of Logistics Administration

Functions of logistics administration have not been properly apportioned between central government and local governments, resulting in occasional miscommunication, delayed reaction and non-standardized procedures at local sites. This negatively impinges on reliability of cross-border procedure in Lao as well as business opportunities in logistics at local level.

2.6.2 Inter-connectedness of the Current Problems

The problems are inter-related to each other. A certain issue leads to the other issue in a direct or indirect manner. The inter-relations among the current problems are illustrated in Figure 2.6.1.



Source: JICA Study Team

Figure 2.6.1 Assessment of Current Problems of Logistics System in Lao

CHAPTER 3 REVIEW OF RELEVANT POLICIES

3.1 Review of Future Development Plans

The government of the Lao PDR has been carrying out a 5-Year National Socio-Economic Development Plan as part of the National Development Policy. In response to the long-term objectives of emancipating the country from its status as a low developed country by 2020 (the 2020 goal) defined at the 6th Party Congress in 1996, the government formulated the 5th National Socio-Economic Development Plan, NSEDP (2001-2005).

The vision for poverty reduction is reflected in the National Growth and Poverty Eradication Strategy (NGPES). This is a comprehensive framework for growth and development focusing on the eradication of poverty in the poorest districts. It identifies 47 poorest and 25 poor districts as priority areas to be addressed. In March 2001, the 7th Party Congress specified poverty reduction targets for 2005, 2020 and 2020 and highlighted modernization and industrialization as important means to achieve the targets within the overall framework of the 2020 goal. Graduating from the ranks of the least developed countries (LDCs) requires the eradication of poverty in a sustainable manner. The government is committed to poverty eradication and the promotion of equity among different groups of the Lao multi-ethnic population within a rapid and sustainable economic growth framework.

Following the 5th NEDP, the government of the Lao PDR formulated the 6th Five-Year National Socio-Economic Development Plan (NSEDP, 2006-2010) in 2006 and it is now under implementation. The 6th NSEDP has unified the core national development plans which were divided into 2, NSEDP and NGPES. It provides an assessment of the implementation of the 5th Plan and overall development strategy for 2006 to 2010 as a national development plan.

3.1.1 National Socio-Economic Development Plan (2006-2010)

(1) Overall Development Strategy

The development of the 6th Five-Year Plan is based on: (i) the Long-Term Strategy of Socio-Economic Development to the Year 2020; (ii) the Strategy on Industrialization and Modernization; (iii) the National Growth and Poverty Eradication Strategy (NGPES); (iv) the Regional Development Strategy; (v) various sectors, thematic area and sub-sector strategies and plans; and (vi) the analysis of the international and domestic contexts for the development of the Lao PDR.¹

¹ Committee for Planning and Investment (2006) NATIONAL SOCIO-ECONOMIC DEVELOPMENT PLAN (2006-2010)

(2) Development Directions and Overall Goals of the Plan

The following directions in the 6th Plan (2006-2010) are set out to achieve the highest outcomes and make general changes;

- (i) Move from under-development to fast and stable development, producing high value-added goods both in quantity and quality step-by-step in order to meet domestic market demand and increase exports;
- (ii) Increase competitiveness and utilize comparative advantages to implement effectively the international economic commitments in the frameworks of ASEAN and other bilateral and multilateral commitments, including the WTO;
- (iii) Strengthen links between economic development and social development, and protect natural resources and the environment. Social problems should be solved first, with attention paid to such issues as the reduction of poverty, unemployment and social evils, and keep the social and political situation stable: and
- (iv) Accelerate the building of a comprehensive socio-economic infrastructure and finalize the establishment of a market-oriented economy with socialist orientation to form the basis for industrialization and modernization.

Based on the directions set out above, the following tasks and guidelines are to be followed:

- (i) Increase economic growth to an average of 7.5 – 8% per annum;
- (ii) Ensure a balance in economic development in parallel with social development and protection of the environment;
- (iii) Encourage economic development in the various sectors by emphasizing the state economy as the leading sector;
- (iv) Promote and develop small and medium enterprises (SMEs) to expand;
- (v) Ensure the maintenance of existing infrastructure and establish additional infrastructure specifically to support socio-economic development activities;
- (vi) Continue to broaden economic opportunities and upgrade the level of external economic relations;
- (vii) Continue to improve and strengthen the financial and monetary sectors by increasing the capacity of the national financial administrations bodies;
- (viii) Continue with progress on new changes to create comprehensive development approaches in the areas of education and capacity building;
- (ix) Enhance public administration activities with strong steps and improve and upgrade the effectiveness of state organizations;
- (x) Strengthen the areas of national defense, public security, social and political aspects, and broaden foreign relations.

These goals coincide with the Millennium Development Goals (MDGs) and those in the

Brussels Program of Action for Least Developed Countries (2001-2010).

(3) Poverty Reduction Strategy

The visions and strategies defined in the NGPES, which presented the strategic medium term framework for fighting poverty, have been integrated into the 6th Plan. The following are the major components defined in the 6th Plan as the poverty eradication strategy for expansion of economic opportunities;

Accessibility

Experience during the past 15 years has shown that increasing agricultural productivity and improving market access through road infrastructure have been instrumental in reducing poverty in the lowlands. The lesson is that increasing the productivity in agriculture and auxiliary occupations in the rural areas and improving access to markets are critical to achieving further significant reductions in poverty over the medium term.

Informal Sector

The informal sector comprising mostly micro and small enterprises has been an important contributor to growth in the Asian NICs. A large proportion of the full and part-time employed in the Lao PDR are dependent on the informal sector (in mainly trade and services) in both the urban centers and the rural areas. Increasing opportunities and improving productivity in this sector are crucial to enhancing the country's economic performance and reducing poverty.

Private Sector

The formal private sector, including agro-processing/manufacturing, mining, construction, tourism, wholesale and retail trade, transport, and other services, is also an important area. Private investments are vital catalysts for technological advances and the engines of growth of higher productivity, which is an important vehicle for poverty reduction.

Infrastructure

Provision of infrastructure – including roads and bridges, river landings/jetties, electricity, telecommunications and postal services, is critical in the movement of people and goods, flow of essential information in a timely manner, and orderly and efficient functioning of markets including labor markets.

Macroeconomic Policies and Public Finances

The government has begun to pay increased attention to pro-poor macroeconomic and public expenditure policies. Funds will be increased for poverty reduction to support the extension of credit to the poor to support the development of their production and business operations. Efforts will be focused on increasing the incomes of the poor and reducing the gap between the rich and the poor so as to create social balance.

Development of the Poorest Areas

The NGPES has identified 47 poorest and 25 poor districts. The preparation of focal area development plans in pilot districts among the 47 poorest districts has been facilitated: most of the programs focus on key aspects and sectors such as agriculture and rural development, education,

health and transport/infrastructure. Attention would be paid to economic development of the border economy, focusing on development of border checkpoints, along roads especially important ones and economic corridors.

(4) Sector Development Plans in Transport

The following sectional development plans are set out for transport sector development in the 6th Plan.

1) Goals and Overall Strategy

The long-term goal is to provide the necessary infrastructure to sustain a modern nation/state, where people in all parts of the country could easily communicate and participate in development activities in the country and interact with the people and markets outside the country.

The main objective for infrastructure development in the 6th Plan period (2006-2010) is to continue to maintain, improve, and develop the socio-economic infrastructure with focus on such areas as inland, international, river, and air transport, telecommunications, schools and health centers, to create favourable conditions for development. The basic demand for urban infrastructure will be met, paying attention to waste water treatment and environmental sanitation to improve and protect the environment, in the service of social and economic development, national defense and security. New infrastructure will be allocated for some areas and actions to mitigate hunger (rice scarcity) and poverty, with emphasis on maintaining the existing infrastructure to facilitate socio-economic development.

2) Sub-Sector Strategies

Inland Transport

- Connect the Lao PDR to other countries in the Mekong region including roads and bridges over the Mekong River and highways between Vientiane Capital and other cities and provinces.
- Emphasis on major roads and roads connecting economic centers, including those being developed in remote areas.
- Provide more paved or concrete roads and construct bridges along the main roads.
- Develop inland and waterway checkpoints with connection of bridges to foreign countries and international markets.
- Upgrade the national roads connecting the Lao PDR to neighbouring countries to standard roads with priority given to highways and roads stretching to borders.
- Allocate investments to assist inaccessible areas especially villages in remote rural areas so as to open up economic exchanges and border trade and secure accessibility during both the wet and dry seasons with a focus on construction of concrete roads.
- Ensure good rural communications systems and maintain and improve the conditions of existing roads.
- Continue the increases of domestic funds through the Road Maintenance Fund for road maintenance.

- Conduct study on roads along borders for developing the economies and securing national security and defense.

Air Transport

- Provide more investment for training Lao aviation staff.
- Upgrade the airports such as Pakse, Savannakhet and Luangprabang to sub-regional airports to ensure air transport between the Lao PDR and other Greater Mekong Sub-region (GMS) countries.
- Construct new airports to accommodate up to 2-2.25 million passengers per annum, with priority given to Wattay International Airport to serve about 1-1.5 million passengers per annum.
- Facilitate the number of airplanes and airport equipment, improve the quality of service, secure safety during boarding, provide a modern air traffic control system, and build the capacity of staff at local airports.

Domestic Waterways

- Continue investment on the modernization of domestic waterways and upgrading river ports and the quality of services along the port to meet regional and international standards.
- Research and study on the international waterway transport systems on the Mekong.
- Investigate the feasibility of the construction of a deep river port, replace loading(lifting) equipment
- Construct bridges connecting Luangprabang and Xiengman, Huoixai and Xiengkhuang (Thailand) and a friendship bridge connecting the Lao PDR and Myanmar.

Railway Transport

- Continue construction of the railway line with a length of 14km stretching from the Friendship Bridge to Kham Sa Vat Village.
- Study and survey a railway line from Thakhek to Kiew Mou Ya (Vietnam Border) and seek funds for implementation.
- Investment in the preparation phase and sourcing of components such as a train locomotives, train compartments and drivers.

Urban Development

- Focus on the mountainous districts with the aim of providing integrated infrastructure.
- Develop a Land Fund through various forms of capital sources for development of urban infrastructure, aiming to turn the Lao society into an investing society in such areas as water supply, drainage and residential houses.
- Emphasize the development of trade infrastructure, tourism and high-standard health facilities.

Telecommunications

- Construct a cable line and telecommunications network from the North to the South and the East to the West linking the country with the whole of Asia.

(5) Regional Development

In the 6th Plan, the development strategies for regional socio-economic development for Northern, Central and Southern provinces are set out with the following targets.

