

CHAPTER 1

Old, New and Potential Economic Corridors in the Mekong Region

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This chapter should be cited as:

ISHIDA, Masami and ISONO, Ikumo 2012. “Old, New and Potential Economic Corridors in the Mekong Region” in *Emerging Economic Corridors in the Mekong Region*, edited by Masami Ishida, BRC Research Report No.8, Bangkok Research Center, IDE-JETRO, Bangkok, Thailand.

CHAPTER 1

OLD, NEW AND POTENTIAL ECONOMIC CORRIDORS IN THE MEKONG REGION

Masami Ishida and Ikumo Isono

INTRODUCTION

“Economic corridor” has become a key word, as well as “deep sea port” and “special economic zone,” in the development of the Greater Mekong Subregion (GMS) composed of Cambodia, Laos, Myanmar, Vietnam, Thailand, and China’s Yunnan Province and Guangxi Autonomous Region. The development of the GMS program has been conducted in accordance with the three economic corridors: the East-West Economic Corridor (EWEC), North-South Economic Corridor (NSEC) and Southern Economic Corridor (SEC). Much of the sections of these corridors has already been rehabilitated and improved.

As a matter of fact, the Subregional Transport Forum (STF), a working group under the senior official meeting of member countries of the GMS, proposed new corridors in the Transport Sector Strategy Study as a blueprint for the next ten years and this was approved at the 14th GMS ministerial conference in Manila on June 19-21, 2007. However, some corridors have not been developed well so far and there are some road projects which were once nominated as prioritized projects and have been deleted from the list without being developed. Even so, this does not mean that these roads have lost importance. In this book, first we would like to focus on the regional development of provinces along such corridors as new and potential economic corridors. The meaning of “new” in this case is “has not been developed enough and is promising”. Second, regional development has progressed in specific regions, but these regions are not along the corridors or the roads which link with metropolises such as Bangkok, Hanoi and Yangon. We also would like to focus on such regional developments and examine the

possibility of connecting these regions with metropolises.

The purpose of this chapter is to introduce the economic corridors and the regions developed in the following chapters. The first section reviews the history of prioritized transport projects and economic corridors of the GMS development program. Reviewing the history makes clear the position of the corridors focused on in the following chapters among all the corridors. The second section introduces the corridors and regions focused on in the following chapters and it examines the challenges for transforming these corridors into activated “economic corridors.” The third chapter simulates the economic impacts of the improvement of the corridors on all of the provinces in the East Asia region. Readers can see the simulated impacts of the development before reading the following chapters. It should be noted that the results of the simulation and the conclusion of the following chapters can be different. If there are such differences, we can get new implications of the development in the region.

1. HISTORY OF TRANSPORT AND ECONOMIC CORRIDORS

1.1. Road Project at the Infant Stage of GMS Cooperation

Subregional economic cooperation was inaugurated with a ministerial conference, composed of Cambodia, Laos, Myanmar, Thailand, Vietnam and Yunnan Province of China,¹ with an initiative of the Asian Development Bank (ADB) at Manila in the Philippines on October 21-22, 1992. The economic cooperation program was started with 6 development sectors: 1) transportation, 2) telecommunication, 3) energy, 4) human resources, 5) the environment and 6) trade and investment.² Among the 6 development sectors, the highest priority was given to the improvement of transport linkages (ADB 1993b, p.4). The unique feature of the program is focused on the subregional development, instead of country-specific development. Thus, construction and improvement of the cross-border sections of major roads were put forward. The program intends to activate the trade and investment between the countries which had

¹ Guangxi Zhuang Autonomous Region was added as a member in 2005.

² After that, tourism was added as a new development sector in 1994, trade and investment was separated in 1998, and agriculture was included in 2001. The number of development sectors has become 9 (Ishida 2008, p. 117).

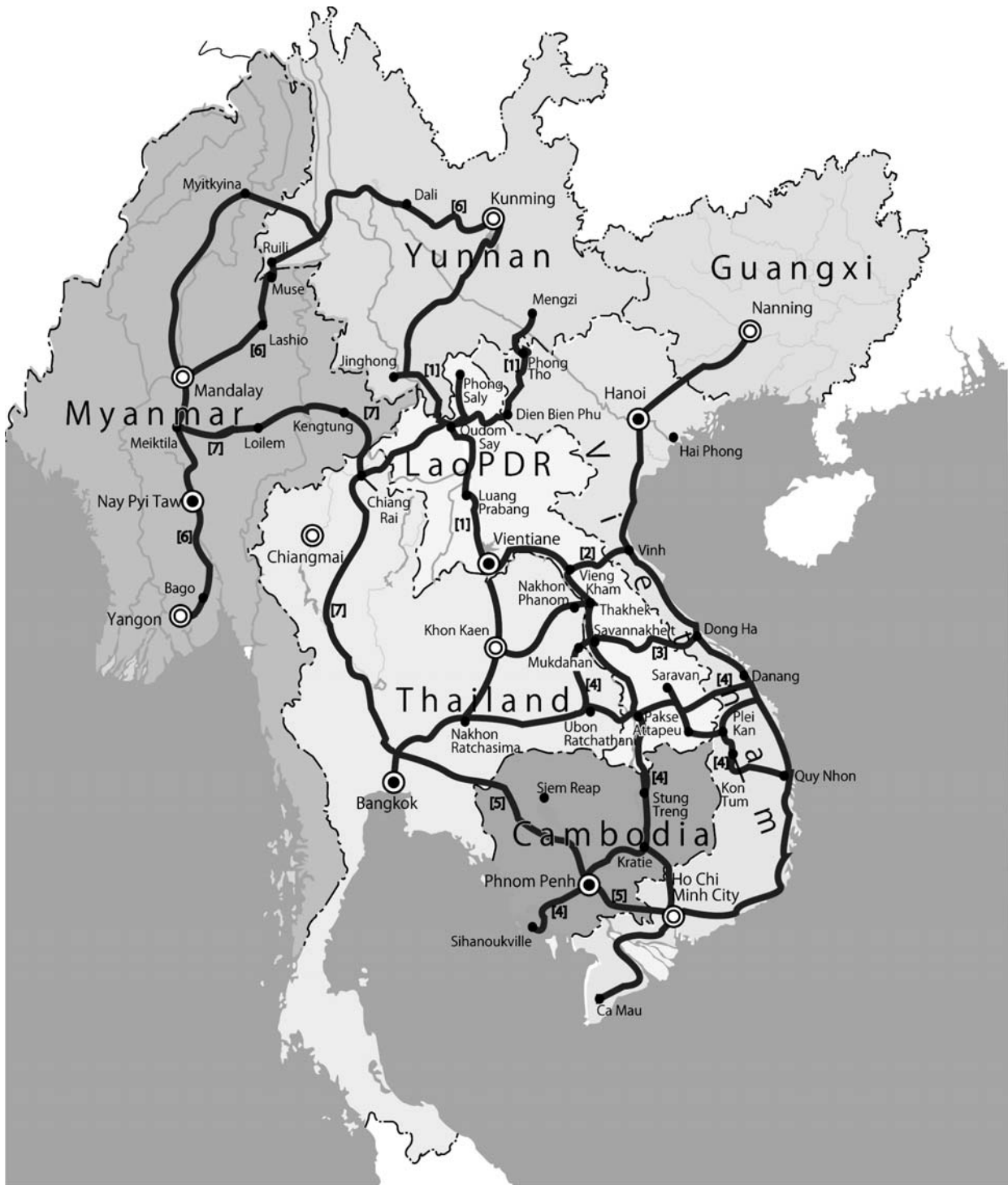
closed economic exchanges because of wars and conflicts for a long time by improving the cross-border roads; consequently, the activated economic exchanges increase a peaceful momentum in the subregion.

Prior to the ministerial meeting, a study team of the ADB visited each of the countries of the subregion and identified potential areas for subregional cooperation. In accordance with the consultations between the ADB and the governments of the 6 countries, 7 road projects were listed as prioritized projects (Figure 1):

- [1] Luang Prabang (L) – Phong Sali (L)
Jinghong (Ch) – Oudom Say (L) – Dien Bien Phu (V) – Phong Tho (V) – Mengzi (Ch)
Chiang Rai (T) – Oudom Say (L)
- [2] Nakhon Phanom (T) – Thakhek (L) – Vieng Kham (L) – Vinh (V)
- [3] Mukdahan (T) – Savannakhet (L) – Dong Ha (V) – Danang (V)
- [4] Sihanoukville (C) – Phnom Penh (C) – Pakse (L)
Mukdahan (T) – Ubon Ratchathani (T) – Pakse (L) – Sekong (L) – Danang (V)
Saravane (L) – Attapeu (L) – Plei Kan (V) – Kon Tum (V) – Quy Nhon (V)
– Dung Quat (V)
- [5] Ho Chi Minh (V) – Phnom Penh (C) – Bangkok (T)
- [6] Kunming (Ch) – Dali (Ch) – Ruili (Ch) – Myitkyina (M) – Mandalay (M) –
Yangon (M)
- [7] Bangkok (T) – Chiang Rai (T) – Kengtung (M) – Meiktila (M)

These 7 projects are called the “road projects at the first phase” hereinafter in this chapter. As a matter of fact, the description on the route of the proceeding is short of particularities and the map is also short of preciseness. Thus, the above-mentioned 7 routes contain the sections based on the author’s guesses in accordance with the description, the map (ADB 1993a, pp. 21-22) and each country’s map. And the capital letters in the parentheses are the initials of the country to which the places belong.

Figure 1: Road Projects Proposed at First GMS Ministerial Conference



Source: Drawn by the author in accordance with ADB (1993a, pp. 21-22).

