

Project Title

**“Sharing the Benefits from Transportation Linkages and
Logistics Improvements in the GMS: A Study of the East-West
and North-South Corridor”**

Grant Number: 104084

Project Period: 13 August 2008 – 12 August 2010

Final Technical Report

Submitted to the International Development Research Centre

by

Thailand Development Research Institute Foundation (TDRI)

15 April 2011

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1. Synthesis

The overall objective of this project is to better understand the socio-economic impacts on various Greater Mekong Sub-region (GMS) countries and economic groups from transport corridor developments, their utilization and specific logistics improvement measures. The aim is to generate policy relevant knowledge that will help to identify specific measures to further improve transport logistics and maximize the mutual benefits of the transport corridors to all the stakeholder countries.

The specific objectives of the project are to carry out a detailed study of socio-economic changes that have occurred as a result of the development and utilization of the North-South (NS) transport corridor (between China-Lao PDR-Thailand, and China-Vietnam) and the East-West (EW) transport corridor (between Thailand-Lao PDR-Vietnam) and to understand the role of transport development and logistics improvement in contributing to these changes. In addition, the research will assess various scenarios of future logistics improvement measures and the resulting socio-economic impacts on various countries and economic groups that may be expected to occur. The objective is to make policy recommendations on future effective logistics improvement measures that are feasible in terms of being mutually beneficial for all the countries concerned.

The research was carried out jointly by research teams from China/Yunnan, China/Guangxi, Lao PDR, Vietnam, Thailand and Vienna Consult under the coordination of the Thailand Development Research Institute. Staff from the Asian Development Bank's Resident Mission in Bangkok with responsibility for GMS connectivity issues also participated in project workshops and provided inputs into the project.

In general, the objectives of the project were achieved. Each country research team carried out a review and field surveys of the parts of the EW and NS economic corridors relevant to their localities. The development of the corridors and impacts on economic and social outcomes around the corridor areas were studied. The current barriers to efficient utilization and appropriate benefit sharing among the stakeholder countries were identified, and suggestions made on how to improve the utilization of the corridors and benefit sharing from corridor utilization. Each country team produced a country report covering the relevant part of the corridors.

Further in-depth studies of corridor improvements and logistics improvements on socio-economic outcomes were carried out using two different methods. The first involved estimating a gravity type model of cross border trade which included logistics costs as an explanatory variable. Data on cross-border trades by origin and destination countries through various check points were used as dependent variables. Generally, for estimations of aggregate cross border trades, logistic cost reduction is shown to increase cross-border trades, as expected. The second method studied changes brought about by the opening of the Mukdahan-Savannakhet bridge (in December 2006) to households living near the bridge areas. These were carried out on the Thai side as well as on the Lao PDR side through household surveys and interviews with local officials, businesses and civil groups. Generally, the bridge affected the economic conditions of households in the area positively, though additional economic activities need to be created to bring about more significant impacts. Some new employment opportunities have been created, particularly on the Lao PDR side. The major new employer to date is a new Casino to attract gamblers from the Thai side. This can be viewed as both positive (in employment terms), as well as negative (encouraging more gambling).

As input into drawing up logistics policy scenarios that can create appropriate benefit sharing to all the stakeholder countries from logistics improvements, the European experience with the same set of issues was documented. How transit countries, such as Switzerland and Austria, can benefit from transit freight transportation through the country is also very important in the GMS context. In particular, Lao PDR is the key transit country in the GMS context of the East-West and North-South corridors. How Lao PDR can adequately benefit from these corridors where most of the traffic are likely to be simply using Lao PDR as a transit route has and will continue to be the main issue for the success of the East-West and North-South corridors. While the institutional framework of Europe is much further advanced than in the GMS, the issues are similar and the principles needed to successfully deal with the issues are the same, so the European experience is very relevant for the GMS.