Develop a 5-year plan for each region, with the average economic growth target of 6 – 6.5% for the Northern provinces, 8.5 – 9% for the Central provinces, and 6.5 – 7% for the Southern provinces with an average income increment of 5% per year. By 2010, the per capita income would be USD 610 in Northern region, USD 1,000 in the Central region, and USD 930-950 in the Southern region. Overall development guidelines and strategy of infrastructure development in each region are as follows:

Northern Region

1) Development Guidelines

The Northern region is the most difficult compared to other regions due to inadequate infrastructure, lower level of education and limited and out-dated information. However, this region has discernible potential in agriculture, forestry, hydropower, mining and tourism. It has a unique location in terms of proximity to 4 countries, namely: China, Vietnam, Thailand and Myanmar: the close proximity, if properly made use of, could enhance economic relations. Therefore, to promote the potential of the region in the 5-year period (2006-2010), the development of infrastructure should be emphasized.

2) Strategy of Infrastructure Development

- Invest in upgrading national highways and roads linking international borders, and river transport lines and ports and improve services at border checkpoints.
- Improve basic infrastructure in the Northern major cities such as Luangnamtha, Luangprabang, Xayabury, Bokeo to balance the development between cities and rural areas.
- Develop and encourage economic activities along route No.3 for enhancement of transit service with the Yunnan Province of China through highway R3.
- Upgrade the airport in Luangnamtha and rehabilitate the Luangprabang airport to expand flights to all GMS countries.
- Mobilize the capital for completion of the construction of R4, R13, R4A and R4B.
- Construct electricity network linking to different areas to facilitate tourism routes and mining explorations.
- Cooperate with China to study and construct a hydropower project with a capacity of 640 MW in Nam Ou in Phongsaly province.

Central Region

3) Development Guidelines

In the next 5-year period (2006-2010), the Central region will play a comprehensive and central role in the development of the country, generating large commodity production volume. Therefore, the government will expend efforts to achieve economic growth, especially for

labour-intensive processing industries with the aim of increasing the proportion of labour in non-agricultural sector to 40 – 50% and the Central region's share of the country's GDP to 49 – 54% by 2010.

4) Strategy of Infrastructure Development

- Give priority to the Vientiane Capital, particularly the roads within the Capital and the roads linking it with other provinces.
- Rehabilitate roads No.8 and No.12 to the seaport in the central part of Vietnam and construct No.11.

Southern Region

1) Development Guidelines

The Southern region is located in the 2-triangle development areas – Lao PDR – Vietnam – Cambodia triangle and Lao – Thailand – Cambodia triangle. At the same time, it is located along the East-West Corridor connecting Kuangnya, Champasack, Oudone and Bangkok. There are various natural resources in the Southern provinces, particularly good soil in the plains. Attention will be given to the improvement of some major cities in this region to transform them into provincial capitals such as Pakse city in Champasack province. Achieving economic growth at an average rate of 6.5-7% per year and a 21-23% apportionment of the country's GDP are also aspirations for this region.

5) Strategy of Infrastructure Development

- Develop district roads and the roads to Vietnam and Cambodia with attention to roads connecting the seaports through these countries, and improve the core national highways and roads connecting provinces.
- Improve the provincial and district roads to ensure that all the districts have road access to the centre throughout the year.
- Extend the routes connecting various areas to checkpoints at Vietnam, Cambodia and Thailand borders.
- Rehabilitate Pakse Airport to a sub-regional airport with links to Hong Kong, Singapore, Vietnam and Myanmar.
- Invest in the development of some important districts in Pakse (Champasack province) as the central core for economic, scientific and technical development.

3.1.2 Transport Sector Plan

(1) Strategy Plan for Transport Sector from 2001 - 2020

Following the basic policies defined in the 6th Five-Year National Socio-Economic Development Plan, the Ministry of Public Works and Transport developed Strategy Plan for Transport Sector from 2001 – 2020. It reviews the implemented plan of 2001 – 2005 and provides guidelines for the strategy of 2006 – 2010 and 2010 – 2020. It shall be noted that the section of the guidelines in the strategy is now under preparation by MPWT and the details are expected to become available in the year 2009. Therefore, the following discussion of the policies for the 2010 to 2020 plan is

merely an introduction of the strategy.

Policy for 2010

- To strengthen the transport system with the aim of making Lao PDR a corridor of Greater Mekong Sub-region, with the increase of traffic volume at an average of 8% per year.
- To have an express bus system in Vientiane and public transport in the city within a 30 minute radius.
- To improve traffic safety management and restrain the number of accidents within 7 deaths/10,000.
- To improve water transport.
- To modernize vehicle management/inspection system.
- To improve heavy truck control and limit the number of overweight trucks to below 15%.

Policy for 2020

- To improve the transport system and promote trade, manufacture, investment and tourism, with the increase of traffic volume at an average of 7% per year.
- To have an express bus system in Vientiane and public transport in the city within a 20 minute radius.
- To modernize traffic safety management and restrain the number of accidents to within 2 deaths/10,000.
- To modernize water transport.
- To improve vehicle management/inspection system.
- To improve heavy truck control and limit the number of overweight trucks to below 10%.

(2) 5 Year Plan

This is being prepared by MPWT as of May 2009.

(3) Strategy for Transport Sector Development for the Period 2008-2010 and Direction for 2011-2015

The MPWT is now in the process of preparing the Strategy for Transport Sector Development for the Period 2008-2010 and Direction for 2011-2015. It elaborates and translates the main objectives defined by the 6th Plan into detailed action plans to be implemented and gives direction for the period up to 2015. The strategy includes prioritization and estimation of costs for sector development based on needs proposed by provinces, forecasted resources available during the planned period, government's multiple criteria and economic efficiency of each project investment.

Since the concerned departments including the Department of Inland Waterways, Aviation and Railway Authority are in the process of preparing sector development strategies, this section shows mainly the road network development plan, which was available as of May 2009. The main development directions for the railway, inland waterways and aviation sectors are merely provisional. However, it should be noted that the road network development plan shown here is subject to further assessment by the government of Lao.

1) Road Sector

Goals of Connectivity

The sector goals are set out as follows:

- Maximized use of the potential of the country, which is located in the hub of the sub-region, to facilitate transport and economic corridors.
- Development of multi-modal transport network serving both international and domestic market.
- Giving high priority to preservation of existing roads while paying attention to the expansion and improvement of roads including north-south linked roads along Mekong and the border to the east.
- Development and modernization of transport services and improvement of efficiency of cross-border transport services, thus improving country's competitiveness.

Targets for Infrastructure Development

- Properly preserve the existing road network.
- Improve the core road network to the standard of the neighboring countries and upgrade the sections of national roads which generate a high volume of traffic.
- Improve the conditions of provincial, district, and rural roads connecting poor districts and rural villages to such levels that they are accessible all year around.

Strategies for Transport Sector up to 2015

To implement the 6th plan for the development of transport sector, the transport sector strategies have been formulated as explained below:

Rehabilitation and Construction Plan

The strategy lists the prioritized improvement and new-construction projects for the period up to 2015. The projects are listed and prioritized based on the criteria developed by the Ministry of Planning and Investment: they are categorized into 4 groups. However, the required funds are far beyond the estimated available revenue. The government is currently in the process of finalising the selection of the projects to be implemented by the year 2015. It is expected that the projects will be selected on a priority basis.

1. Regional and sub-regional roads connecting neighbouring countries

17 projects have been identified. They require estimated funding of LAK 29,695.5 billion. The finalization of the selection of the projects to be implemented will be carried out on a priority basis.

2. National roads serving domestic connections

15 projects have been identified. They require estimated funding of LAK 3,947.4 billion. The finalization of the selection of the projects to be implemented will be carried out on a priority basis.

3. Provincial and district roads (Local roads)

333 projects have been identified, of which 118 projects are for provincial roads and 215 for district roads. These projects require estimated funding of LAK 6604.6 billion. The prioritization of project implementation will be carried out based on the 5-year plans to be submitted by all provinces.

4. Special roads

27 projects have been identified. They require estimated funding of LAK 3,037.7 billion. The special roads come under the responsibility of many different agencies including the Ministry of Defense, the Ministry of Agriculture and Forestry, the Ministry of Energy and Mines and the National Tourism Authority. Project implementation is subject to the priorities to be established in the 7th 5-year plan.

The total required funds for the road network improvement and construction were estimated at LAK 16,555 billion, excluding the funds allocated to the on-going projects and funds already earmarked for the planned projects.

2) Air Transport

- Conduct a feasibility study for a new airport in Vientiane capital aimed at a capacity of 2.5 million passengers per year,
- Improve efficiency of Wattay Airport
- Upgrade airports in Pakse, Luangprabang and Savannakhet to meet the needs of passenger transport between Lao PDR and countries in GMS and ASEAN,
- Modernization of air traffic control systems, with coverage of the entire country and enhancing cooperation with the International Air Transport Association,
- Prepare direct flights from and to Lao PDR for medium and long distances,
- Improve the efficiency of airport services with emphasis on safety.

3) Inland Waterways

- Maintain and maximize potential use of existing ports by encouraging the use of waterways: shifting from other modes due to the advantage of lower transport costs compared to other modes
- Collaborate with Vietnam for development and use of deep seaports in Vietnam
- Seek funds for conducting feasibility assessments, designing and constructing ports and bank protection along the Mekong and its tributaries,
- Complete the waterways strategy.

4) Railways

- Preserve the existing railway and maximize the benefits from the use of the railway for transportation of goods across the border,
- Seek funds for conducting feasibility assessments, designing and constructing railways connecting sub-regions, particularly for the extension of the railway from the existing terminal to the outskirts of Vientiane capital and Vietnam and China,

- Complete the railway strategy.

(4) Road Safety

5) National Road Safety Action Plan (2005-2010)

For sustainable preservation of road assets, a Road Maintenance Program (RMP) led by the World Bank and ADB has been under implementation. The program is composed of two 8-year phases, RMP-1, which ran from 2001 until 2009, and RMP-2 (See the details in Chapter 2, Section 2.7). Under the scheme of RMP-2, a National Traffic Safety Strategy and Action Plan was developed in 2006 to establish a national scheme for road safety by 2010. The Road safety strategy is referred to in ADB-ASEAN Regional Road Safety Program and the National Road Safety Action Plan (2005-2010).

Targets

The targets set out by the Action Plan are as follows:

- Lao PDR will be emancipated from its status as a low developed country and become a transit country that provides convenient and safe travel in the ASEAN region,
- In the next 5 years, reduce the fatality rate of road accidents from 12% per year to 6%,
- Reduce the number of fatalities per 10,000 vehicles as shown below:

By the year 2010 not more than 12 persons

By the year 2015 not more than 7 persons

By the year 2020 not more than 2 persons

Organizational Structure

For implementation of the Action Plan, the following committees and office were established.