Project [1] is described as, “Lao PDR/Yunnan Province: A road to Luang Prabang and Phong Sali, if extended, could connect with the Yunnan road system. This would also improve the link between Yunnan and Thailand,” in ADB (1993a). Project [2] is

supposed to be composed of Route No. 8 of Laos and Vietnam, the section of Route No. 13 between Thakhek and Vieng Kham and the Third Mekong Friendship Bridge connecting Nakhon Phanom and Thakhek. This route will be examined in Chapter 2, Chapter 3 and Chapter 7. Project [3] is as same as the section of the EWEC between Mukdahan and Danang, and this project was particularly requested by the Thai government while the Lao government requested Route No. 12 of Laos and Vietnam. Project [4] is described as, “Cambodia/Lao PDR and Cambodia/Vietnam/Thailand: Rehabilitation of the most dilapidated sections of the primary network in Cambodia, including sections’ temporary structures (in particular Route No. 5 and Route No. 6) and key provincial roads (e.g., Provincial Road No. 69), would improve the link between Cambodia’s interior and its coast, and between Cambodia and Lao PDR, Vietnam and Thailand.” Considering that Route No. 5 and Route No. 6 are mentioned, the current Central Sub-corridor of the SEC is supposed to be relevant. The Central Sub-corridor, however, is just relevant to Project [5]. Then it includes Route No. 4 and Route No. 7 of Cambodia and Route No. 13 of Laos, which connects Sihanoukville, Phnom Penh and Vientiane. This road and Project [5] were requested by the delegation of Cambodia. Project [6] is mentioned as the Kunming-Dali-Ruili road and the route is connected to Meiktila, and then to Mandalay and Yangon, according to the map. Project [7] is a road that includes Asian Highway (AH) 2 and connects Takaw, Kengtung and Hpayak. And the route is connected to Meiktila. Seeing the map, there are several routes which have not been listed: the routes connecting Northeastern Thailand, Southern Laos and Central Vietnam. These routes are supposed to belong to Project [4].

1.2. Orbital Modification of the Road Projects

After the consultation between the ADB study team and each government from June to August in 1993, the second ministerial conference at Manila on August 30-31 in 1993, which has given the name of “Economic Cooperation in the Greater Mekong Subregion” to the subregional economic cooperation program, agreed 5 principles for project selection, prioritization and design, especially in regard to the transport sector (ADB 1993b, pp. 4-5 and pp. 52-53):

- 1) Priority should be given to the improvement and rehabilitation of existing facilities

over that of construction of new ones.

- 2) Subregional projects need not involve all 6 countries in the subregion. Priority should be given to those subregional projects on which there is already agreement among the countries that are directly concerned.
- 3) The design of projects should give attention to the trade generation potential of projects, especially in light of the economic transformation taking place in the countries in the subregion.
- 4) To facilitate project implementation and provide immediate benefits, transport projects should be implemented in sections or stretches.
- 5) In view of financial constraints, there is a need to establish some criteria for project selection. Among those that should be considered

In accordance with the newly agreed principles, the meeting selected the prioritized following projects (ADB 1993b, p.6):

- (i) Upgrading of the Ho Chi Minh City – Phnom Penh – Bangkok Road Connection, including possible extension to Vung Tau in Vietnam;
- (ii) Construction of a Thai – Lao PDR – Vietnam East-West Corridor involving Routes No. 8, No. 9 and/or No. 12, including associated ports and bridges;
- (iii) Development of a good quality road serving traffic between Chiang Rai (Thailand) and Kunming (southwest PRC) via Myanmar;
- (iv) Development of a good quality road serving traffic between Chiang Rai (Thailand) and Kunming (southwest PRC) via Lao PDR; and
- (v) Upgrading of the Kunming – Lashio roadway, linking southwest PRC and Myanmar.

In addition to these projects, it was mentioned that the following projects would be studied further by the consultants:

- (vi) The Kunming – Hanoi road link;
- (vii) The Southern Lao PDR road link to Sihanoukville in Cambodia;
- (viii) the Mengla – Kentung – Takaw – Loilem Road Project;

(ix) the Yunnan Province – Kyugok – Lashio – Loilem Road Project

These 9 road projects are called the “road projects at the second phase” hereinafter in this chapter. These projects are comparable to the projects mentioned in the first ministerial meeting: Project (i) to Project [5], Project (ii) to Projects [2] and [3],³ Projects (iii) and (iv) to a section of Project [1], Project (v) and (ix) to a section of Project [6], Project (vii) to a section of [4], Project (viii) to a section of Project [7], and Project (vi) was newly proposed. Projects (i) and [5] are equivalent to the Central Sub-corridor of the SEC. Among the three routes of Project (ii), the highest priority was later given to Route No. 9 of Vietnam and Laos as the EWEC. Projects (iii) and (iv), and Project (vi) are equivalent to the Bangkok-Kunming section and a part of the Kunming-Hai Phong section of the NSEC, respectively.

On the other hand, the section of Project [1] between Oudom Say and Phong Sali in Laos and the section between Oudom Say of Laos and Mengzi of Yunnan by way of Dien Bien Phu of Vietnam, the sections of Project [4] between Ubon Ratchathani of Thailand and Danang of Vietnam and between Saravane of Laos and Dung Quat of Vietnam, the sections of Project [6] between Dali of Yunnan and Mandalay of Myanmar by way of Myitkyina and between Lashio and Mandalay, and the section of Project [7] between Loilem and Meiktila of Myanmar have disappeared.

1.3. Transport Corridor

In light of the results of the second conference and continued discussion, the ADB and the consultants prepared 33 transport projects, including 8 road projects. At the third ministerial conference on April 20-23 in Hanoi, the 8 projects (R1-R8 in the next paragraph) were discussed based on the project profiles such as the rationale and objectives, scope, economic internal rate of return and estimated costs, submitted by the consulting firm PADECO, Co., Ltd. (ADB 1994a, pp. 87-127). The 4th ministerial conference at Chiang Mai, on September 15-16, 1994, agreed to adopt the Draft Final Report submitted by PADECO, Co., Ltd. after another road project (R9) was added to the list of priority projects (ADB 1994b, pp. 4-5 and p. 46). The 9 road projects are

³ In Project (ii), Route No. 12 in Laos and Vietnam was newly added, compared with Figure 1.

Figure 2: Transport Corridor Submitted to the 4th Ministerial Conference



Source: Drawn by the author in accordance with ADB (1994b, p. 105).

shown as (Figure 2):

- R1: Bangkok – Phnom Penh – Ho Chi Minh City – Vung Tau Road Project R2:
Thailand – Lao PDR – Vietnam East-West Corridor Project (Routes No. 8, No. 9
and/or No. 12)
- R3: Chiang Rai – Kunming Road Improvement Project via Myanmar and Lao PDR
- R4: Kunming – Lashio Road System Improvement Project
- R5: Kunming – Hanoi Road Improvement Project
- R6: Southern Lao PDR – Sihanoukville Road Improvement Project
- R7: Lashio – Loilem – Kentung Road Improvement Project
- R8 Project to Improve Road Links between and among Yunnan Province, Lao PDR
and Vietnam
- R9: Northeastern Thailand – Southern Lao PDR – Northeastern Cambodia – Central
Vietnam

These 9 routes (R1-R9) are called “transport corridors” hereinafter in this chapter. The details on the routes in accordance with the cross-checking with the description and the map are in the Appendix I. These transport corridors are comparable to the road projects at the second phase: R1 to Project (i), R2 to (ii), R3 to (iii) and (iv), R4 to (v), R5 to (vi) and R6 to (vii). R7 is composed of a section of (viii) between Kentung and Loilem and a section of (ix) between Lashio and Loilem. R8 and R9 were newly added. However, the section of R8 between Jinghong and Dien Bien Phu is a part of Project [1] at the first phase and the section of R9 between Ubon Ratchathani and Pakse and the section between Pleiku and Kon Tum is a part of Project [4] at the first phase. In this meaning, these sections of Project [1] and Project [4] can be said to be resurgent ones.

Seeing the details of each road, R1 has an alternative section by way of Route No. 359 in Thailand between Khao Hin Son and Sa Kaeo (see Appendix I). R2 is composed of three routes using Route No. 9, Route No. 8 and Route No. 12 of Laos and Vietnam, respectively. The cores of the first, second and third routes are between Mukdahan and Danang, between Nakhon Phanom and Vinh, and between Nakhon Phanom and Badon, respectively. And the destination ports are the Danang, Cua Lo and Vung Ang ports, respectively. These roads are supposed to have been designed as a route connecting

Bangkok and Danang or Bangkok and Hanoi. Routes connecting between Bangkok and Mukdahan, between Bangkok and Nakhon Phanom, and between Vinh and Hanoi were drawn in Figure 2. In particular, the route between Bangkok and Mukdahan by way of Yasothon in Thailand is one of the shortest routes connecting Bangkok and Mukdahan.

As for R3, the Y-junction in Thailand between R3A and R3B was changed from Chiang Rai at the second stage to Phayao of the transport corridor. The section of R3B between Tachilek and Kentung would be developed by Hong Pang Corporation with a BOT scheme. A number is not given to the road between Kentung and Mengla in Myanmar as far as what is shown on several kinds of maps. The border area around Mengla is the 4th Special District controlled under the East Shan State Army. The road “Y320” between Daluo and Jingzhen (between Daluo and Jinghong) is not a national road, but a provincial road. Regarding R8, interpreting the description, it should contain the section between Jinghong and Na Teuy, while this section is a part of R3A. There was not a project which is equivalent to R8 in the prioritized projects at the second ministerial conference in 1993.⁴

After the 4th ministerial conference, the feasibility studies and engineering studies of the cross-border transport infrastructure projects had started to be developed in accordance with the above-listed projects. At the 6th ministerial conference in Kunming on August 30, it was reported that the ADB approved a technical assistance in order to justify the feasibility of the Thailand-Cambodia-Vietnam coastal road proposed by Cambodia as an additional priority project (ADB 1997, p. 111).

1.4. Era of Three Economic Corridors

The implementation of the GMS program, including the 9 road projects, faced with stagnation caused by the Asian Currency Crisis. A sense of failure was felt from the speeches of the ministers of the member countries at the 8th ministerial conference, held in Manila on September 30-October 1, as far as reading the proceedings. At the same time, however, the need for a kind of “initial explosive” was also felt from the speeches of ADB staff and some ministers. The “economic corridor” is a concept proposed by the ADB as such kind of initial explosive (Ishida 2007, p. 25 and Ishida 2008, p. 122).