Finally, based on the corridor studies of the various countries' research teams and also on the European experience, a number of possible logistics policy scenarios were proposed for future logistics development of the East-West and North-South corridors. These range from route by route agreement together with a compensation scheme to transit countries to bring about more appropriate benefit sharing, to extending the corridor concept to match

better with actual commercial corridors that businesses use, to the development of sub-network of transportation routes to promote supply chain development, to the longer term scenario of a seamless GMS. How each country can benefit from each of the logistics scenarios were also indicated.

2. Research Modules

The research project was designed to consist of the following modules:-

Module 1: Profile report of socioeconomic changes along the corridor.

Module 2a: Quantification of logistics cost reductions along the corridors.

Module 2b: Modified Gravity Model Estimation of Cross-border trades.

Module 2c: Impacts of the opening of the Mukdahan-Savannakhet bridge.

Module 3a: Study of corridors' development, utilization and constraints.

Module 3b: Scenarios for Logistics Improvements.

Module 4: Impacts of logistics scenarios for transport and socio-economic outcomes.

Module 5: Recommendations on practical logistics improvement measures.

Brief indications of the progress of these modules follow.

Module 1 - Socioeconomic Changes

The study has been successfully completed all the countries involved; China/Guangxi, China/Yunnan, Lao PDR, Thailand and Vietnam. The reports for the various areas reviewed the socioeconomic change along and near the transport corridors under study over the past 5 years or so. Generally, it was found that corridor development have contributed to economic improvements along the corridor although there are also potential negative impacts. The main findings on positive and negative socioeconomic impacts can be indicated as follows.

Positive Impacts

- Increases in trade, tourism, investment, economic, and technological cooperation between corridor countries;
- Higher economic growths for areas around the corridors, particularly for countries where the corridor is the key growth driver, less so for a country like Thailand where there are many other growth drivers aside from the corridor development;
- Corridor development leads to greater urbanization and the development of an economic corridor.

- Increase employment along economic corridor, and improvement in people's income;
- Help with poverty alleviation in border areas.

Negative Impacts

- Increases in transnational crimes, such as drug-and human trafficking, casinos and money laundering;
- Non-traditional security issues, for example, HIV/AIDS, H1N1;
- Environmental degradation along the corridor and greater encroachment of conservation areas;
- Negative impacts on traditional cultures and ways of life;
- Greater inequality among local communities.

Module 2a - Quantification of logistics cost reductions

The aim of this module is to gather data on logistics cost reductions that have occurred over the past five years or so as a result of corridor improvements (physical infrastructure and software).

The information on logistics cost reductions are not easy to come by as there are no readily available sources. There have been some specific studies of logistic costs along the corridors in the past, but they do not provide data on changes in logistic costs over time. The freight forwarders and transport operators have information on their own operations, but much of the information are confidential. However, through discussions with some operators that the research team are familiar with through past working relationships, some data were obtained from all of the country research teams.

Module 2b - Modified Gravity Model Estimation of Cross-border trades

In the past, estimations of logistic costs reductions on trade generally use aggregate trade data between various country pairs. This can provide very misleading results as the trade between countries utilize many transportation modes and many different exit and entry points (ports, airports, land border crossing points etc.). In this study, the trade data used are from specific cross-border custom checkpoints. Data were obtained from the Thai Customs

Department on export and imports of products at the 2-digit level at five custom checkpoints that covered cross-border trades between Thailand and Lao PDR, Vietnam and China. Modified gravity model estimations were carried out. Variables capturing logistic costs and tariffs were also included apart from other main economic variables.

The model was estimated with pooled product data as well as for some 2-digit categories. For pooled-product (sectoral aggregate) estimation, the results show that the logistic cost variable and the tariff variable have the correct signs. As to be expected, with greater product dis-aggregation, the data tend to be more volatile and results were variable across product groups. The results were also used to simulate the impacts of logistics cost reductions in stimulating cross-border trades. These tend to show rather small impacts of logistics cost reductions. This is likely to be due to relatively small cross-border trades (although rising) in the early stages of corridor development. Logistic cost reductions should become much more important as economic development progresses along with corridor development, i.e. the corridors develop from simple transportation corridors into full economic corridors.