- National Road Safety Committee (established in 2006), comprised of the following members; Deputy Prime Minister (Chairman), Minister for MPWT (Dep. Chairman), Minister for MPS (Dep. Chairman), Minister for MPH (Member), Minister for MOE (Member), Minister for MIC (Member), Director General of DOT (Secretary)
- Secretariat Office of National Road Safety Committee, as a permanent office of the said committee, at DOT, MPWT
- Provincial Road Safety Committee, (established in 2008), comprised of the following members; Provincial Deputy Governor, Vientiane Deputy Mayor and Deputy Chief of Special Zone (Chairman), Director of DPWT (Permanent and Dep. Chairman), Chief of Provincial Security Office (Dep. Chairman), Director of DOE (Member), Director of DPH (Member), Director of DIC (Member), President of Transport Association (Member), Deputy Director of DPWT (Secretariat)

Components of the Action Plan

15 components of the Action Plan are defined as explained below:

- **Coordination and Management of Road Safety:** Coordinate and manage road safety through the activities of providing all relevant parties at national and regional level with adequate technical and financial support
- **Road Accident Data System:** Prepare adequate, country-wide system of accident data collection and storage system to allow analysis for improvement
- **Funding for Road Safety:** Secure an effective system of adequate and sustainable funding in line with the scale of the problems.
- **Safety Planning and Road Design:** Prepare more safety-conscious planning and improve road design to reduce the number and severity of accidents.
- **Improvement of Hazardous Locations:** Analyze accident data, identify the locations and improve hazardous locations on the road network.
- **Education of Road Safety for Children and Young Adults:** Educate children and young adults to improve their knowledge on road safety
- **Driver Training:** Provide adequate training to drivers to improve their on-road behavior
- **Public Campaigns on Road Safety:** Conduct public campaigns to raise awareness on road safety
- **Establishment of Road Standard and Vehicle Inspection:** Conduct proper and periodic inspection of registered vehicles and testing of new vehicles using modern equipment so as to ensure that standards are met.
- **Legislation:** Prepare relevant legislation and an efficient judicial system to discourage unfavorable driving behaviors and enable effective enforcement.
- **Traffic Police and Enforcement:** Improve enforcement by traffic police through modern equipment and enforcement tactics.
- **Emergency Assistance for Victims of Accidents:** Prepare effective nationwide capacity for emergency medical treatment and provide adequate medical centers and hospitals
- **Research on Road Safety:** Conduct adequately funded and coordinated research to enable clarification on the causes of safety problems and assist policy decisions and countermeasures.
- **Cost of Road Accidents:** Prepare more accurate estimates of costs of accidents and casualties to enable understanding of the cumulative annual losses to the National economy
- **Collaboration:** Construct an effective partnership among relevant parties in public and private sectors at regional and national level to enable the best practices for improvement of safety.

3.2 Review of Logistics Policy in surrounding countries

3.2.1 Thailand

(1) Thailand's View regarding Socio-economic Structure of Indochina Region

The ASEAN economy is becoming increasingly important to the global economy: it currently

accounts for 6% of the world trade. ASEAN has set a target to complete the establishment of a single market for 6 of the member countries by 2015, 5 years sooner than the original plan. The 6 member countries in question are Thailand, Indonesia, Malaysia, the Philippines, Singapore and Brunei. These countries will start the free trade operation first while the other 4 member countries, namely: Myanmar, Lao PDR, Cambodia and Vietnam will follow suit over the next 4 years. Among the ASEAN trade and investment partners such as China, South Korea and Japan, Thailand has recognized the importance to develop a relationship with China to increase development opportunity in the market. In this regard, Thailand currently emphasizes utilization of potential and trade opportunities with Yunnan by making it a major trade partner. Hence, it is of ultimate importance to provide adequate support to a land transport network linking to Yunnan in the future. Economic cooperation between Thailand and China at the sub-regional level will eventually lead to an increase in trade volume within the ASEAN as well as the global market. This will help strengthen Thailand's economy and its competitiveness.

On the other hand, an increase in trading and transport opportunities between Thailand and neighboring countries using the North-East, East-West and Southern Economic Corridors would elevate Thailand's position in the GMS or Indochina region. Although Lao PDR and Myanmar currently have limited potential in terms of production and exportation to Thailand, Thailand feels that cooperation under the GMS would benefit it through:

- Utilizing resources in these countries for more production of goods, resulting in using the Thai seaport for export.
- Enabling Lao PDR and Myanmar to become bases of agricultural production on the contract farming system in which primary products would be further processed into consumer goods at higher levels of production.

The fundamental economic and social system and the human resources of Thailand have great potential for further development in Thailand. The freight transport strategy of Thailand, therefore, focuses on utilization of information technology to enhance both domestic and international transport management; with the aim of reducing transport costs, as well as increasing competitive capability in order to enable the transformation of the country into the Indochina Transport Hub. The most important objective of the strategic planning for transformation of Thailand into the transport hub of the Indochina region is the creation of added economic benefits for the country.

(2) Overall Strategies

Thailand intends to become a transport hub in the Indochina region by implementing the policies below:

- Increase volume of exported and imported goods from neighboring countries in Indochina, which would enhance the transformation of Laem Chabang Port into one of the prominent global gateways.
- Provision of fundamental infrastructure between Thailand and neighboring countries in the Indochina region for more time saving, cost effectiveness and safety in transport, and
- Improvement of domestic and international freight transport management system for more efficiency and speed in order to motivate other countries to utilize the Thailand cross-border transport system.

To actualize the above policies, Thailand delineates the following 4 strategies:

- Regional economic and investment cooperation development strategy
- Freight transport management strategy
- Transport network development strategy
- Development of mutually agreed international rules and regulations

(3) Regional Economic and Investment Cooperation Development Strategy

The aim of the regional economic and investment cooperation development strategy is to strengthen the economic capability of Thailand through development of a single market economy. Utilizing the country's competitive advantages in terms of its strategic location and the Laem Chabang Port, 3 major actions are outlined under this strategy. These are:

- Creation of mutual benefits in the region through proper resource utilization in each country,
- Creation of cooperation in production, investment and trade within the region, where higher level of processing industries are based mainly in Thailand, and
- Generation of regional demand for imports and exports through the Laem Chabang Port. In order to accomplish the above goals, the following issues need to be carefully considered.

(4) Freight Transport Management Strategy

A freight transport management strategy supporting regional economic cooperation and investment is an important mechanism for Thailand to become the transport hub of Indochina. Due to an increase in economic activities, the objective of the strategy is to enhance the capability of transport management through integrated connectivity between each process of a supply chain. The strategy should support connectivity of the transport management systems of the neighboring countries thus bringing about convenient and efficient freight transport. The integrated connectivity of the supply chain is classified into 2 levels:

- Information technology integration linkages that facilitate transactions and planning leading to diminished need for personal contact, and
- Physical integration of raw material sources, processing and packaging factories, and gateways such as ports and customs houses.

(5) Transport Network Development Strategy

1) Development of Regional Hubs

Under the concept of "Hub and Spoke", Thailand designates 3 hubs covering the northern, northeastern and southern regions, respectively such as:

- Phitsanulok covering spokes in northern provinces, Myanmar, the north of Lao PDR, and the Laem Chabang port.
- Nakhon Ratchasima covering the northeast and the eastern regions of Thailand, center and south of Lao PDR, Cambodia, Vietnam and the Laem Chabang Port.
- Songkhla covering seaports located in the southern region of Thailand such as Ranong, Songkla and Pakbara port, as well as Malaysia and Singapore.

Nakhon Ratchashima is the northeastern hub, which is significantly important in relation to Lao PDR. Nakhon Ratchashima is designated as the center for collection and distribution of cross-border goods between Thailand and the 3 neighboring countries, namely: Cambodia, Lao PDR and Vietnam. The roles of Nakhon Ratchashima are defined as follows:

- The center of information linkage and exchange for the transport management system in the zone to increase efficiency and to reduce transport costs.
- Point of trans-shipment of goods transported by trucks and rail to containers for transport by trailers to the Laem Chabang Port.
- Center for collection and distribution of goods transported in containers.
- Center for logistics-related services and facilitation of import and export procedures, loading and unloading of goods to and from containers for export and import through the Laem Chabang Port and the Suvarnabhumi Airport.

In addition to the regional hubs, Thailand plans to establish distribution centers, which may act as sub-regional hubs of transport in Thailand. In the north and northeastern regions of Thailand, 2 locations are taken into account:

- Chiang Khong - to provide service of goods processed from raw materials imported from China. The finished goods processed from imported raw materials are exported to China,
- Thanaleng (Lao PDR) - encouraging the sub-regional hub of transport and the modal shift of trucks that transport from Lao PDR to China. This area can be linked to the Laem Chabang Port in order to sustain the potential of rail transport within the North-South Economic Corridor.

It is noted that Thailand designated Thanaleng as a sub-regional hub for the northeastern region of Thailand.

2) Transport Network Development

North-South Network Development

Thailand may prioritise the development of the North-South Network due to its potential to establish linkage with southern China. Thailand intends Laem Chabang Port to become an international gateway for Yunnan Province because an increase in the traffic in the Laem Chabang Port would be crucial in attracting more cargo vessels, which would result in time savings and reduction in costs of loading and unloading of goods. It may improve competitiveness against Singapore and Malaysia and would reduce necessity to use feeder vessels to transport of goods within the two countries and Thailand.

Another benefit from using the Laem Chabang Port as a gateway connecting China with the other regions is the balancing of the inbound and outbound containers. Since Thailand is an exporter, Thailand may be short of containers sometimes. If Thailand receives more inbound containers heading to Yunnan at the port, the incidence of empty return haulage would reduce. This would result in cost reduction and increase the potential of the Laem Chabang Port.

To achieve this, Thailand assessed each mode of transport in North-South Network. The results are as follows:

- Motorway is the first alternative that can be implemented and can link directly with China without a modal shift. This motorway can be linked with R3E at Chiang Khong Bridge.

- Railway route from Nong Khai - Kaeng Khoi - Laem Chabang Port has potential to transport goods, and to link with southern China. Thailand can implement the railway network (double tracking) connecting Laem Chabang - Kaeng Khoi - Nong Khai, and provide funding to build a railway bridge linked to Lao PDR at Thanaleng. However, there are problems with management within the State Railways of Thailand.
- The water transport between Thailand and China at Chiang Saen Port has low potential due to the physical condition of the Mekong River. This port cannot serve large boats and transport of goods cannot avoid a mode shift. Although the Royal Thai Government has a policy on putting into operation the second Chiang Saen port, it cannot serve the incoming boats from China. Therefore, the Mekong transport network will not be important in the North-South Economic Corridor.

East-West Network Development

Thailand assesses that the potential of the East-West Economic Corridor is lower than that of the North-South Economic Corridor since the economic market of the neighboring countries (Myanmar, Lao PDR, Cambodia, and Vietnam) is small. Therefore, Thailand assesses that the value of the East-West Corridor lies in the collection and distribution of raw materials from the neighboring countries using Thailand as a center.

Furthermore, Thailand views the East-West Corridor as being part of the linkage of the goods transport passing through the Indochina Peninsula. Therefore, Thailand considers the potential network as being the route through Danang Port - Mukdahan - Nakhon Ratchashima - Pakbara Port. In the long term, Thailand intends to enhance containerized cargo transport at Andaman coast and develop the Pakbara port, which has the potential of serving as a gateway linking with the EU, India, and the Middle East.