⁴ The transport corridor described so far and drawn in Figure 2 is not based on the Final Report submitted by the consultant. It is a challenge for us to get the final one and to examine again.

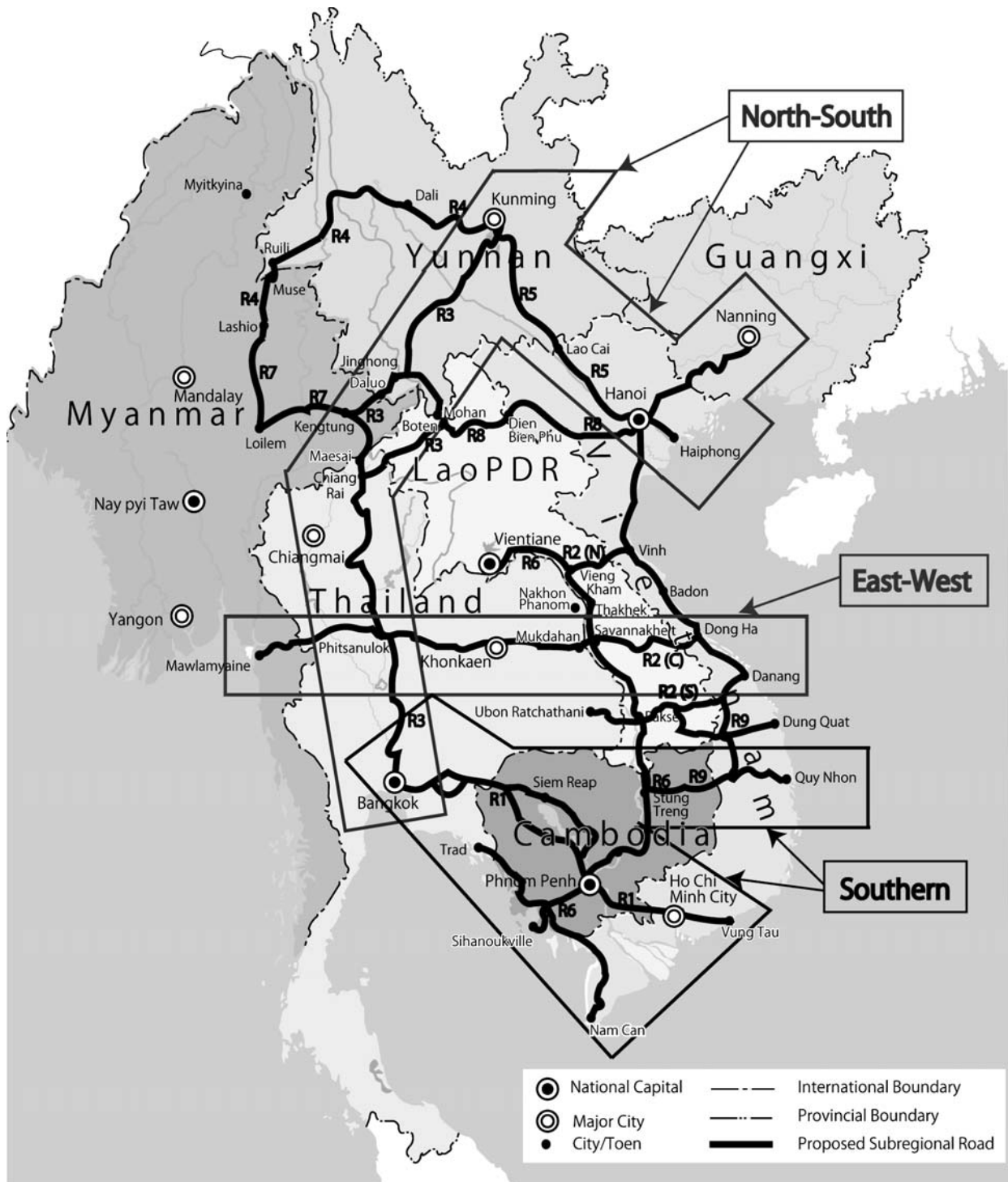
The economic corridor concept is presented as a connector to link production, trade and infrastructure within a specific geographical framework. And the economic corridor is expected not only to connect the centers of economic activities but also to extend the benefits from developing transport projects to remote rural areas through linkages of production activities. The ministers of the member countries expressed support for the concept and the conference took note of the 5 potential economic corridors in the GMS within north-south and east-west routes.⁵ Some of these corridors could serve as potential transshipment areas for South Asia, Southeast Asia, mainland China and East Asia by significantly reducing distances between major markets (ADB 1998, pp. 5-6).

The ninth ministerial conference, held in Manila on January 11-13 in 2000, identified the concrete routes of the economic corridors (ADB 2000 and ADB 2002, p. 53). It is significant that the economic corridors are belt-shaped, instead of string-shaped. The belt shape suggests the area where the benefits can be reached. And the routes of transport corridors (R1-R9) were also changed (see Figure 3 and Appendix II).

The EWEC is equivalent to R2 (C) which passes Route No. 9 in Laos and Vietnam. The section in northeastern and northern Thailand and in Myanmar was added in accordance with a request from Myanmar that the economic corridor should be expanded to routes including China and Myanmar (ADB 2000). Then it has become a corridor that starts from Danang in Vietnam and ends at Mawlamyain in Myanmar. And the highest priority has been given to the EWEC since the 8th ministerial conference and a pre-investment study was implemented in 2000 by the ADB in accordance with the requests of Laos, Myanmar, Thailand and Vietnam and 6 volumes of reports were issued in 2001 (ADB 2001). In addition, the route of R2 has been changed. First, the non-core section of R2 drawn in the map of the transport corridor (Figure 2) between Bangkok and Mukdahan by way of Yasothon and between Bangkok and Nakhon Phanom has disappeared. And the three components of R2, Route No. 12 in Laos and Vietnam, disappeared in the map. On the other hand, Route No. 8 and Route No. 9 in Laos and in Vietnam remained as R2 (N) and R2 (C). And the section between

⁵ At this moment, the concrete economic corridors identified are R1 and R2 of the transport corridor projects.

Figure 3: Three Economic Corridors in the GMS



Source: Drawn by the author.

Bangkok and Mukdahan by way of Yasothon and between Bangkok and Nakhon Phanom has disappeared. And the three components of R2, Route No. 12 in Laos and Vietnam, disappeared in the map. On the other hand, Route No. 8 and Route No. 9 in

Laos and in Vietnam remained as R2 (N) and R2 (C). And the section between Ubon Ratchathani and Pakse of R9 and the section between Pakse and A Roong (a junction of Route No. 14 and Route No. 14D in Ca Dy District, Quang Nam Province) has become R2 (S).

The NSEC is a combination of R3 and R5, including Route No. 5 in Vietnam connecting Hanoi and Hai Phong. The NSEC was extended to Nanning from Hanoi with the new membership of the Guangxi Zhuang Autonomous Region at the Second GMS Summit in Kunming on July 4-5, 2005. As for a section of R3, some minor changes can be seen, compared between Figure 2 and Figure 3. First, the Y-junction in Thailand between R3A and R3B has been turned back to Chiang Rai from Phayao. The section from Nong Pun and Lampang in Thailand has changed to Route No. 11 from Route No. 1. Then the junction of the NSEC and the EWEC has become Phitsanulok instead of Tak (see Figure 2, Figure 3, Appendix I and Appendix II).

The SEC is composed of 4 sub-corridors. The Central Sub-corridor is equivalent to R1, including two routes passing the southern and northern sides of Tonle Sap Lake. In particular, it was first time that the latter between Sisophon and Kampong Chhnang including a section of Route No. 6 in Cambodia was drawn in the map, while a road connecting Kampong Thom and Kampong Chhnang has not been developed (Figure 3). The Southern Coastal Sub-corridor is equivalent to a route examined by the feasibility study. It is between Trad in Thailand and Nam Can in Vietnam. The Northern Sub-corridor connects Siem Reap and Quy Nhon and it passes a part of R9. The Inter-Corridor Link is equivalent to the section of R6 between Sihanoukville and Savannakhet.

The transport corridors are also drawn in the map of the economic corridors. The belt of the three economic corridors does not cover most of the sections of R4 between Kunming and Lashio and R7 between Lashio and Kentung. R2 (N) between Vinh and Thakek by way of Vieng Kham and most of R3 (S) between Pakse and A Roong is also not covered. The section between Sekong and Pleikan was reemerged to R9 and the section between Pleikan and Dung Quat was newly added, while this section has not been developed as of 2011. The section of R9 between Pleiku and Nha Trang disappeared.

1.5. New Corridors

The ADB explained a plan to conduct a study for a new GMS transport strategy at the 8th meeting of the STF held at Phnom Penh on August 3-4, 2004 (ADB 2004). This GMS Transport Sector Strategy Study (TSSS) was also conducted by PADECO, Co., Ltd. and its final report was adopted at the tenth STF meeting held in Vientiane on March 21-23, 2006 (ADB 2006) and it got the agreement at the 14th ministerial conference at Manila on June 19-21, 2007.⁶

The map of new corridors, a part of the final report of the TSSS, was on the website of the ADB. The new corridors are composed of 9 corridors: 1) Northern Corridor, 2) Southern Corridor, 3) Eastern Corridor, 4) Western Corridor, 5) North-South Corridor 6) East-West Corridor, 7) Northeastern Corridor, 8) Central Corridor and 9) Southern Coastal Corridor (Figure 4 and Appendix III). In the draft proposal, the corridors are selected based on three kinds of tests:

- 1) Qualitative Test: It considered whether the prioritized projects promote the GMS Strategic Framework and transport sector objectives;
- 2) Economic Test: It addressed the economic efficiency of the prioritized projects with the basic indicator, including the economic net present value;
- 3) Balance Test: It was to avoid the potential bias on a specific country, region, sector or corridor;

Compared with the master plan in 1995 (transport corridor), the TSSS is intended to 1) secure sufficient capacity to support continued economic growth, 2) improve the efficiency of transport to further enhance the international competitiveness of the GMS countries and 3) spread economic growth more equally, while the master plan in 1995 focused on basic cross-border access (ADB 2005). And it was designed to improve the links to outer regions of the GMS, including South Asia (ADB 2006).