Module 2c - Impacts of the opening of the Mukdahan-Savannakhet bridge

This module involves a re-survey of up to 100 households in Thailand and 100 household in Lao PDR that were surveyed by TDRI and NERI about five years ago before the completion of the Mukdahan-Savannakhet bridge. This was part of a study on cross-border trade for the Asian Development Bank. The household surveys and analyses for Thailand and Lao PDR were successfully completed. Comparisons of the households economic situations and cross-border activities between 2005 and 2009 were carried out. The households were also asked about how the opening of the bridge affected their economic and social situations in various dimensions, such as on their trading, employment and income prospects, and social situations. Generally, the responses tend to indicate positive impacts of the bridge opening on the surveyed households, though the changes were not substantial at this relatively early stage of bridge opening. Once major new economic activities are created as a result of the bridge, then the impacts will become more substantial. At present, the major new employer is a new casino on the Lao PDR side, which is to attract gamblers from the Thai side. While this creates new employment opportunities, it can also be regarded as adding to undesirable activities, i.e. gambling.

The households were also asked about their opinions on the broader potential economic and social impacts of the bridge opening. Here, the Thai households tend to have a slightly more positive view of the bridge opening than the Lao households, although the latter also have a more positive view of regional economic integration than prior to the bridge opening. However, both Thai and Lao households are concerned about the impact of the bridge on creating more negative social impacts.

Module 3a - Study of corridors' development, utilization and constraints

An overview report of the North-South and East-West corridors including the cross-border transport agreement (CBTA) was prepared by Vienna Consult to provide a good background of the corridors and the logistics issues. Each of the country research teams carried out a number of field visits along the corridors relevant to the team, interviewed various relevant stakeholders and analyzed the corridors' development, utilization and constraints. The team from Yunnan covered parts of the Kunming-Bangkok and the Kunming-Hanoi corridors within China. The team from Guangxi covered the Nanning-Hanoi corridor within China. The Vietnam team covered parts of the North-South (Vietnam-China) and East-West (Vietnam-Lao PDR-Thailand) corridors within Vietnam. The Lao PDR team covered the East-West (Thailand-Lao PDR-Vietnam) and North-South (Kunming-Lao PDR-Bangkok) corridors. The Thai team covered the East-West (Thailand-Lao PDR-Vietnam) and North-South (Kunming-Lao PDR-Bangkok) corridors.

Each team review the status of the corridors' infrastructure developments and utilization. Constraints on more efficient logistics along the corridors were identified, including issues related to inadequate infrastructure, customs procedures, constraints on access of transport vehicles from neighboring countries, entry permits, high transportation and other informal charges, and problems with cross-border insurance. Each team produced a logistics report covering these issues.

Module 3b - Scenarios for Logistics Improvements

Following on from module 3a, the research teams also made suggestions to improve the logistics along the corridor. These address many of the constraints identified by the research teams, ranging from the improvement of physical infrastructures to the software side of corridor utilization. However, the key issue is how to make sure that the logistics improvements generate appropriate and acceptable net benefits to all the countries concerned.

In the case of Yunnan, Guangxi, Vietnam and Thailand, more efficient linkages among these countries/areas can generate a lot of economic benefits. This is because the economic bases of these countries/areas are sizeable, and more efficient linkages among these economies can generate synergies among them to the benefit of all. For Lao PDR, however, the situation is rather different. Her economic base is relatively small, and the country is more of a transit country with respect to the East-West and North-South transportation corridors. More efficient corridor utilization may not have much spillover to Lao PDR. Thus, the issue of appropriate benefit sharing is particularly relevant to Lao PDR. For example, a simple issue of road maintenance can become a major constraint for Lao PDR. Transit traffic between say, Thailand and Vietnam, can cause considerable road damage without appropriate maintenance. How such maintenance can be financed through appropriate road tolls and/or ODA grants from Lao PDR's neighboring countries need to be worked out and agreed upon. This has not yet been done.