Source: The Study on Strengthening Cross-Border Freight Transport Capability to enhance Thailand's Strategy on becoming Indochina Transport Hub, Office of Transport and Traffic Policy and Planning, 2007

Figure 3.2.1 Transport Network in Indochina

(6) Development of Mutually Agreed International Rules and Regulations

Thailand realizes the urgent necessity of implementing legislation to accommodate the rights and obligations derived from the CBTA and bilateral agreements with a view to enabling the full effect of the commitments of agreements including amendments of existing rules and regulations, issuance of new ministerial regulations and creating law enforcement mechanisms, if necessary to

satisfy requirements from the agreements.

1) Adjustment of Legislation

Taking into account the details enumerated in the protocols and annexes of the Agreements, Thailand is focusing on the following to adjust relevant legislation:

- Traffic regulations and laws, regulations and standards for transport operation
- Licenses or documents issued by other contracting parties
- Vehicles
- Facilitation at border-crossing points
- Liability from contracts of carriages

However, there are issues requiring new legislation to enable the exercising of control over transit and cross-border activities carried out in Thai territory. Here are the issues that require additional legislation so as to enforce the provisions of the protocols and annexes:

- Compliance to the technical requirements of vehicles, size and weight of vehicles, maximum carrying weight and emissions
- Recognition of vehicle license plates, registration certificates issued by the competent authorities of the contracting parties
- Recognition of vehicle inspection certificates issued by the competent authorities of the contracting parties
- Recognition of driving licenses issued by the competent authorities of the contracting parties
- Customs transit system
- Guarantee system for transit goods
- Transportation of dangerous goods, prohibited goods, restricted goods, and perishable goods
- Joint inspection, such as Single-stop Inspection and Single window Inspection
- Liability from the contracts of carriages New Acts of parliament is required

2) Establishment of Special Economic Zone at the Borders

Most border areas have the potential to be developed as Special Economic Zones since they are usually prepared to become the gateways for trade and investment with the neighboring countries. Moreover, most GMS countries are ready to open their countries to growth from foreign trade and investment. Thailand would like to reserve potential in developing special economic zones at border areas in order to establish a gateway and base for production and distribution of goods, which would be financed by local or foreign investors.

3) Promote Joint Operation of GMS Operators

One of the crucial factors preventing the realization of international agreements is fear of foreign competitors. It is a fact that the local operators appeal to their governments to delay the implementation of agreements or honoring of the derived commitments. In order to build mutual

confidence and create win - win relations among all member countries within the GMS in the future negotiation process, Thailand considers that key issue would be how to promote a partnership among the GMS operators. The partnership may be in form of joint venture, joint service, consortium or conference similar to those in maritime transport or a strategic alliance as is the case in air transport.

3.2.2 Vietnam

In Vietnam, logistics seem to be regarded as part of transport infrastructure and there are no policy documents on logistics such as comprehensive logistics master plan. The following discussion summarizes Vietnam Transport Development Strategy up to the Year 2020, prepared in September 2007.

(1) Development Goal

There is no overall development goal stated in the Vietnam Transport Development Strategy. The objectives of the Vietnam Transport Development Strategy seem to focus on building planned infrastructure as scheduled in the document: Develop the traffic infrastructure, especially concentrating on restoring and upgrading the existing works, and build some new works for developing socio-economic structures, and complete and modernize traffic infrastructure, to provide optimal transport for the entire network by 2020.

(2) Development Scenario

The GDP growth rate in the last decade reached 7.5% per year. Vietnam Transport Development Strategy applied 2 growth scenarios: the first scenario has an annual growth rate of 8.5% for the period between 2005 and 2010 and 8% for the period between 2011 and 2020. The second scenario has a annual growth rate of 8.5% between 2005 and 2010 and 10% between 2011 and 2020. The first scenario was adopted as the development scenario for the estimation of future transport demand.

(3) Road Transport

1) North-South Corridor

- National Highway 1A: Starting from Huu Nghi Quan to Nam Can on 2,298 km shall be completed and upgraded for its entire length; applying standards for Grade III plain road with 2 lanes by 2010.
- Ho Chi Minh Road: Starting from Pac Bo (Cao Bang) to Dat Mui (Ca Mau) with a total length of 3,167 km in which the main section runs 2,667 km and the western section runs 500 km, passing through 30 provinces and cities.

2) North Region

- Roads in the focal economic zone: NHs in the northern focal economic zone include NH-5, 10, 18, 38 and 39 which will be revitalized and upgraded to meet standards of Grade I – III roads.

- Radial roads: Radial roads from Hanoi to northern provinces include NH-2, 3, 6, 322, 32C, and 70. Up to 2015, these roads will be upgraded to meet standards of Grade III and Grade IV roads.
- Ring Roads: Ring roads include NH-4 from Tien Yen (Quang Ninh) to Pa So (Lai Chau), NH-279 running from Dong Dang (Quang Ninh) via Tuan Giao to Tay Trang (Lai Chau), and NH-37 running from Sao Do (Hai Duong) to Xom Lom (Son La).

3) Central Region

- By 2010, completing construction of new NH-12 running from Vung Ang Port to Mu Gia border gate, connecting NH-12 to Lao. Standards of a Grade IV road with 2 lanes will be applied for NH-12.
- By 2015, upgrading NH-8, 19, 25, 26 and 27 to meet standards of Grade III and IV roads.
- By 2020, upgrading NH-45, 46, 217, 14 to meet standards of a Grade IV road with 2 lanes.

4) Central Region

- By 2010, major NHs connecting economic hubs in the focal economic zone, including NH-51, 55, 56, 22, 13 and 20 will be upgraded.

5) South-western Region

- By 2015, completing upgrading of NR-1 and NR-2 to meet standard of a Grade III road with 2 lanes.

6) Expressway Network

- An expressway will be installed mainly along the North-South corridor with six to eight lanes.

(4) Railway

- Route of Hanoi – Ho Chi Minh (1,726 km): Upgrading and grading technically, focusing on building a new railway connecting Hanoi, Ho Chi Minh, Danang, Nha Trang, Dieu Tri Quy Nhon
- Route of Haoni – Lao Cai and Hanoi – Hai Phong: Ugrading the old track of 1m gauge and electrifying the old rail.
- Dong Anh – Quan Trieu route (55km): Overhauling and upgrading
- Kep – Chi Linh route (38km): Overhauling and upgrading
- Kep – Luu Xa (56km): restoring old tracks
- Railway connecting to Lao: By 2020, construct new railway connecting Vung Ang – Mu Gia to Thakhek (Lao) and a route through Di An – Loc Ninh to link with the Trans-Asia railway.

(5) Seaport**1) North Region**

- Quang Ninh Port: Further expanding and modernizing Cai Lan Port to receive vessels of 50,000 DWT and throughput reaching around 8 million tons per year by 2010 and 10 million tons per year by 2020.
- Hai Phong Port: building the group of Hai Phong Ports to reach capacity of 50 million tons per year by 2010 and 120 million tons by 2020, including new building in Lach Huyen Port

2) Central Region

- Chan May Port: to receive vessels of 30,000 to 50,000 DWT and reach capacity of 6 to 7 million tons per year by 2020.
- Danang Port: Further investing to improve infrastructure of Tien Sa Port to receive vessels of 35,000 DWT and reach capacity of 5 to 7 million tons per year by 2010 and 10 to 11 million tons per year by 2020.
- Dung Quat Port: Building a big port group in the Dung Quat with capacity to serve annual throughputs of 20 million tons by 2010 and 45 to 50 million tons by 2020.
- Quy Nhon Port: Completing the berth with capacity of 30,000 DWT so as to reach throughputs of 3 to 4 million tons per year by 2010 and 15 million tons per year by 2020.

3) South Region

- Ho Chi Ming Port Groups: To receive cargo vessels of 10,000 DWT to 30,000 DWT so as to handle 26 million tons per year by 2010 and 35 million tons per year by 2020.
- Ba Ria – Vung Tau Port Groups: To receive vessels of 50,000 to 100,000 DWT and throughputs of 20 million tons per year by 2010 and 40 to 50 million tons per year by 2020.
- Dong Nai Port Group: To accommodate cargo vessels of 15,000 to 30,000 DWT and handle annual throughputs of 12 million tons by 2010 and 24 million tons by 2020.

3.2.3 Yunnan Province**(1) Development Plan**

A Chinese economic and social development plan has been executed under the 5-year national development plan; the current 11th 5-year planning targets 2005-2010. There is no official long-term development strategy exceeding the 5-year planning period.

Under the 11th 5-year plan, the Yunnan province plans principally comprehensive development, not only focusing on economic development but also including environmental and social welfare. Since Yunnan province is located at the edge of China, far from the hinterland, many kinds of nationalities live in the province and the provincial economic situation lags behind the national average. Yunnan province, accordingly, is making efforts to enhance economic development through unitization of human capital. Despite recent economic development, Yunnan still posted a weak economic performance relative to other Chinese provinces with provincial GDP of 570 trillion Yuan, ranking 23rd among all provinces: it is almost the poorest province. In order to resolve such

defects, poverty alleviation is a critical issue.

From the viewpoint of logistics, Yunnan province emphasizes promoting linkage with Southeast Asia and South Asia and utilizing provincial geographic advantages.

In short, the province's comprehensive strategies are summarized below:

- Achievement of economic development
- Achievement of environmental friendly development
- Unitization of comprehensive culture and human capital
- Enhancement of accessibility to ASEAN and Southeast Asia

The major numeric targets are as follows:

1) Economy Targets

- GDP in 2010 will grow by 1.2 times from 2000 to 2010 and GDP per capita will increase by 1.1 times in the same period.
- Annual investment for social assets will grow by 13% per annum, amounting to 100 trillion Yuan per annum by 2010.
- The development of manufacturing and service sectors will be achieved. GDP share by sector will be apportioned in accordance to the ratios 15:34:32 (agriculture: manufacturing: service industries).
- Job creation will be achieved by generating 1 million jobs within 5 years in both rural and urban areas.
- Consumable expenses will increase by an annual growth rate of over 6 % for urban and rural residents. Additionally, the annual revenue from the agricultural sector will grow by 6%.

2) Social Targets

- The population in 2010 will increase up to 46 million and the growth rate will be controlled at 6.08% or less.
- Energy consumption will be reduced by 12% in comparison with the previous 5-year plan i.e. 10th 5-year plan.
- Unemployment rate should remain below 5%.
- Urbanization rate will reach approximately 35%.
- The population below the poverty line will be reduced by 2.5 million.

(2) Logistics Development

Yunnan province plans to link with Southeast and South Asia so as to exploit its geographic advantage. The highly prioritized transport modes are rail and land as well as airport. The inland waterway is regarded as a low-priority transport mode.