⁶ Based on an interview at ADB headquarters on January 20, 2008.

disappeared. The NSEC is limited to the section between Bangkok and Kunming or R3, while the section between Kunming and Hai Phong or R5 has become a part of the Eastern Corridor. And the section between Nong Pun and Lampang in Thailand has returned back to Route No. 32 (Nong Pun and Uthai Thani) and Route No. 1 (Uthai Thani and Lampang) from Route No. 11. Possible extensions between Bangkok and Sadao or Su Ngai Kolok by way of Route No. 4 and Route No. 41 and between Kunming and Shuifeng were drawn. The former extension is supposed to link with Kuala Lumpur, Singapore and Kuala Terengganu and the latter is supposed to link with Chongqing in China. The Central Sub-corridor of the SEC has extended to Dawei in Myanmar from Bangkok. The northern route of Tonle Sap Lake between Siem Reap and Phnom Penh by way of Kampong Thom and Kampong Chhnang and the alternative section between Khao Hin Son and Sa Kaeo by way of Route No. 359 disappeared. On the other hand, the route of the Northern Sub-corridor or a part of R9 has not been changed while the section of R9 between Sekong and Dung Quat and the section between Danang and Pleiku have disappeared. The Southern Coastal Sub-corridor was promoted from a sub-corridor to the Southern Coastal Corridor and a section in Thailand between Trad and Bangkok by way of Route No. 3 was newly added.

R4 between Kunming and Lashio has become a part of the Northern Corridor and it has extended to Tamu from Lashio by way of Mandalay in a westward direction and was also extended to Fangchenggan in an eastward direction. On the other hand, R7 between Lashio and Kentung disappeared, while there was a request to include a Northern East-West Corridor between Yangon and Hai Phong by way of Meiktila and the Lao-Myanmar border (ADB 2006). As already shown, the sections between Kunming and Hai Phong and between Hanoi and Nanning have become a part of the Eastern Corridor, although the major part of the Eastern Corridor is Route No. 1 in Vietnam between Nam Can and Lang Son and Route No. 322 or Route No. 75A in China between Pingxiang and Nanning. A possible extension is drawn between Nanning and Guilin and it is supposed to extend to Changsha of Hunan Province. In addition to those, a section between Hanoi and Fangchenggan by way of Hai Phong and the Mong Cai-Dongxing border is added. The Inter-Corridor Link or R6 and a part of R8 between Boten and Oudom Say have become part of the Central Corridor and were extended to Boten, a border city in Laos with China. In addition to this route, a section between

Vientiane and Sattahip by way of Nakhon Ratchasima was added. On the other hand, the section between Oudomsay and Hanoi has disappeared.

The Western Corridor and the Northeastern Corridor are new ones. The Western Corridor starts from Mawlamyain and ends at Tamu and is expected to reach India by way of Inphal. The Central Corridor starts from Thanh Hoa and ends at Sattahip by way of Luang Prabang.

When evaluating the new corridors, it should be well-evaluated that the possible extensions of some corridors are drawn and the links with the region out of the GMS are expected. The development needs for the extended link between Bangkok and Dawei are also high. And the map is more comprehensive, thus it is useful for businessmen to consider logistics routes in this region compared with the three economic corridors which focused on basic cross-border links. In particular, the corridors in the longitudinal direction were increased such as the Eastern Corridor (Route No. 1 of Vietnam), the Central Corridor (Route No. 13 of Laos and Route No. 2 of Thailand), the Northeastern Corridor and the Western Corridor. Some of these corridors, like Route No. 1 and Route No. 2 of Thailand, have already been well-developed, while it is interesting that the Western Corridor runs the relatively under-developed west bank of the Ayeyawady River partly and that the Northeastern Corridor runs under-developed areas in Vietnam and Laos. On the other hand, the needs for the disappeared corridors such as R2 (N), R2 (S) and R7 are considered to be higher, compared with the well-developed corridors. And the new corridors are not belt-shaped, but string-shaped.

2. CORRIDORS FOCUSED ON IN THIS BOOK

2.1. Regions and Corridors Focused on in This Book

In the previous section, we have seen the transition of maps of economic corridors since the beginning of the GMS program. Some sections were nominated and then disappeared and others have been newly nominated. On the other hand, there are sections which once had disappeared and then reemerged again, such as a section of Route No. 32 and Route No. 1 in Thailand between Uthai Thani and Lampang. The process of screening the prioritized corridors can be influenced by the directions of

consultants and the interests of member countries' delegations. Therefore, it is important to recognize that disappeared corridors do not mean that they lose importance.

Route No. 8 and Route No. 12 in Laos and Vietnam have disappeared from the map of new corridors. However, these two corridors have been more of a focus because of the completion of the Third Mekong Friendship Bridge between Nakhon Phanom and Thakek on November 11, 2011. Compared with the EWEC, this bridge can shorten the road between Bangkok and Hanoi from 158km to 175km in the case of using Route No. 12 and Route No. 8, respectively (Isono 2011, pp. 398-402). The Lao government approved the Phoukiaw Nakhon Specific Economic Zone project (4,850 ha) in 2010, proposed by a Lao private company.⁷ The Vieng Kham-Thansahard Special Economic Zone has also been proposed to the government at the junction of Route No. 8 and Route No. 13 (Chapter 2). A gate of the Cau Treo International Border Economic Zone was under construction when we visited the site on Route No. 8 in Vietnam in Ha Tinh Province at the end of 2010. Quang Binh Province also was positive on the development of the Cha Lo Border Economic Zone. In addition, 8 provinces composed of Nakhon Phanom, Sakon Nakhon and Nong Khai in Thailand, Khamouane and Borikhamsay in Laos, Quang Binh, Ha Tinh and Nge An in Vietnam, had already organized a sub-committee and have exchange views on 1) border trade, 2) manufacturing and agriculture industries, 3) tourism, 4) human resources and 5) good city planning before the completion of the bridge.⁸ In Nakhon Phanom, the share of education in the Gross Provincial Product is higher than at other provinces because parents in the neighboring countries, including Laos, send their sons and daughters to the school in the province. Furthermore, the 20% share of Vung Ang Port in Vietnam has been held by the Lao Vung Ang Port development company since the establishment of the Viet Nam-Laos Vung Ang Port Joint Stock Company on April 16, 2010.⁹ With the development of Vung Ang Port, the road connecting the Cha Lo border and Vung Ang Port was shortened (Chapter 3).

⁷ Based on Khattiya (2011) and the news “Khammouane Celebrates Official Opening of 3rd Lao-Thai Friendship Bridge” on the website of European Chamber of Commerce and Industry in Lao PDR (ECCIL), accessed on January 8, 2012.

⁸ Interview with officials of Nakhon Phanom Province dated on September 23, 2011.

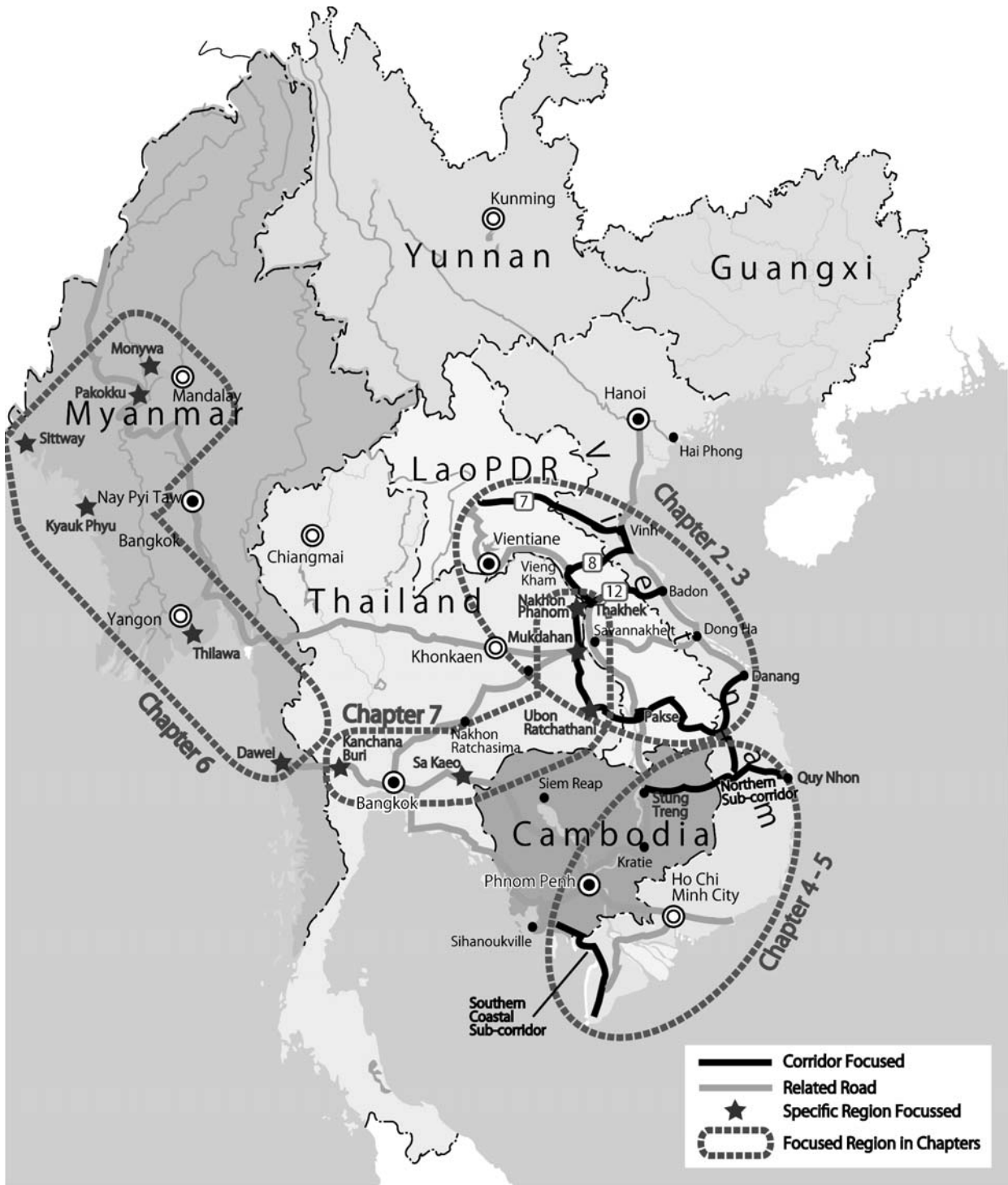
⁹ Based on an article in the *Vietnam News* “Laos Joins in Vung Ang Port Project” on April 20, 2010 (<http://vietnamnews.vnagency.com.vn/>, accessed on January 8, 2012).