For some guidance on how the GMS countries can move forward in appropriately sharing the benefits of better transportation linkages and logistics, one can look at the European experiences with these issues. Of course, the institutional development in Europe is much more advanced than in the GMS so one cannot simply copy the European model for GMS. However, many useful lessons can be learned about fruitful approaches and these can be adapted to the GMS context. For this reason, Vienna Consult was commissioned to do a report on the European experience with Alpine transit, particularly the experience of Austria and Switzerland, who are both transit transportation countries. This highlights similar issues that will have to be dealt with in the GMS context and the principles for solving these issues.

The differences in transit strategies between these two countries are quite interesting. In the case of Austria, the neighboring countries aid in funding the infrastructure in the transit country (Austria) and in turn the road tolls are not high. Because Austria is part of the EU, the institutional set up of the EU is strong enough to manage such a scheme. Switzerland, in contrast, is not part of the EU. Thus, Switzerland provides all funding for the transit infrastructure and in turn charges much higher road tolls. This means that in the context of the GMS, any scheme to compensate the transit country (particularly Lao PDR) will have to be consistent with institutional infrastructure to manage such a scheme. The various lessons from the European experience with Alpine Transit will be useful for actual developments in the GMS context.

Based on the constraints found by the research teams on corridor utilization and various recommendations proposed, and also on the European experience, a number of logistics improvement policy scenarios for the East-West and North-South corridors were developed. These range from:-

- Route by route agreement under the GMS Cross Border Transport Agreement (CBTA) together with a compensation scheme to transit countries to bring about more appropriate benefit sharing.
- The CBTA routes along the East-West and North-South corridors may not correspond to actual commercial corridors that businesses use. For example, the East West corridors' major destinations are from Mawlamyine (Myanmar) to Tak (Thailand) to Danang Port (Vietnam) but these are not major commercial destinations. Thus, one scenario could be to extend the transport agreements to extensions of the East-West corridor to include routes to major economic destinations, such as Bangkok and Hanoi.
- Another approach is to think of supply chain development through a network of transportation routes, rather than taking the routes as given. This involves developing sub-networks of the transportation network of the GMS.
- Finally, in the longer-term, the region could develop into a seamless GMS, with relative free movement of multi-modal transport within the region.

Module 4 - Impacts of logistics scenarios for transport and socio-economic outcomes

From analyses by the country research teams, the benefits and costs for each of the stakeholder countries for each of the logistics policy scenarios above have been analyzed.

Module 5 - Recommendations on practical logistics improvement measures

Important logistics improvement measures for the various scenarios have been recommended. For example, these include: 1) Costs and benefits sharing mechanism; 2) Completion of missing links and improve national road standard; 3) Harmonization of technical regulations; 4) Cross-border insurance issue; 5) Facilitation of customs clearance formalities; 6) ICT technology to facilitate information flow; 7) Financing Infrastructure

Investment through Public-Private-Partnership (PPP); 8) Reform service providers; 9) Developing multimodal transport networks; and 10) Developing institutional arrangements.

3. Technical Research Reports

There are 11 technical research reports (submitted separately). These are:-

- Report 1. Overview of East-West and North-South Corridors by Vienna Consult. This provides an overview of the East-West and North-South corridors and the CBTA.
- Report 2. Guangxi Report by Huang Yaodong, Institute of Southeast Asian Studies, Guangxi Academy of Social Sciences. This report covers research from the Guangxi team on socio-economic impacts, corridor development, logistics development, constraints and suggested improvement measures.
- Report 3. Yunnan Report by Chen Tiejun, Jiang Maoxia, Wang Shilu, Lei Zhuning, and Qi Huan, Institute of Southeast Asian Studies, Yunnan Academy of Social Sciences. Like report no. 2 but for Yunnan.
- Report 4. Lao PDR Report by Leeber Leebouapao and Saykham Voladet, the National Economic Research Institute (NERI), Lao PDR. Report for Lao PDR.
- Report 5. Thailand Report by Chalongphob Sussangkarn, Srawooth Paitoonpong, Narong Pomlaktong, Sumet Ongkittikul and Team, Thailand Development Research Institute. Report for Thailand.
- Report 6. Vietnam Report by Pham Lan Huong and Nguyen Hai Thanh, Central Institute for Economic Management (CIEM) and Pham Truong Thang and Team, Institute of Transport Science and Technology, Vietnam. Report for Vietnam.
- Report 7. Trade Impact of Logistics Improvement of East-West and North-South Corridors by Wisarn Pupphavesa, Punpreecha Bhuthong and Siam Sakaeo, Thailand Development Research Institute. Modified gravity model estimation of cross-border trades.