1) Railway

The railway network will initially expand connecting surrounding provinces, east and central regions. The west-south railway network will then be extended. High priority is attached to 4 domestic routes, connecting Kunming, Guangzhou, Chengdu, Guizhou and Nei Jiang as well as 3 international routes, connecting Vietnam, Lao PDR, and Myanmar.

The numerical targets set for 2010 are:

- Annual cargo handling capacity: 100 million tons and 30 million passengers
- The portion of railway network with double tracks: 21%
- The portion of railway network that will use electric trains: 60%

2) Road

The national development strategy aims at establishing sustainable, fair and effective road transport. Road development will not be limited to the road network but will also include the following:

- Development of terminals (hub terminal, regional terminal and inland depot)
- Development of high-speed passenger traffic
- Development of suburban road connecting agricultural areas
- Development of road up to 2010: 8,000km high class road, 3,200km expressway and 15,000km suburban road

Yunnan Province plans to build and extend 3 traffic routes to connect China with South Asia and Southeast Asia. This was part of the economic integration of southwest China's 6 provinces and regions (Sichuan, Yunnan, Guizhou, Tibet, Guangxi and Chongqing). The 3 routes are, namely: (1) the Western route along Yunnan-Myanmar Highway, the China-India Highway and Guangtong-Dali Railway to Myanmar, India and Bangladesh; (2) the Central route from Lancang-Mekong River shipping line, Kunming-Dalu Highway and the Xishuangbanna International Airport, to Lao PDR, Myanmar, Thailand and further Singapore; and (3) the Eastern route to Vietnam, using Yunnan-Vietnam Railway, Kunming-Hekou Highway and the Honghe River shipping line.

3) River

8,000 km of waterways in total will be utilized for river transport. At present, along the Jinsha River and the Lancang River, an intra-province waterway is in operation totaling about 1,500km. Major ports include Shuifu, Suijiang, Jinghong, Simao, and Dali. In June 2001, a commercial shipping line connecting China, Lao PDR, Myanmar and Thailand on the Lancang-Mekong River was officially inaugurated. Jinghong and Simao District river ports are international ports. Many river ports are open for international trade with neighboring countries. Lanang River and Mekong River are the international rivers linking 6 countries in Asia.



Figure 3.2.2 Trunk Road Network in Yunnan

CHAPTER 4 FUTURE PERSPECTIVES AND FRAMEWORK

Socio-economic situations in GMS and Lao PDR have drastically changed due to market integration and economic development of GMS and Lao PDR, which will largely influence future logistics in GMS and Lao PDR. This chapter, at the outset, focuses on the future economic integration of GMS, the progress and the future of cross-border agreements and economic development of Lao PDR: afterwards, the focus is shifted to formulating the socio-economic framework which is reflective of the changes.

4.1 Economic Integration in GMS

4.1.1 International Specialization and Relocation of Enterprises

(1) Economic Integration and International Specialization

In the traditional international trade theory, benefits from international trade come from gaps among countries. In the Ricardo model, it is a gap in production technology in two countries, and in the Heckscher-Ohlin model, it is a gap in resource allocation in two countries. These international trade theories can partly explain the current international trade, however, the theories could not explain the complicated production and distribution network which has developed over a few decades. In order to explain the international trade with such production and distribution network, new analytical theories were developed.

The first one is the fragmentation theory. In the traditional international trade theory, comparative advantage at the industry level or final product level was emphasized but most of the final products are combination of parts. Some of them are labor-intensive goods and the others are capital-intensive goods. In the past, it was normal that components of a final product were produced in one country. However, in accordance with globalization, most of the parts of the final product are produced in a number of countries these days. In particular, such a phenomenon is observed in economies of ASEAN, Japan, the South Korea and China. In such a situation, the location where specific parts of a final product are produced is determined by technical characteristics of each component (production block). For example, production of capital-intensive parts would be located in advanced economies in which labor cost is relatively high, and production of labor-intensive parts would be located in developing economies.

However, location of parts production is not determined only by comparative advantages of production blocks. Service link cost which connects production blocks and is comprised of transport costs, communication costs, etc is also important in comprehending fragment production.

The second one is the agglomeration theory. The more a kind of industry or parts production is accumulated in one place, the more the production costs drop. The Automobile industry on the Eastern Seaboard is one example at industry-level, while the accumulation of small and medium enterprises for molding and lathe observed in the Ota City of Tokyo are an example at the parts production level.

The third one offers a different perspective of a company with traditional economic analysis. A company is an economic entity which is analyzed in Economics, together with households and government. However, the analytical viewpoint of the company tends to be highly simplified and idealised. In reality each company has intrinsic characteristics. Each company divides its production processes into production blocks, and decides which blocks it produces by itself and which blocks it outsources: this would also entail determining suitable production location. The current trends of international specialization and product location are translated in these new theories.

(2) Industrial Accumulation in Thailand and Wage Gap between Lao and Thailand

In Thailand, industrialization started in the 1960s, and has accelerated since the 1980s. Thailand experienced more than 9% growth between 1985 and 1995. After the Asian Financial Crisis, it set a target to promote major fine industries: automobile, food processing, fashion, tourism and software. In these industries, automobile and its related industries have developed a lot in recent years. Japanese firms started investing in Thailand in the 1960s, and the number of Japanese affiliated firms have grown to be more than 7,000 to date. Production of final products and expansion of business activity by assembly firms also promoted expansion of business activity by parts supplier, and circulation of such accumulation mechanism contributed to development of high-level parts industry and skilled labor.

However, labor costs in Thailand, in particular Bangkok and the eastern seaboard and Chang Mai where many manufacturing companies are located are increasing due to continuous economic development. As indicated in Table 4.1.1, the minimum wage in Bangkok is about 2.4 times the value of that in Lao PDR, while the minimum wage in north-east Thailand and cities is around 2 times that in Lao PDR. This presents an opportunity for Lao PDR to invite new business establishments from Thailand.

Table 4.1.1 Minimum Wage in Lao and Thailand

Place	Amount in Local Currency	Amount in USD	Remarks
Lao PDR	LAK569,000/month	66.9/month	Effective from May 2009 348,000 of minimum wage +221,000 of subsidiary
Bangkok	THB206/day	158.3/month	Effective from January 2010
Chang Mai	THB171/day	131.4/month	Effective from January 2010
Udon Thani, Nong Khai	THB159/day	122.2/month	Effective from January 2010

Note: USD1=THB33.84=LAK8506.61

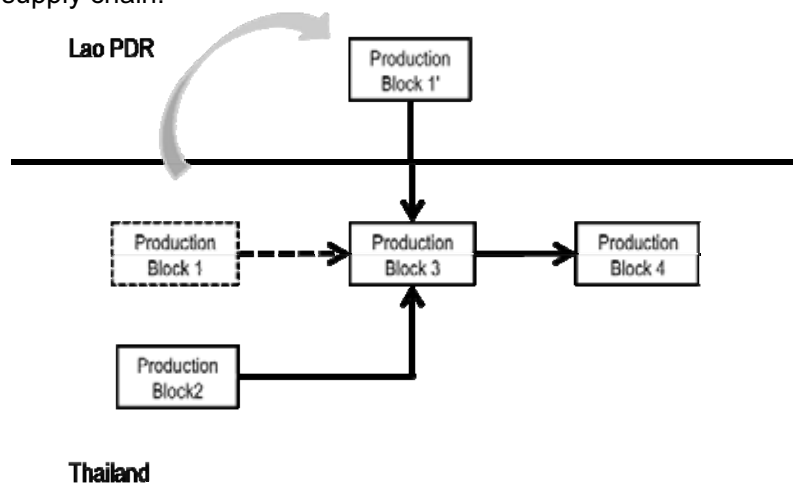
Source: Data from Ministry of Labor in Thailand and Ministry of Labor and Welfare in Lao PDR

(3) Potential of International Specialization between Lao and Thailand

As described in (1), production of manufacturing goods such as electrical machines, electrical appliances and automobiles consist of combinations of capital-intensive components and

labor-intensive components. Lao PDR thus has an opportunity to make use of its strategic location and favorable wage gap with Thailand.

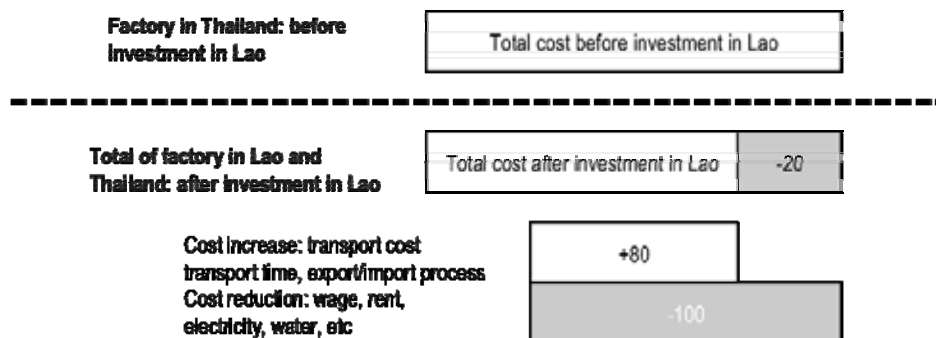
Figure 4.1.1 illustrates an example of international specialization between Lao PDR and Thailand. A final product (production A in this example) consists of 4 production blocks. The business establishment for “production block 1,” which is a labor-intensive component is relocated from Thailand to Lao PDR (production block 1’). Materials for production block 1’ are imported from Thailand to Lao PDR. Intermediate products of production block 1’ are exported to Thailand, and they are used as input for production block 3. Finally, the final product is assembled in production block 4, and it will be sold in Thai market or exported to foreign countries. In this scenario, the production component in Lao PDR (production block 1’) is perfectly involved in the production process of Thai supply chain.



Source: Basic Information on Lao Economy, Dr. Motoyoshi Suzuki, JETRO 2008, pp119-121

Figure 4.1.1 Example of International Specialization between Lao and Thailand

It is necessary to fulfill the necessary condition shown in Figure 4.1.2 in order to invite new business establishments from Thailand. It is expected that costs associated to wages, land rent, electricity charge, water tariff, etc; are reduced. However, other costs such as transport costs, opportunity cost for transportation (transport time and processes involved in export and import) will be imposed on the production costs. As a result, a Thai company would invest in Lao PDR if cost reduction exceeded cost increase. In case of Figure 4.1.2, Cost reduction (-100) exceeds cost increase (80), generating a -20 net cost reduction. That is to say, production cost after investment in Lao PDR is less than that before investment in Lao PDR. Therefore, investment will be implemented.



Source: Basic Information on Lao Economy, Dr. Motoyoshi Suzuki, JETRO 2008, p128

Figure 4.1.2 Necessary Condition to set up New Business Establishments in Lao PDR

In order to create the net cost reduction, it is necessary to minimize transport costs and opportunity cost of transportation as well as maximizing cost reduction. In this context, improvement of logistics is an important factor in attracting foreign capital investment.