It has been cleared that the construction of a bridge and expansion of ports can be a prime mover among developments which transform a “transport corridor” into an “economic corridor,” irrespective of being selected as a prioritized project or not. As well as Route No. 8 and Route No. 12, the development of R2 (S) and R9 which connects Ubon Ratchathani and Danang is also highly expected. Currently, the Phuokeua-Bo Y border between Laos and Vietnam is generally used as a way to connect Danang and Pakse or Ubon Ratchathani. Route No. 16 in Sekong Province in Laos needs to be rehabilitated for its practical realization. Not only Sekong Province but also Danang City, Quang Nam and Ubon Ratchathani Province expect the practical realization of Route No. 16. On the other hand, Quy Nhon Port or Binh Dinh Province expressed an expectation for the utilization of the port by businessmen of southern part of Laos and northeastern Thailand provinces as well as northern Cambodia provinces. In addition to the above-mentioned three corridors, Route No. 7 of Laos and Vietnam is also much beneficial for Xiengkhuang Province and Luang Prabang Province. These 4 corridors (Figure 5) are examined with a viewpoint of Laos and Vietnam in Chapter 2 and in Chapter 3, respectively. On the other hand, much attention is not focused on Route No. 9 or the EWEC in these chapters.

In terms of the Cambodia-Vietnam border, all of the 4 sub-corridors, namely the Northern Sub-corridor, Central Sub-corridor, Southern Coastal Sub-corridor and Inter-Corridor Link of the SEC, are designated in the map of new corridors, while the alternative road on the northern bank of Tonle Sap Lake has disappeared. The Northern Sub-corridor and the Southern Coastal Sub-corridor have not been examined so far, while the Central Sub-corridor has gathered attention because it connects three metropolises, Bangkok, Phnom Penh and Ho Chi Minh City, and it can be a land bridge between the Pacific Ocean and the Indian Ocean. This book focuses more on the less focused sub-corridors: Northern, Southern-Coastal and Inter-Corridor Link. These corridors are examined with a viewpoint of Cambodia and Vietnam in Chapter 4 and Chapter 5.

In Myanmar, the total distance of corridors designated in the maps of corridors is not long. R3 or the section between Tachileik and Mengla and R4 or the section between Muse and Lashio has continued to be drawn in the maps of corridors. The

Figure 5: Corridors and Regions Focused on in This Book



Source: Drawn by the author.

section of the EWEC between Myawaddy and Mawlamyaine has been drawn since the designation of the three economic corridors. The accumulated distances are limited and

the designated areas are far away from Yangon and Mandalay. In this meaning, the Northern Corridor and the Western Corridor in the new corridors are more beneficial for Myanmar. The development along these corridors has not progressed so far.

On the other hand, some specific regions have been developed by economic cooperation with Myanmar's neighboring countries. First, Kyauk Phyu has been developed as a transit point of a pipeline to China from the Shwe Gas Field and the Middle East. Second, Dawei has been developed as a deep sea port in accordance with a Memorandum of Understanding between the Myanmar Port Authority and Italian-Thai Development Public Co. Ltd. Third, India also developed Sittway as a gateway port to link with the northeastern part of India. In addition to these, the two cities on the other side of the Ayeyawady River, Monywa and Pakokku, have been industrialized. Pakokku is along the Western Corridor and better linkage with India is expected. Furthermore, Thilawa, a port city which is located at about 30km downstream of the Bago River from Yangon, has just been developed as a special economic zone. These specific regions, except for Pakokku and Thilawa, are not on the corridors in Myanmar. These points need to be connected by roads to metropolises such as Yangon and Mandalay. Chapter 6 introduces the regional development projects of Kyauk Phyu, Dawei, Sittway, Monywa, Pakokku and Thilawa and examines the connectivity.

Finally, Thailand is located at the center of the Mekong region. The cities in northeast Thailand such as Nakhon Phanom, Mukdahan and Ubon Ratchathani are gateways to Route No. 8, No. 12 and No. 9 or R2 (N), R2(C) and R2 (S) of the transport corridors in Laos and Vietnam, respectively. Sa Kaeo is also the most important gateway to Cambodia and southern Vietnam. Kanchanaburi is also a gateway to the Dawei deep sea port project site. Chapter 7 examines the regional development of these provinces with a relation to the connectivity with Thailand's neighboring countries.

2.2. Challenges for Transport Corridors to become Economic Corridors

The transformation from transport corridor into economic corridor is a big challenge. The authors in this book visited local government offices and firms in provinces along the corridors and specific regions. The authors asked about the major products of the agriculture, mining, fishery, livestock, forestry and manufacturing sectors in each province or in a city. The major products are primary products because the corridors and

regions focused on do not include metropolises such as Bangkok, Hanoi and Ho Chi Minh City. At inland areas in Central Vietnam, the plantation of eucalyptus, rubber, coffee, cashew nuts and cassava continues along the corridor. As a matter of fact, the ratio of rubber plantation was felt to be increased in accordance with the level of road condition when we ran a section of the Northern Sub-corridor of the SEC in Cambodia. The population of the provinces along the corridor is about 100,000 and the income level is relatively low. In such areas, the improvement of a road can transform the road into a “plantation corridor.”¹⁰

With the development of economic corridors, these primary products are expected to be processed or exported. Through the field surveys, we have seen some cases where primary products are processed, as shown in Table 1. Factories such as for smoked rubber, sugar, tapioca and cement are better if located near the plantation or mine. Rubber milk and sugarcane have to be processed after being harvested and the transportation cost can be smaller after being purified. Attracting one set of plantation and factories can result in economic development along the corridor. Steel factories using the iron got are under construction at Nge An Province and planned in Ha Tinh Province. Usually, steel factories as well as oil refineries are located at the seashore. The allocation of material industries such as steel and petrochemicals makes it easier to attract downstream industries. But the compatibility of heavy industries such as steel and refineries, fishery industries or marine tourism is not easy. For example, Danang City does not approve investment which affects the environment. Attracting what kinds of industries is an important decision for the local people and local government.

For promoting exports, several conditions have to be cleared. First of all, small-scale farmers need to be organized into a cooperative, for the transportation cost becomes lower if the products are gathered in one place and transported in a full-container or in a full-truck. In addition, the negotiation power of farmers with merchants can be larger. For example, the cassava produced in Rattanakiri Province in

¹⁰ The idea of a “plantation corridor” is useful for the development of regions with smaller population and lower income. However, worries on whether biodiversity can be kept or not are also heard. As a matter of fact, we cannot see the “plantation corridor” concept in Thailand, partly because the cutting of forests has been prohibited since 1989 (see Chapter 7). In this meaning, we have to take care for environmentally well-balanced land utilization.

Table 1: Cases of Processing Primary Products Seen During the Field Survey

< Food Crop >		< Live Stock & Fishery Products >	
Primary Products	Processed Goods	Primary Products	Processed Goods
1) Rice	Rice Cakes	3) Sea Water	Salt
2) Maize	Feedstuff		
3) Cassava	Tapioca, Starch		
4) Soy Beans	Food Items		
5) Sugarcane	Sugar, Electricity, Ethanol		
< Non-food Crop >		< Mining Resources >	
Primary Products	Processed Goods	Primary Products	Processed Goods
1) Rubber	Rubber Sheet	2) Iron Got	Steel
2) Eucalyptus	Pulp Chips		
3) Logs	Wood, Furniture, Charcoal		
4) Mulberry	Tea, Silk		
5) Cotton	Yarn		
6) Pine Trees	Pine Resin		

Source: The Author.

Cambodia is sold to merchants in Vietnam, with disadvantageous conditions at the O Yadav-Le Thanh border because the farmers do not get together. Second, product branding or getting a certificate of organic can make it easier to export for producers. Coffee produced by Café Sinouk in Sekong Province is well-known in Europe and has obtained a certificate of organic.¹¹ Third, getting approval of the International Organization for Standardization (ISO) also makes it easier to export to developed countries, while the hurdle is higher for small and medium enterprises in developing countries. One producer of traditional medicine in Monywa has made efforts to get ISO approval. In order to transform from a transport corridor into an economic corridor, upgrading the level of processing and increasing the exports are more important.

¹¹ Website of Café Sinouk (accessed on January 9, 2011).

3. ECONOMIC IMPACTS OF SELECTED SUB-CORRIDOR PROJECTS IN THE MEKONG REGION

This section simulates the impacts of the major corridors among those mentioned in the previous sections on the economy in East Asia. Before introducing the simulation results, the simulation model used in this section, IDE/ERIA Geographical Simulation Model (IDE/ERIA-GSM), is briefly introduced below.