- Report 8. Socio-economic Impacts of the Second Friendship Bridge (Lao PDR Study) by Leeber Leebouapao and Saykham Voladet, the National Economic Research Institute (NERI), Lao PDR. Household survey study of the Mukdahan-Savannakhet bridge opening on the Lao PDR side.
- Report 9. Socio-economic Impacts of the Second Friendship Bridge (Thailand Study) by Yongyuth Chalamwong and Team, Thailand Development Research Institute.
- Report 10. Transit Case study: “Alpine Transit” by Vienna Consult. The European experience on benefit sharing from transit transport.
- Report 11. Logistics Policy Scenarios and Impacts by Chalongsob Sussangkarn, Narong Pomlaktong, Sumet Ongkittikul and Team, Thailand Development Research Institute. Proposing various logistics policy scenarios and indicating impacts for various countries.

The reports will be available online at the website of the Thailand Development Research Institute

4. Project Capacity Building, Importance and Impacts

The project was a cooperative effort by many research teams (listed earlier) from stakeholder countries of the GMS East-West and North-South corridors. The key focus was on the need for appropriate benefit sharing in order to effectively improve the logistics of the corridors and hence increase economic activities and improve socio-economic outcomes. Each research team increased its understanding of the issues through project participation and cooperation. This is considered to be a major contribution of the project because each of the research teams has important linkages to the policy machineries in the respective countries, and their increasing understanding of the need for appropriate benefit sharing can help to shape GMS connectivity policies in directions that will lead to faster and more effective connectivity in the region, which will bring benefits to socio-economic outcomes in the stakeholder countries. In addition, through involvement of key ADB staff responsible for

GMS connectivity, the ADB itself should attach greater importance to benefit sharing issues, and the software side of GMS connectivity development apart from the hardware side that had been its main focus in the past. This should also lead to more effective implementation of GMS connectivity.

As an example of the importance of benefit sharing, the recent development on rail connectivity along the North-South corridor from Kunming through Lao PDR to Bangkok and further South is a case in point. This linkage has been discussed over the past three decades. Little progress had been made as the route that was planned, which would have been the shortest routes from Kunming to Bangkok, only passed through Lao PDR for less than a hundred kilometers. This will generate very little benefit to Lao PDR, as the country does not even have a railway system within the country, and Lao PDR will simply be a transit country. The situation has now changed completely through the initiative of China. In 2010, China has agreed to finance the link from Kunming to Vientiane, which will then link to Thailand through Nong Khai. This will involve almost 500 kilometers of railway within Lao PDR and benefit domestic rail utilization in Lao PDR, which is obviously highly welcomed by the Lao PDR government. Construction is expected to start in April 2011. China has also approached Thailand in late 2010 to jointly develop this Kunming-Bangkok rail link into a high-speed rail system (as well as for freight). As of the end of March 2011, negotiations are on-going to set up a joint venture agreement between China and Thailand to develop the project. It is expected that this will be finalized shortly, and the Kunming-Bangkok rail link will soon become a reality after stalling for almost three decades. This shows clearly the importance of appropriate benefit sharing to all the stakeholder countries. Without this, projects will not be implemented, or develop very slowly without real effectiveness. When all countries share the mutual benefits, projects can develop very quickly.

Clearly, this research project cannot claim to have directly contributed to this railway link project. However, if more and more agencies responsible for GMS connectivity understand the critical importance of appropriate benefit sharing, then GMS connectivity will be developing much more effectively in the future. Through a better understanding of this issue by all of the research teams in the project, as well as by key ADB staff, it is expected that the project will lead to important spillovers on this issue in the future.