(4) Expected Industries for Lao PDR

Given the nature of industries in Thailand, the following industries are marked as potential candidates for relocation to Lao PDR.

The first industry deals with parts of electric appliances/electric machines and electrical components of automobiles. The international specialization described in (3) would occur in these industries. Considering the distances between Bangkok¹ and Vientiane and; Chang Mai² and Vientiane, the production of electric parts, which are lightweight and could be transported at low cost, hence huge potential for relocation of the industry to Lao PDR. Some Japanese affiliated firms have started investment in Vientiane. These firms produce parts for cellular phones (coil), wire harnesses for automobiles and parts for digital cameras.

The second one is the garment industry. There are 54 garment firms which export final products to foreign countries: in recent years, garment has become the 3rd biggest export good for Lao PDR. Generalized System of Preference (GSP) to EU member countries is one of the advantages for garment industry in Lao PDR. The garment industry was the major industry for Thailand but the industry has diminished due to hikes in labor cost. Since labor costs in Lao PDR are not as high as those in Thailand, manufacture of garments with high value added could be transferred to Lao PDR.

The third industry is metal processing and construction material. These industries could use resources in Lao PDR. In case of metal processing, copper at Sepone and Phi Bia mines, bauxite around Bolaven Plateau and electricity will be utilized. For construction materials, limestone, gypsum and potassium are available.

4.1.2 Progress of Internal Procurement within GMS

The Study team made up "Trade Matrix" based on 'ComTrade' data edited by the United Nations with the aim of analysing trade relationships among GMS countries.

The largest bilateral trade pair in 'Trade Matrix' in GMS was the "Thailand – China" trade pair in 2008, with an amount of trade at 36,044 million US\$, which is 28 times the trade amount for the whole of Lao PDR, 1,287 million US\$. The trade amount between China and Thailand in 2001 was 6 times the trade amount for the whole of Lao PDR.

The transport mode for trade between Thailand and China is mainly maritime transport. According to improvement of transport/ logistics infrastructure in GMS countries and CBTA, the transport mode between China and Thailand has potential for diversion from maritime transport to land transport through future improvement of land transport network by Lao PDR. Logistics companies in Lao PDR have the opportunity to expand business fields and increase business sales, e.g., tracking, trans-shipment, storage, trade broker business etc, if the transport mode for trade between China and Thailand were shifted from maritime to land transport in response to improvement of land transport network within the GMS.

¹ Most automobile firms are located in the surrounding area of Bangkok and the Eastern Seaboard.

² Lampun located near Chang Mai has an accumulation of electrical appliances and electrical machines.

Table 4.1.1 Trade Matrix in GMS (2001)

Unit: Million USD/ Year

2001	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China	GMS	Other	Total
Thai		798	467	354	288	2,863	4,770	60,149	64,919
Vietnam	327		146	5	46	1,417	1,942	13,087	15,029
Cambodia	21	23		0	1	17	61	1,439	1,500
Myanmar	806	4	0		0	497	1,307	1,074	2,382
Lao PDR	89	68	0	0		7	165	155	320
China	3,716	1,606	152	311	27		5,811	260,287	266,098
GMS	4,958	2,499	765	671	361	4,802			
Other	56,963	13,719	1,329	2,206	301	238,751			313,270
Total	61,921	16,218	2,094	2,877	662	243,553		336,192	

Source: JICA Study Team Estimation based on UN ComTrade data

Table 4.1.2 Trade Matrix in GMS (2008)

Unit: Million USD/ Year

2008	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China	GMS	Other	Total
Thai		4,962	2,014	1,318	1,230	15,998	25,521	150,387	175,908
Vietnam	1,442		1,532	33	114	4,850	7,970	45,727	53,697
Cambodia	90	214		0	0	39	343	3,947	4,290
Myanmar	3,377	76	0		0	648	4,100	2,850	6,950
Lao PDR	493	111	0	0		15	619	224	828
China	20,046	15,974	1,096	1,978	131		39,224	1,391,469	1,430,693
GMS	25,447	21,336	4,642	3,328	1,475	21,550			
Other	153,166	51,293	1,868	971	459	1,111,013			1,318,769
Total	178,613	72,628	6,510	4,299	1,803	1,132,562		1,594,603	

Source: JICA Study Team Estimation based on UN ComTrade data

Table 4.1.3 shows the changes in intra-regional trade rates in GMS countries between 2001 and 2008. According to the changes in intra-regional trade rates in GMS between 2001 and 2008, the economic integration in GMS shows evidence of improvement.

Table 4.1.3 Rates of Intra-GMS Trade

	Rate of EX (to GMSs)		Difference (08-01)	Rate of IM (from GMSs)		Difference (08-01)
	2001	2008		2001	2008	
Thailand	7.3%	14.5%	7.2%	8.0%	14.2%	6.2%
Vietnam	12.9%	14.8%	1.9%	15.4%	29.4%	14.0%
Cambodia	4.1%	8.0%	3.9%	36.5%	71.3%	34.8%
Myanmar	54.9%	59.0%	4.1%	23.3%	77.4%	54.1%
Lao PDR	51.5%	73.0%	21.4%	54.6%	74.5%	20.0%
China	2.2%	2.7%	0.6%	2.0%	1.9%	-0.1%

Source: JICA Study Team

Table 4.1.4 shows the procurement rate based on 'Trade Matrix'. Comparing the procurement rates of intra-GMS trade in 2001 to those in 2008, all GMS countries except China increased their procurement rates in 2008 from their levels in 2001. The highest intra-GMS trade procurement rate in 2008 was for Lao PDR, which is a landlocked country: Lao PDR was followed by Myanmar, Cambodia and Vietnam, in a descending order. China had the lowest intra-GMS trade procurement rate in 2008, followed by Thailand. However, Thailand's intra-GMS trade procurement rate increased from 8.0% in 2001 to 14.2% in 2008

Table 4.1.4 Rate of Procurement (Import) from GMS countries in 2001

2001	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China
Thai		4.9%	22.3%	12.3%	43.5%	1.2%
Vietnam	0.5%		7.0%	0.2%	6.9%	0.6%
Cambodia	0.0%	0.1%		0.0%	0.1%	0.0%
Myanmar	1.3%	0.0%	0.0%		0.0%	0.2%
Lao PDR	0.1%	0.4%	0.0%	0.0%		0.0%
China	6.0%	9.9%	7.2%	10.8%	4.0%	
GMS	8.0%	15.4%	36.5%	23.3%	54.6%	2.0%
Other	92.0%	84.6%	63.5%	76.7%	45.4%	98.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: JICA Study Team

Table 4.1.5 Rate of Procurement (Import) from GMS countries in 2008

2008	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China
Thai		6.8%	30.9%	30.6%	68.2%	1.4%
Vietnam	0.8%		23.5%	0.8%	6.3%	0.4%
Cambodia	0.1%	0.3%		0.0%	0.0%	0.0%
Myanmar	1.9%	0.1%	0.0%		0.0%	0.1%
Lao PDR	0.3%	0.2%	0.0%	0.0%		0.0%
China	11.2%	22.0%	16.8%	46.0%	7.3%	
GMS	14.2%	29.4%	71.3%	77.4%	81.8%	1.9%
Other	85.8%	70.6%	28.7%	22.6%	25.5%	98.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: JICA Study Team

On the other hand, Table 4.1.6 indicates the shipment rate based on 'Trade Matrix'. Comparing the shipment rates for intra-GMS trade in 2001 to those in 2008, all GMS countries increased their shipment rates in 2008 from the levels in 2001. The highest intra-GMS trade shipment rate in 2008 was for Myanmar, followed by Lao PDR and Vietnam in that order. The rate for Cambodia is at a low level in contrast to the rates for other GMS countries. This is due to the fact that export goods produced in Cambodia have advantages in import tax levied on them in developed countries, e.g., EU, United States. China had the lowest intra-GMS trade shipment rate in 2008, followed by Cambodia.

Table 4.1.6 Rate of Shipment (Export) to GMSs in 2001

2001	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China	GMS	Other	Total
Thai		1.2%	0.7%	0.5%	0.4%	4.4%	7.3%	92.7%	100.0%
Vietnam	2.2%		1.0%	0.0%	0.3%	9.4%	12.9%	87.1%	100.0%
Cambodia	1.4%	1.5%		0.0%	0.1%	1.1%	4.1%	95.9%	100.0%
Myanmar	33.8%	0.2%	0.0%		0.0%	20.9%	54.9%	45.1%	100.0%
Lao PDR	27.9%	21.3%	0.0%	0.0%		2.3%	51.5%	48.5%	100.0%
China	1.4%	0.6%	0.1%	0.1%	0.0%		2.2%	97.8%	100.0%

Source: JICA Study Team

Table 4.1.7 Rate of Shipment (Export) to GMSs in 2008

2008	Thai	Vietnam	Cambodia	Myanmar	Lao PDR	China	GMS	Other	Total
Thai	0.0%	2.8%	1.1%	0.7%	0.7%	9.1%	14.5%	85.5%	100.0%
Vietnam	2.7%	0.0%	2.9%	0.1%	0.2%	9.0%	14.8%	85.2%	100.0%
Cambodia	2.1%	5.0%	0.0%	0.0%	0.0%	0.9%	8.0%	92.0%	100.0%
Myanmar	48.6%	1.1%	0.0%	0.0%	0.0%	9.3%	59.0%	41.0%	100.0%
Lao PDR	59.6%	13.4%	0.0%	0.0%	0.0%	1.8%	74.8%	27.0%	100.0%
China	1.4%	1.1%	0.1%	0.1%	0.0%	0.0%	2.7%	97.3%	100.0%

Source: JICA Study Team

4.2 Regional Integration Scheme of GMS and ASEAN

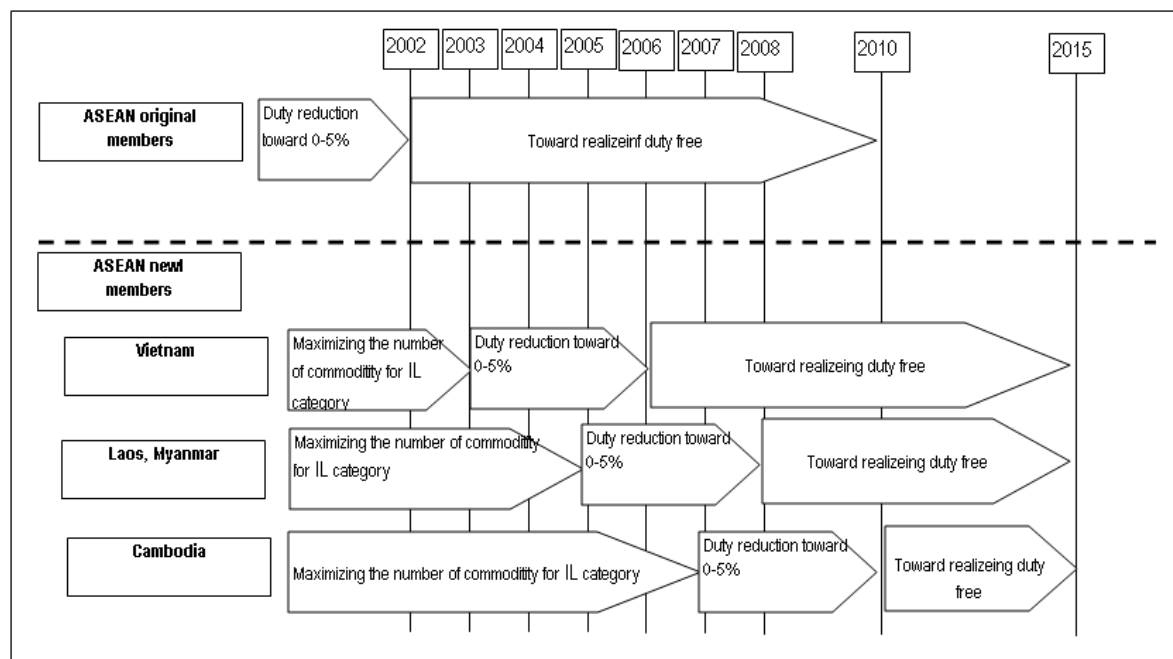
In order to promote transport and trade in the ASEAN and GMS regions, there have been on-going multi and bilaterally agreed programs to facilitate regional logistics. These programs aim to formulate a more simplified and effective logistics environment in the region.