IDE/ERIA-GSM¹² is a simulation model based on spatial economics, also known as new economic geography (NEG). IDE/ERIA-GSM, which has huge dataset and NEG settings, makes it possible to simulate the dynamics of population and industries for the long term and to estimate the effects of infrastructure projects and customs facilitation. NEG, consisting of various elements of agglomeration forces and dispersion forces, tells us why and how economic activities agglomerate or disperse. IDE/ERIA-GSM gives us a tool to evaluate various infrastructure development projects and to come up with policy measures to choose, prioritize and combine the projects. Our simulation model can estimate possible impacts of 7 kinds of trade and transport facilitation measures and other local development measures in the model as follows:

- (1) Raising the speeds of road, air, sea, and rail transport for each section
- (2) Reducing physical transport costs per km for each section
- (3) Reducing transshipment times at each border, port and airport
- (4) Reducing transshipment costs at each border, port and airport
- (5) Reducing other non-tariff barriers, including:
 - Streamlining the official procedures before shipping
 - Simplifying or improving transparency in sanitary and phytosanitary, technical barriers to trade, and intellectual property rights measures
 - Eliminating trade quotas
- (6) Decreasing/eliminating tariffs

¹² The results in this section are provided by the GSM team. We use IDE/ERIA-GSM 4.4, the latest version as of December 2011.

(7) Technological parameters on local economic performance

However, we always combine these measures, and in this section we only compare specific physical infrastructure developments and some border facilitation measures, which may have smaller economic impacts for each compared with the combination of the measures.

Our simulation model tells us how different types of road infrastructure developments affect economic activities and GDP/GRDP in regions and countries. One typical case is connecting big cities, and another one is connecting rural areas. In principle, an expressway development will induce two kinds of movements of economic activities. First, movement is from regions without development to regions with development, because better accessibility attracts firms and workers. Second, movement occurs within the regions with the development from peripheral regions to city center. Reducing transport costs accelerates firms' agglomeration into the big clusters because firms in the clusters can sell products at cheaper transport costs to remote areas, and also they enjoy large-scale suppliers, customers and workers within the clusters. Both typical cases mentioned above will see the first and second movements. However, these cases have different implications on economic growth in the whole economy and equality of regions. An expressway development between big cities usually accelerates the agglomeration to the big city and contributes to higher economic growth of the whole economy, while it may devastate the equality of regions. On the other hand, an expressway development in rural areas mitigates strong agglomeration forces and contributes to narrowing the economic gaps between regions, while the contribution to economic growth will be smaller.

In the simulations, we set the baseline scenario and various alternative scenarios. In all scenarios, the simulation starts from 2005. In the baseline scenario, we improve the highways of the Golden Quadrilateral, India and the road between Poipet and Sisophon in 2010 by enhancing their speed. We also presume that the North-South and East-West corridors in India and the Yangon-Mandalay expressway in Myanmar will be improved in 2015. In the alternative scenarios, we implement some other additional measures on top of the baseline scenario and compare the difference in GDP/GRDP.

3.1. Economic Impacts of the Third Mekong Friendship Bridge, Route No. 8 and No. 12

We compare Route No. 8 and No. 12 projects under the development of the EWEC. First we set a scenario of development of the EWEC in Laos and Vietnam, and then we see additional impacts by Route No. 8 and No. 12. We set scenarios as follows:

[EWEC]

We develop better road infrastructure between Mukdahan, Thailand and Dong Ha, Vietnam in 2015. Border crossing facilitation along the road is introduced in Mukdahan-Savannakhet (between Thailand and Laos) and Dansavanh-Lao Bao (between Laos and Vietnam).

[EWEC+8]

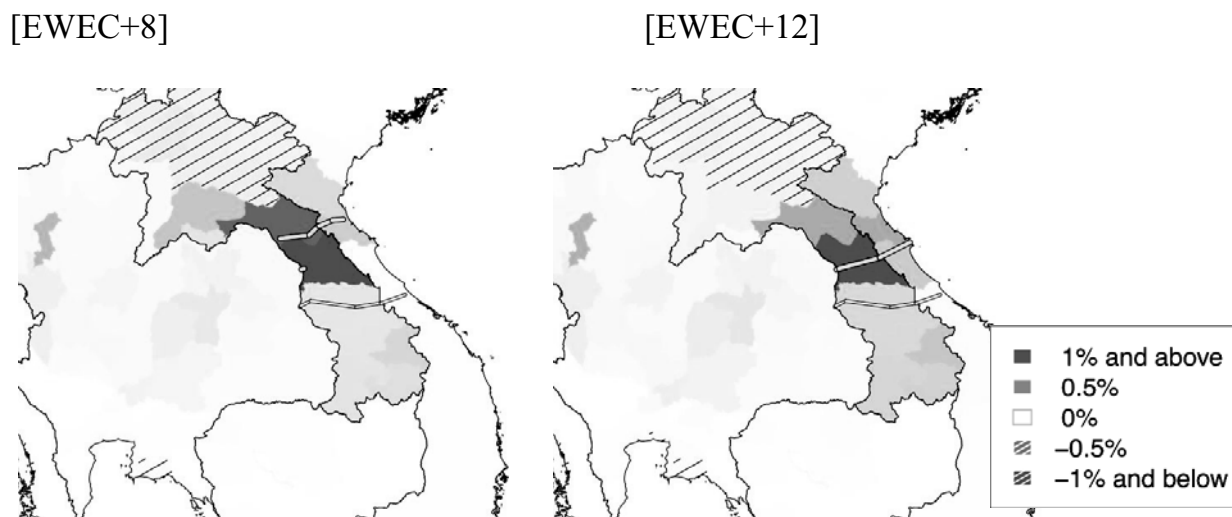
In addition to the development of the EWEC mentioned above, we have a new bridge over the Mekong River between Nakhon Phanom, Thailand and Thakhek, Laos. We improve the road between Vieng Kham, Laos and Hong Linh, Vietnam. Border crossing facilitation along the road is introduced at the Nakhon Phanom-Thakhek and Nam phao-Cau Treo (between Laos and Vietnam) borders.

[EWEC+12]

In addition to development of the EWEC, we have a new bridge between Nakhon Phanom and Thakhek. We improve the road between Thakhek and Ky Anh. Border crossing facilitation along the road is introduced in Nakhon Phanom-Thakhek and Na Phao-Cha Lo (between Laos and Vietnam).

Figure 6 shows additional economic impacts of the EWEC+8 and EWEC+12 scenarios when we compare with the EWEC scenario. Shaded regions have positive additional impacts and diagonally shaded regions have negative impacts compared with the scenario where we have only the EWEC. Thanks to the Third Mekong Friendship Bridge, Khammouane Province has the largest additional impacts with either the EWEC+8 or the EWEC+12 scenario. Borikhamsay Province has larger positive impact

Figure 6: Additional Economic Impacts of the Third Mekong Friendship Bridge, Route No. 8 and No. 12 (compared with EWEC scenario)



Source: IDE/ERIA-GSM 4.4.

in the EWEC+8 scenario. Savannakhet and southern provinces in Laos also have positive impacts, even though the development of Route No. 8 or No. 12 will bring a competitive situation to the province. It is implied that better connectivity between Northern Thailand and Southern Laos by the Third Mekong Friendship Bridge is expected.

Table 2 lists economic impacts of the EWEC, EWEC+8 and EWEC+12 scenarios in selected provinces in Laos and Vietnam compared with the baseline scenario. For example, Savannakhet Province will have positive impacts of 3.31%, 3.41% and 3.47% by EWEC, EWEC+8 and EWEC+12 developments, respectively, compared with the baseline scenario. This indicates that the additional impacts of Route No. 8 and No. 12 are relatively small for Savannakhet. On the other hand, additional benefits are larger in Khammouane, Borikhamsay and Vientiane provinces. The Vientiane capital will have negative impacts if we compare with the baseline scenario where we do not have additional developments of the EWEC or Route No. 8 and No. 12, while the negative impact will be mitigated by the EWEC+8 scenario. This is because Route No. 8 contributes to better accessibility between Vientiane and Hanoi.

Figure 7 describes the absolute impacts across provinces in Laos. We set indices

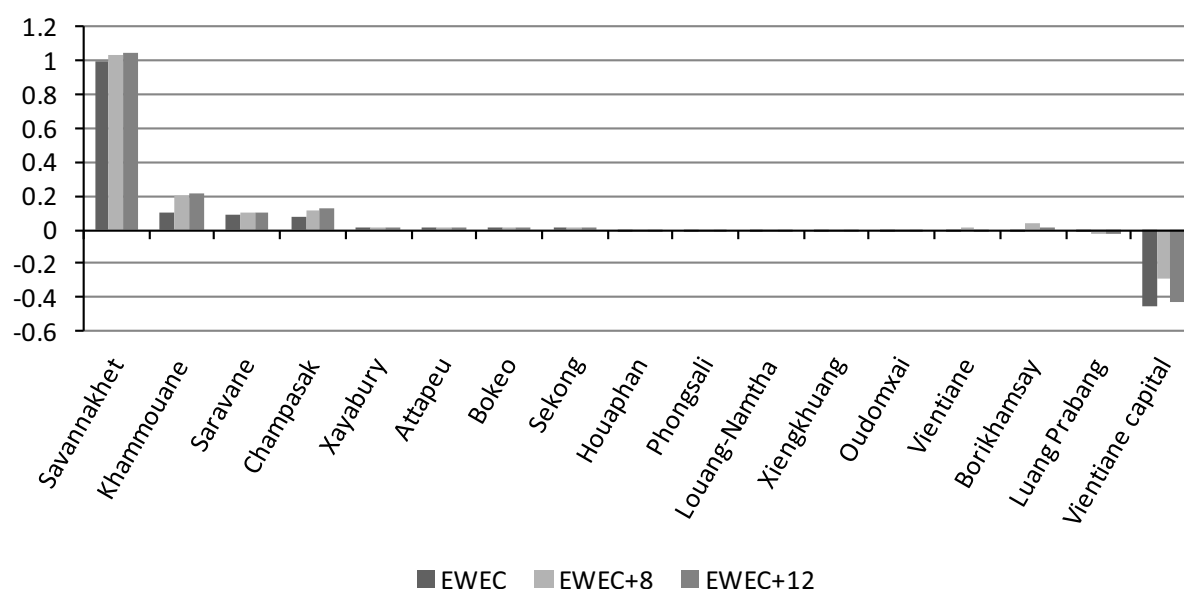
Table 2: Economic Impacts of EWEC, EWEC+8 and EWEC+12 Scenarios on Selected Provinces (compared with the baseline scenario)

Region	Country	EWEC	EWEC+8	EWEC+12
Savannakhet	Laos	3.31%	3.41%	3.47%
Khammouane	Laos	1.10%	2.37%	2.44%
Saravane	Laos	0.94%	1.04%	1.09%
Quang Tri	Vietnam	0.88%	0.88%	0.87%
Thua Thien - Hue	Vietnam	0.72%	0.71%	0.71%
Danang City	Vietnam	0.45%	0.44%	0.44%
Quang Binh	Vietnam	0.40%	0.40%	0.61%
Champasak	Laos	0.30%	0.41%	0.47%
Sekong	Laos	0.24%	0.41%	0.47%
Vientiane	Laos	-0.12%	0.11%	-0.07%
Borikhamsay	Laos	-0.15%	0.51%	0.18%
Vientiane capital	Laos	-0.31%	-0.20%	-0.30%

Note: Shaded cells mean the largest impacts among scenarios for each province.

Source: IDE/ERIA-GSM 4.4.

Figure 7: Economic Impacts of EWEC, EWEC+8 and EWEC+12 Scenarios on Provinces in Laos (indices, compared with the baseline scenario)



Note: The economic impact of the EWEC on Savannakhet = 1.

Source: IDE/ERIA-GSM 4.4.

where the positive impact of the EWEC on Savannakhet is 1. For instance, the economic impact of the EWEC on Khammouane Province is 0.1 times the impact on Savannakhet when we compare the absolute values. In Laos, the main portion of economic impacts is attributed to the positive impacts in Savannakhet and Khammouane provinces. The total economic impact on Laos is larger in the EWEC+8 scenario than in the EWEC+12 scenario, even though many southern provinces get larger impacts by the EWEC+12 scenario. In contrast, the total economic impact on

Thailand is slightly larger in the EWEC+12 scenario than in the EWEC+8 scenario. For Vietnam, these three scenarios mainly contribute to narrowing the development gaps while they do not raise Vietnam's national GDP from the baseline, because they do not directly connect the large cities such as Hanoi and Ho Chi Minh City.

In sum, mitigating negative impact in the Vientiane capital or better accessibility between Vientiane and Hanoi by Route No. 8 is beneficial in terms of the national GDP of Laos, while Route No. 12 mainly contributes to better accessibility in Southern Laos and Thailand. In fact, Isono (2011) argued that Route No. 8 is useful especially for passenger travel between Vientiane and Hanoi, while the Third Mekong Friendship Bridge and Route No. 12 is expected to be a better alternative route for the EWEC to connect Bangkok to Hanoi.

3.2. Economic Impacts of the Southern Economic Corridor

We estimated the economic impacts of the Southern Coastal Sub-corridor and the Northern Sub-corridor of the SEC. First, we set a scenario of the Mekong-India Economic Corridor (MIEC). The MIEC looks similar to the SEC, but it does not contain sub-corridors and it has additional sea routes from Dawei (Myanmar) to Chennai (India) and other regions. The MIEC is expected to bring higher economic impacts in the GMS, because it connects large cities such as Bangkok, Phnom Penh and Ho Chi Minh City. Meanwhile, the Southern Coastal Sub-corridor and the Northern Sub-corridor are considered as measures to narrow the development gaps in Cambodia and Vietnam. We set scenarios as follows:

[MIEC]

A new bridge over the Mekong River at Neak Leung in Cambodia is constructed. We

develop better road infrastructure between Aranya Prathet, Thailand and Vung Tau, Vietnam via Phnom Penh and Ho Chi Minh City in 2015. Dawei and Kanchanaburi are connected by a new road, and border crossing facilitation along the MIEC is introduced in Taninthayi-Kanchanaburi¹³ (between Myanmar and Thailand), Aranya Prathet-Poipet (between Thailand and Cambodia) and Bavet-Moc Bai (between Cambodia and Vietnam). Dawei is connected with Chennai (India), Kolkata (India) and Rotterdam (the Netherlands) via sea routes which are equivalent to other routes between internationally equally important ports.

[MIEC+S: Southern Coastal Sub-corridor]

In addition to the development of the MIEC mentioned above, we improve the road between Trad, Thailand and Ca Mau, Vietnam. We introduce a border crossing facilitation at the Hat Lek-Cham Yeam border between Thailand and Cambodia and the Prek Chak-Ha Tien (Xa Xia) border between Cambodia and Vietnam.

[MIEC+N: Northern Sub-corridor]

In addition to the development of the MIEC, we improve the road between Siem Reap and Quy Nhon. We introduce a border crossing facilitation at the O Yadav-Le Thanh border.

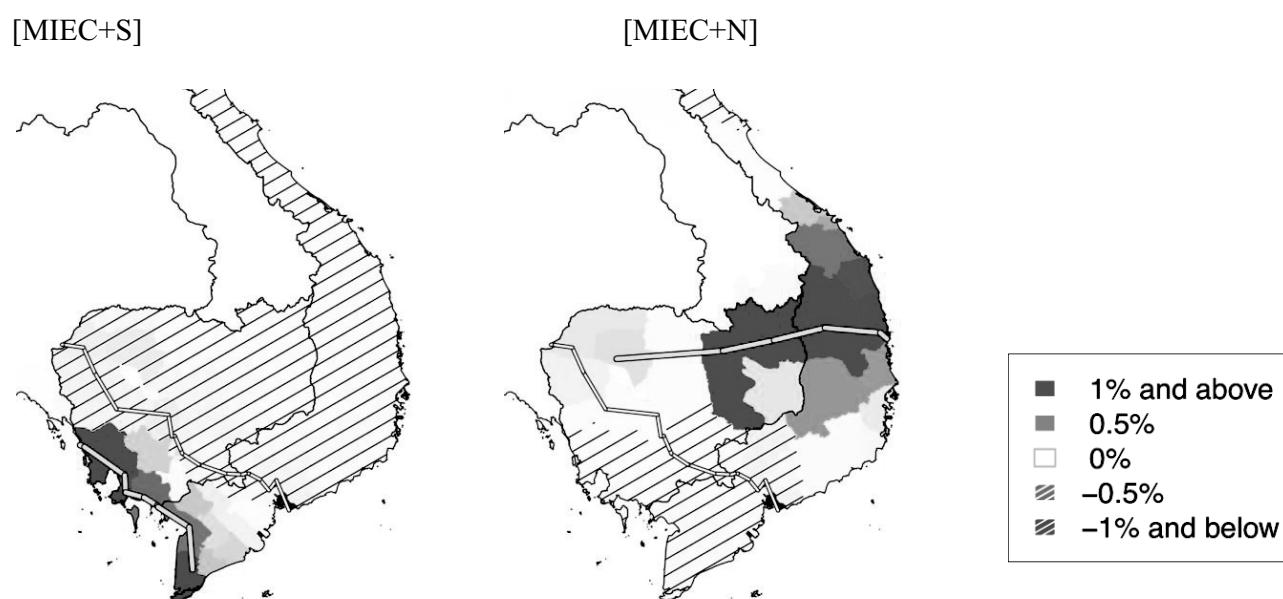
Figure 8 shows the additional economic impacts of the Southern Coastal Sub-corridor and the Northern sub-corridor when we compare with the MIEC scenario. Regions having positive impacts are limited along the corridors.

Table 3 explains the economic impacts of the MIEC, MIEC+S and MIEC+N scenarios on selected provinces in Cambodia and Vietnam compared with the baseline scenario. Koh Kong, Sihanoukville, Ca Mau and Kien Giang provinces have larger impacts by the MIEC+S scenario and Stung Treng, Rattanakiri, Gia Lai, Kon Tum and Binh Dinh provinces see larger impacts by the MIEC+N scenario.

Figure 9 depicts the absolute impacts across provinces in Cambodia. In this figure

¹³ A new border gate at Phu Nam Rong is prepared at the Thai side, while we have not gotten the name of the border gate on the Myanmar side.

Figure 8: Additional Economic Impacts of Southern Coastal Sub-corridor and Northern Sub-corridor (compared with MIEC scenario)



Source: IDE/ERIA-GSM 4.4.

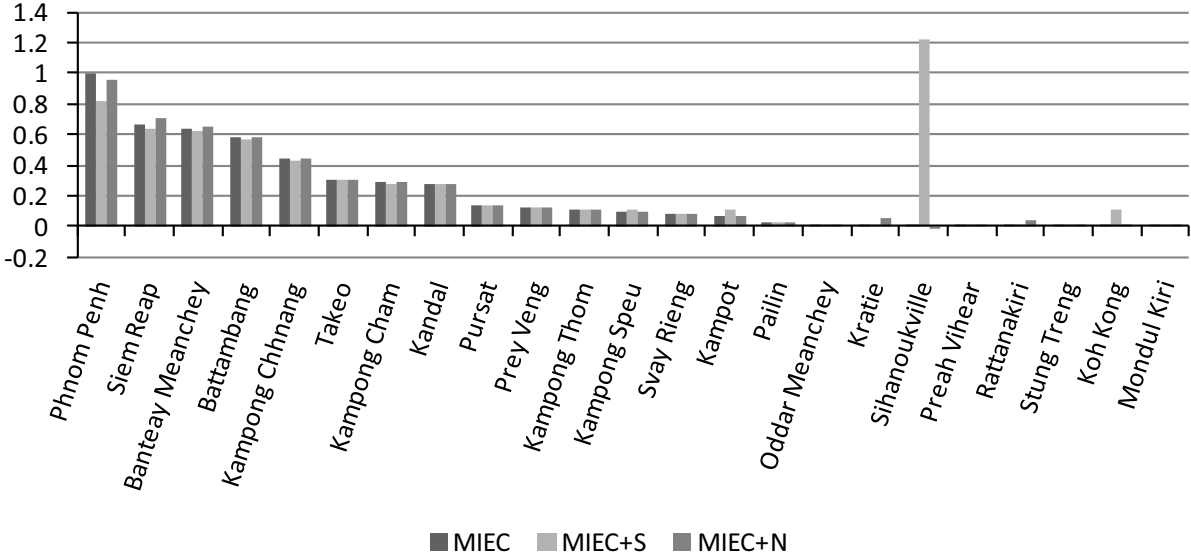
Table 3: Economic Impacts of MIEC, MIEC+S and MIEC+N Scenarios on Selected Provinces (compared with the baseline scenario)