4.2.1 AFTA and CEPT

The enormous potential for economic development and integration would be generated by establishment of a Free Trade Area among ASEAN countries. In order to accomplish this, AFTA (ASEAN Free Trade Area) was created in 1992. The purpose of AFTA is to develop trade and industrial linkages among ASEAN member countries. As a practical method to realize a Free Trade Area, ASEAN adopted the CEPT (Common Effective Preferential Tariff) Scheme, which is a cooperative arrangement among ASEAN member states. The basic idea of the CEPT is to reduce intra-regional tariffs and remove non-tariff barriers over a 10-year period. CEPT targets all manufactured products including capital goods and processed agricultural products. The schedule and time-line for customs duty reduction programs are summarized below:

- Import duties among original member countries³ of ASEAN would be reduced to between 0-5% until 2002 on full implementation basis. For new members of ASEAN, Vietnam would fully implement the customs reduction program by 2006, Lao PDR and Myanmar by 2008 and Cambodia by 2010.
- Along with the customs duty reduction scheme, member countries would make efforts to eliminate quantitative restrictions (e.g., import permit and quota) and other non-tariff barriers among ASEAN member countries.
- The original 6 member countries will complete the duty free scheme by 2015. The other 4 new members will complete it by 2018.

³ Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand



Source: METI presentation material

Figure 4.2.1 Overall Schedule of CEPT

Under the CEPT scheme, commodities are classified into 4 categories. a) IL (Inclusive List) commodity b) TEL (Temporary Exception List) commodity,⁴ c) GML (General Exception List)⁵ commodity and d) SL (Sensitive List) commodity and HSL (High Sensitive List) commodity⁶.

The commodities categorized as b), c) and d) are exempt from the duty reduction scheme. Until now, the member countries have been making efforts to transform TEL/TE commodities into IL commodities. As a result, a majority of commodities are now classified as IL commodities.

Table 4.2.1 summarizes the progress of the CEPT by mid-2007. This table shows that original member countries have already succeeded in transforming almost all commodities into IL commodities and imposing customs duty of less than 5%. Furthermore, over 50% of IL commodities have a 0% customs duty imposed upon them among original member countries of ASEAN. Similarly, new member countries of ASEAN, excluding Cambodia, have also succeeded in increasing the number of IL commodities with over 80% of the commodities categorized as 0-5% customs duty commodities. The CEPT scheme has been progressing more rapidly than expected when initially agreed upon.

⁴ Sensitive products on a temporary exemption from duty reduction scheme, ultimately shifting to IL

⁵ Regulated goods for national security or public moral, protection for human resources

⁶ Agricultural raw materials and unprocessed agricultural products

Table 4.2.1 CEPT Progress

	Total item number	IL category						TEL category	GEL category	SL/HSL category	
		Duty rate 0-5%		Duty 0%		Duty rate over 5%	Other				
		Share for IL cargo		Share for IL cargo							
Brunei	10,702	10,538	9,924	93.6%	8,444	79.7%	674	15	0	104	0
Indonesia	8,732	8,619	8,619	100.0%	5,730	66.5%	0	0	0	96	17
Malaysia	12,593	12,504	12,439	99.5%	9,785	78.3%	65	31	0	89	0
Phillipines	11,490	11,444	11,369	99.3%	8,149	71.2%	75	0	0	27	19
Singapore	10,705	10,705	10,705	100.0%	10,705	100.0%	0	0	0	0	0
Thailand	8,301	8,301	8,288	99.8%	4,513	54.4%	13	0	0	0	0
Total of ASEAN original 6	62,523	62,171	61,344	98.7%	47,326	76.1%	827	46	0	316	36
Cambodia	10,689	10,454	5,301	50.7%	603	5.8%	5,153	0	2,447	181	54
Laos	10,690	10,389	9,960	95.9%	629	6.1%	429	0	0	98	203
Myanmar	10,689	10,611	9,325	87.9%	365	3.4%	1,286	0	77	51	27
Vietnam	10,689	10,523	10,285	97.7%	5,478	52.1%	238	0	0	166	0
Total of new asean 4 6	42,757	41,977	34,871	83.1%	7,075	16.9%	7,106	0	2,524	496	320
ASEAN10	105,280	104,148	96,215	92.4%	54,401	52.2%	7,933	46	2,524	812	356

Source: JETRO Web Page (http://www.jetro.go.jp/world/asia/asean/data/asean_afta_aico01_0904.pdf)

4.2.2 Regional Agreements

In order to enjoy the benefits generated from the CEPT scheme, it is critical to realize regional transport facilitation. Initially, the focus on regional transport facilitation had targeted sea transport as the major transport mode. Currently, the focus has been shifted to cross-border transport by land.

While the land transport has potential of reducing the transit time, the effect of cost reduction is limited to some extent. Cost competitiveness is a critical issue in encourage cross-border transport. Looking at the ASEAN region in particular, cross-border transport facilitation between Thailand and Malaysia was initially agreed upon in 1989 and is currently fully operational. The modal shift from sea transport to land transport reduces the transport cost, making it competitive compared to the shipping service. This can be also applied to the GMS and ASEAN regions.

Table 4.2.2 Effect of Cross-Border Transport

	Land transport			Sea transportation		
	Distance	Lead time	Cost (US\$)	Lead time	Cost (US\$)	Remark
Bangkok -Kuala Lumpur	1460	3 days	2,000	7-10 days	1400-1800	40'
Guangzhou-Hanoi	1,200	2-3 days	3,000	4-6 days	1,500	40'
Bangkok -Hanoi	1,555	3-4 days	4,000	10-15 days	2,000	40'
Bangkok -HCM	900	2 days	1,400	2-3 days	600	40'
Kunming -Bangkok	1,860	4-5 days	-	8-14 days	-	tractor-semi trailer

Source: Bangkok/Kuala Lumpur :Study team calculation; Others: JICA presentation 'Development of Land Routes for Long-distance Logistics through Cross Border'

(1) ASEAN Agreement

Apparently, the customs duty reduction is a trigger which increases regional trade. In order to realize this potential, cross-border transport facilitation has become a focal issue. ASEAN member countries have been making efforts to follow the 3 agreements below;

- ASEAN framework agreement on facilitation of goods in transit
- ASEAN framework agreement on facilitation of inter-state transport
- ASEAN framework agreement on multimodal transport

An Agreement on facilitation of goods in transit was signed in 1998. However, 3 protocols out of a total of 9 await signing (as of the end of 2007). This agreement aims to facilitate transit transport. The ASEAN framework agreement on facilitation of inter-state transport hasn't been signed as yet. It focuses on bilateral transport. The ASEAN framework agreement on multimodal transport was signed in 2005. This agreement aims to build a legal framework for business entities involved in multimodal transport. As seen in its progress, ASEAN agreements and their implementation are behind schedule because of the difficulties in getting consensus amongst all the ASEAN countries.

(2) GMS Agreement

Compared to the European Union, ASEAN has wide diversity i.e., different political structures, economic levels, cultures and religions. These become constraints in accomplishing regional integration, especially in CLMV (Cambodia, Lao PDR, Myanmar and Vietnam) countries. Accordingly, ADB has been supporting CLMV countries, by formulating the GMS development program including Thailand and Yunnan province of China. As a result, the GMS agreement for facilitation of cross-border transport of goods and people already went into effect in 2003 and all protocols and annexes were agreed upon by March 2007. The progress of GMS agreement is far ahead of the ASEAN agreements. Since GMS cross-border transport agreements pursue the concept of ASEAN framework agreements, the contents of both agreements are consistent and not contradictory.

The concepts of GMS agreement are summarized as follows:

- Designating the route and border crossing points
- Formulating a cross-border transport facilitation scheme for both bilateral transport and transit transport
- Facilitating cross-border procedures, avoiding physical checks, escort services, duty deposits, transit charges, and animal/plant quarantine at the border
- Realizing single vehicle border crossing by a) registration of transporter and vehicle, b) mutual recognition of registered companies and vehicles among the concerned parties, c) adopting a quota system for cross-border vehicles at the initial stage
- Completing a third party liability system and guarantee organization system to establish security for cross-border transport

In the past, cross-border transport procedures were unclear and required specific know-how involving high risk of delay and uncertainty. CBTA was introduced to minimize such risks. In order to achieve this goal, the necessary actions are described in the protocol and annex of the CBTA, including regulating vehicle type, customs declaration form, paperwork format, traffic rules and

driver's license.

One particular characteristic of CBTA is "single stop/single window customs inspection system" (SSI/SSW). This system aims to implement CIQ (Custom, Immigration and Quarantine) procedures at one location at one time. Generally, there are individual CIQ procedures at the border crossings of each country not only for export but also for import cargo (totaling 6 inspections required). In order to facilitate complex procedures, development of cross-border facilities is necessary and the ADB fully committed itself to developing these facilities. However, implementation of CBTA is behind schedule in reality even for pilot projects. Looking at the Densawan/Lao Bao border in particular, the first phase SSI site was originally scheduled to be completed by 2006, but only the CCA (Common Control Area) was built with other facilities yet to be developed.

In addition, as agreed in the CBTA, third party liability insurance should be available to ensure cargo liability and guarantee organization. But the reality is different. A more important issue is whether business people see a profit in cross-border transport business. In this matter, it is generally considered that facilitation is not fully achieved because there still remain the following major constraints.

- Trans-shipment at border is still required and its cost is relatively high.
- Custom procedures have not improved at borders since SSI is not fully implemented.
- Transport costs are still high because there is no back haulage.

(3) Trilateral Agreement

A trilateral agreement, following the CBTA, designates routes and crossing points for cross-border transport. The MOU of trilateral agreement for EWEC, Dansavanh- Lao Bao and Savannakhet -Mukdahan, was enacted in June 11, 2009. However, it is not possible to transport between capital cities of Vietnam (Hanoi) and Thailand (Bangkok) because the route for cross-border transport is only permitted between Khon Kenh (Thailand) and Danag (Vietnam) according to the protocol of the CBTA. If transporters use other routes undesignated in the protocol of GMS and ASEAN agreements, transport operators should consider their feasibilities under the scheme of bilateral agreements.

(4) Bilateral Agreement

Prior to ASEAN and GMS agreements, an actual bilateral CBTA had been implemented under the bilateral agreement schemes. These bilateral agreements are frequently revised in order to make cross-border transport more convenient.

Lao PDR signed bilateral agreements with 4 neighboring countries. The basic concept of each bilateral agreement is summarized below.

- Except Cambodia, the quota of cross-border transport vehicles was abolished, guaranteeing free access to/from Thailand and Vietnam.
- The vehicles for cross-border transport should be registered and a truck passport should be issued as proof that a vehicle is registered.
- Transit cargo should be transported along the designated border check points and routes. For example, Lao PDR opened only NR-13, 16, 16A, 18B, 9, 12 for transit transport. Similarly,

Thailand allows only Bangkok, Leam Chabang and Matapat as the international gateways to Lao PDR while Vietnam allows only Danang and Vung Anh ports.

- Only the routes are designated in principle: the origins and destinations of the cargo and transporters remain unrestricted with some exceptions. Like transit routes, border check points are designated.

The above mentioned points, excluding registration of cross-border transport vehicles, are different from GMS and ASEAN agreements. If Lao PDR utilized these advantages, it is apparent that Lao trucks would have full potential of providing cross-border transport services from a geographic perspective (easy accessibility to other countries).

In fact, direct transport between Thailand and Vietnam is now permitted along the EWEC under the CBTA. The key to success of cross-border transport between Thailand and Vietnam lies in the combination of the bilateral agreement of Lao PDR and Thailand with that of Lao PDR and Vietnam. Hanoi/Dong Ha is not a designated route under the CBTA protocol. Under the scheme of GMS, ASEAN or trilateral agreements, Thai and Vietnam trucks are not permitted to go beyond the designated points mentioned in the protocol. Trans-shipment between Thai and Vietnamese trucks is required. In other words, the bilateral agreement enables Lao trucks to connect the capital cities of both Thailand and Vietnam. Currently, there is no such cross-border transport service in Lao PDR. The effective usage of bilateral agreements can make it possible to promote such new services.

4.2.3 Information and Communication Technology

ICT (Information and Communication Technology) is essential in order to achieve facilitation of trade and cross-border transport. In particular, facilitation of customs procedures should be highly prioritized in Lao PDR. One of the exercises practiced in ASEAN countries is e-Custom. Although the ultimate goal of e-Custom is to realize a paperless clearance system, document submission is still required for customs clearance among many ASEAN countries. Lead time of the freight transport is considerably reduced when declaration data transmission service is available. E-Custom procedures can generate the following benefits.

- Reduction in lead time
- Reduction in transport cost
- High transparency
- Prevention of corruption and tea money

(1) ICT in Customs

Custom's information and communication technology in Lao PDR lags behind that of other ASEAN countries. The custom procedure still requires documents as well as physical inspection at the cross-border points. Lao custom introduced the C2000 system, which is composed of declaration system and customs duty collection and accounting system. While C2000 system seems robust, it has limited functions and is designed to support manual procedures and reporting functions currently practiced.

The Custom Department in Lao PDR plans to replace C2000 and adopt the ASYCUDA system. ASYCUDA is designed to facilitate customs clearance through a computerized system, which

simplifies custom procedures and minimizes administrative costs. The ASYCUDA system also aims to increase custom revenue, which is the major contributor to the national budget in most countries, by ensuring all goods are declared and customs duties are collected. Furthermore, this system will help to accomplish reliable and transparent trade.

Maintenance and update of quality input data is a critical issue in achieving the above mentioned objectives. The ASYCUDA system was originally developed to improve custom's in-house operation. It is likely to remain a stand-alone system within the Custom Department as far as customs does not have any intention to make reliable relations between declarer (importers, exporters or customs brokers).

Availability and standardization of the system should be taken into consideration when introducing the ASYCUDA system. The system should be available and data should be transmitted for exporters, importers as well as customs brokers. Otherwise, declarers would have to go physically to the custom office to declare all necessary data for customs clearance. Unless standardization and simplification on custom procedure is achieved, paperwork in custom procedures will remain. Custom procedures in Lao PDR still face the following deficits⁷:

- Procedures vary by commodity and are not simplified.
- Operation is not standardized and differs at each custom check point,
- Many documents are still required.

(2) ASW and NSW

Beside IT in custom procedures, NSW (National Single-stop Window) is another goal to facilitate trade, which may contribute to sharing all the necessary information for customs clearance amongst related agencies. NSW will be further developed to formulate ASW (ASEAN Single Window). ASW is scheduled to be completed by 2012. Until now, no concrete actions to accomplish NSW and ASW have been taken in Lao PDR. NSW aims to realize single stop service for customs clearance, making it possible to deliver a single input document to all concerned parties such as the Ministry of Finance. Declarers do not necessarily go to each authority to declare the trade and receive the approval for import/export.

ASEAN countries determined to formulate ASW, building comprehensive IT network amongst member counties. According to recommendations of Bali Concord II, ASW will be achieved by;

- Adopting the single stop approach
- Electronically processing data and information
- Streamlining and simplifying custom procedures

In order to achieve ASW, the following agreements were signed amongst member countries and actions were taken accordingly:

- In 2004, inter-agency task force was established to design ASW in order to promote standardization of process, data, information parameters and documentation.
- In 2005, AEM signed the agreement to establish the ASW.
- In 2009, MOU will be signed to formulate the legal framework.

⁷ Details are referable to Chapter 2.4.1

- Pilot projects are currently implemented among member countries.

ASW will be in a full operation in Indonesia, Malaysia, Philippines and Thailand by 2009⁸, and Cambodia, Lao PDR, Myanmar and Vietnam by 2012.

4.3 Development Potential of Lao PDR

4.3.1 Population Growth

Table 4.3.1 indicates population and its annual average growth rates in census years. The population of Lao PDR had doubled from 2.9 million to 5.6 million between 1976 and 2005: the highest population growth rate among the Asian countries. However, the growth rate is gradually getting lower, from 2.5% in 1976-85 to 2.0% 1995-2005. According to the Statistical Yearbook 2008, the population was recorded at 6 million in 2008.

Table 4.3.1 Population and Its Annual Average Growth Rate in Census Years

(Unit: 000 persons)

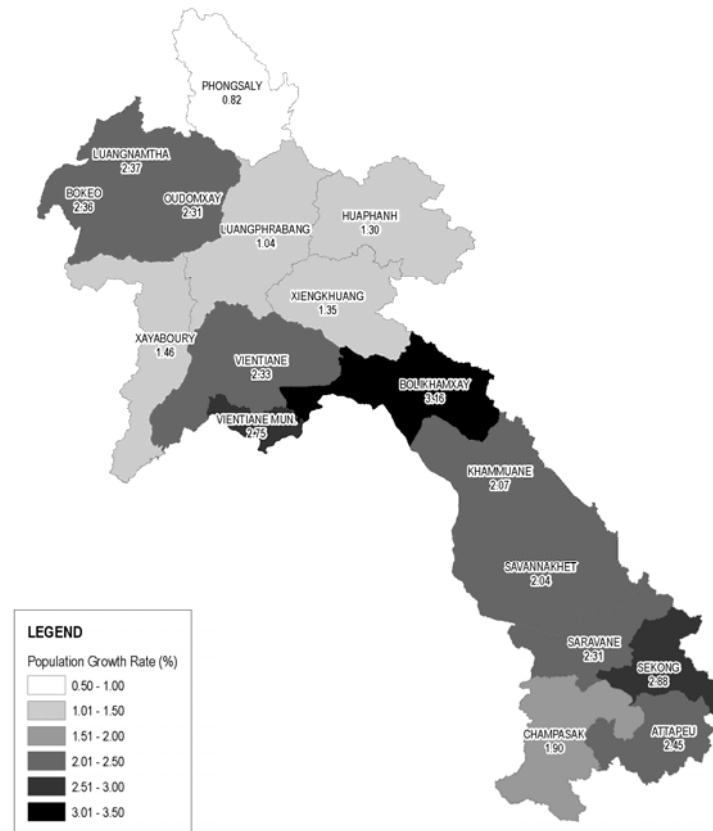
Year	1976	1985	1995	2005
Total Population	2,886	3,618	4,605	5,622
Annual Average Growth Rate (%)	-	2.5	2.4	2.0

Source: Statistical Yearbook 1975-2005, 2007, DoS

Figure 4.3.1 illustrates annual population growth rate by provinces between 1995 and 2005. The following features were observed.

- The northern provinces, Luangnamtha (2.4%), Bokeo (2.4%) and Oudomxay (2.3%) recorded higher annual growth rates than the national average (2.0%). Lower growth rates were observed in other provinces.
- In central and southern provinces, the annual population growth rate is higher than the national average except for Champasack Province (1.9%). In particular, Bolikhamxay (3.1%), Sekong (2.7%) and Vientiane Capital (2.8%) experienced high growth.

⁸ it is reported Singapore and Indonesia achieved full implementation in Feb, 2009



Source: Census 1995 and 2005

Figure 4.3.1 Population Growth Rate by Provinces 1995-2005

4.3.2 Urbanization

The Census 2005 report introduced the definition of “urban”, “rural with road” and “rural without road” to classify villages. The urban village has the following characteristics:

- The village must lie in a municipal vicinity where the district or provincial authority is located, and should have more than 600 residents or more than 100 households.
- There is a road for motor vehicles to get access to the village.
- The majority of households in the village are electrified.
- There is a tap water supply service to the majority of households.
- There is a market in the village.

The population in urban villages was 1,523,000, accounting for 27% of the total population in 2005. Figure 4.3.2 indicates percentages of population in the urban villages to the total population in provinces (referred as to “urbanization ratio”). The urbanization ratio for Vientiane Province was recorded at 82%, followed by Bolikhamxay (26%), Vientiane (24%), Savannakhet (22%), Luangnamtha (22%), Khammuane (21%), and Sekong (21%).

The urbanization ratio at provincial level shows that urbanization continues only in Vientiane Capital, while it lags behind in other cities. However, Population Division of the United Nations analyzes that the urbanization ratio will increase to 47 percent in 2025 due to rapid economic