Region	Country	MIEC	MIEC+S	MIEC+N
Banteay Meanchey	Cambodia	3.13%	3.06%	3.22%
Battambang	Cambodia	2.72%	2.67%	2.77%
Oddar Meanchey	Cambodia	2.67%	2.64%	2.76%
Pailin	Cambodia	2.58%	2.53%	2.63%
Kampong Chhnang	Cambodia	2.49%	2.41%	2.48%
Pursat	Cambodia	2.31%	2.27%	2.32%
Siemreap	Cambodia	1.97%	1.90%	2.10%
Stung Treng	Cambodia	0.53%	0.52%	5.03%
Ratanak Kiri	Cambodia	0.42%	0.40%	6.43%
Binh Dinh	Vietnam	0.12%	0.11%	1.25%
Ca Mau	Vietnam	0.12%	1.27%	0.10%
Kien Giang	Vietnam	0.10%	0.65%	0.08%
Koh Kong	Cambodia	0.03%	2.72%	0.02%
Sihanoukville	Cambodia	0.02%	2.00%	-0.01%
Kon Tum	Vietnam	0.00%	-0.01%	3.57%
Gia Lai	Vietnam	-0.06%	-0.07%	5.11%

Note: Shaded cells mean the largest impacts among scenarios for each province.

Source: IDE/ERIA-GSM 4.4.

Figure 9: Economic Impacts of MIEC, MIEC+S and MIEC+N Scenarios on Provinces in Cambodia (indices, compared with the baseline scenario)



Note: The economic impact of MIEC on Phnom Penh = 1.
 Source: IDE/ERIA-GSM 4.4.

we set indices where the positive impact of the MIEC on Phnom Penh is 1. Large impact can be seen in Sihanoukville in the MIEC+S scenario. In fact, thanks to the positive impacts on Sihanoukville and Koh Kong, the MIEC+S scenario gives Cambodia the largest positive impact among the three scenarios. In absolute values, the additional impact of the Northern Sub-corridor on Cambodia is relatively small. The MIEC+S and MIEC+N scenarios do not raise Vietnam’s GDP compared with the MIEC scenario, meaning that these scenarios only change the distribution of Vietnam’s economic activities towards the less economic gaps.

CONCLUDING REMARKS

In reviewing the history of prioritized transport projects and economic corridors, some sections of a road were nominated and then disappeared, and others have been newly nominated. On the other hand, there are sections which once had disappeared and then reemerged. Among the disappeared corridors, there are corridors that have become outstanding such as Route No. 8 and Route No. 12 in Laos and Vietnam. It is clear that

the completion of the Third Mekong Friendship Bridge will make them outstanding. On the other hand, the Northern and Southern Coastal Sub-corridors of the SEC have not been developed yet and they can be potential corridors. In Myanmar, specific regions which are developed progressively are focused on in the following chapters.

In the simulation analysis, three scenarios are compared: the development of the EWEC, the EWEC and Route No. 8, and the EWEC and Route No. 12. Comparing between the second and third scenarios, the positive economic impacts in Laos are larger in the case of the second than in the third. On the other hand, the impact on Thailand's GDP is larger in the case of the EWEC and Route No. 12 scenario and the impact on Vietnam's GDP is negligible while those contribute in reducing the development gaps. Regarding the impacts of improvement in the SEC or the MIEC, the results of the three scenarios of simulation have been shown: the development of the MIEC, the development of the MIEC and the Southern Coastal Sub-corridor, and the development of the MIEC and the Northern Sub-corridor. The impact of a second scenario on the Cambodian economy is large because its impact on Sihanoukville and Koh Kong is so high. On the other hand, the impact of the Northern Sub-corridor on the Cambodian economy is smaller. And the impact of these corridors on the Vietnamese economy is smaller, but it also contributes in narrowing the economic gaps.

APPENDIX I. DETAILS OF ROUTES OF TRANSPORT CORRIDOR

R1: Bangkok – Bang Pakong (T7) – Bang Phla (T314) – Phanom Sarakham – Khao Hin Son – Kabin Buri (T304) – Sa Kaeo – Aranya Prathet (R33) + Poipet – Sisophon – Battambang – Pursat – Kampong Chhnang – Phnom Penh (R5) – Neak Leung – Svay Rieng – Bavet (C1) + Moc Bai – Go Dau – Ho Chi Minh City (V22) – Bien Hoa (V1) – Vung Tau (V51)

Khao Hin Son – Sa Kaeo (T359)

R2: Bangkok – Saraburi (T1) – Nakhon Ratchasima – Khong (T2) – Ban Mai Chaiyaphot (T207) – Yasothon (T202) – Loeng Nok Tha (T2169) – Mukdahan (T212) + Savannakhet – Dansavanh (L9) + Lao Bao – Dong Ha (V9) – Danang (V1)

Nakhon Ratchasima – Ban Phai (T2) – Maha Sarakham (T23) – Kanthara Wichai (T2202) – Kalasin – Somdet – Sakon Nakhon – Nakhon Phanom (T22) + Thakek – Vieng Kham (L13) – Nam Phao (L8) + Cau Treo – Tay Son – Hong Linh (V8) – Vinh – Hau Hoa – Hanoi (V1)

Thakek – Na Phao (L12) + Cha Lo – Badon (V12)

R3: Bangkok – Ayuttaya – Singburi – Nong Pun – Uthai Thani (T32) – Nakhon Sawan – Tak – Lampang – Phayao (T1) – Xiaomengyang (Ch214) – Simao – Mohei – Yuangjiang – Yuxi – Kunming (Ch213)

R3A: Phayao – Pa Daet (T1202) – Thoeng (T1126) – Chiang Khon (T1020) + Houayxay – Luang Namtha (L3) – Na Teuy (L13B) – Boten (L13N) + Mohan – Xiaomengyang (Ch214)

R3B: Phayao – Chiang Rai – Mae Sai (T1) – Tachilek – Kengtung (M4) – Mengla (unknown) + Daluo – Jingzhen (Y320) – Menghai – Jinghong – Xiaomengyang (Ch214)

R4: Kunming – Dali – Baoshan – Ruili (Ch320)¹⁴ + Muse – Lashio (M3)

R5: Kunming – Yiliang – Shilin – Mile – Kaiyuan – Mengzi – Xinjie – Hekou (Ch324)
+ Lao Cai – Yen Binh – Doang Hung (V70) – Viet Tri – Hanoi (V2) – Hai Phong
(V5)

R6: Vientiane – Vieng Kham – Thakek – Savannakhet – Pakse – Nongnokkhen (L13)
+ Trapeang Kreal – Stung Treng – Kratie – Chlong (Kratie Province Road 308) –
Kandaol Chrum (C73) – Kampong Cham – Skun (C7) – Phnom Penh (C6) –
Kampong Speu – Srae Ambel – Veal Rinh – Sihanoukville (C4)

R7: Lashio – Hsipau (M3) Loilem (M44) – Kengtung (M4)

R8: Jinghong – Xiaomengyang – Mohan (Ch214) + Boten – Na Teuy – Oudom Say
(L13) – Sin Sai – Sobhun (L2) + Tay Trang – Dien Bien Phu – Tuan Giao (V279) –
Son La – Hanoi (V6)

R9: Ubon Ratchathani – Chong Mek (T217) + Vang Tao – Pakse (L16) -
Nongnokkhen (L13) + Trapeang Kreal – Stung Treng (C7) – Ban Lung – O Ya Dau
(C78) + Le Thanh – Pleiku (V19) – Kon Tum – Thanh My (V14) – Danang (V14B)
Pleiku – Buon Ma Thuot (V14) – Ninh Hoa (V26) – Nha Trang (V1)

Notes: 1) The meaning in the parenthesis is the initial of the country and the route number. For example, “Bangkok – Bang Pakong (T7)” means that route passes Route No. 7 of Thailand from Bangkok to Bang Pakong. R1 is as same as project (i). Regarding the section between Khao Hin Son and Sa Kaeo, there is an alternative road by way of T359. The initial of Ch means a national road of China. Y and G means a provincial road of Yunnan Province and Guangxi Zhuan Autonomous Region, respectively.

2) “+” means a border.

3) The border between Laos and Cambodia had been designated as Veunkham and Dong Kralor in some reports of ADB. The Veunkham + Dong Kralor border is a border for inland waterway of Mekong River. The border of road is Nongnokkhen + Trapeang Kreal.

¹⁴ Ch320 is a national road and is different from Y320, a provincial road.

APPENDIX II. DETAILS OF ECONOMIC CORRIDORS AND MODIFIED TRANSPORT CORRIDOR

EWEC

Danang – Hue – Dong Ha (V1) – Lao Bao (V9) + Dansavanh – Savannakhet (V9) + Mukdahan – Somdet (T2042) – Kalasin – Yang Talat (T213) – Khon Kaen (T209) – Phitsanulok – Tak (T12) – Mae Sot (T105) + Myawaddy – Kawkareik – Kawpalut (M58) – Mawlamyaine

NSEC (Bangkok – Kunming)

Bangkok – Ayuttaya – Singburi – Nong Pun (T32) – Phitsanulok – Uttaradit – Lampang (T11) – Phayao – Chiang Rai (T1) – Xiaomengyang (Ch214) – Simao – Mohei – Yuangjiang – Yuxi – Kunming (Ch213)

Laos Route: Chiang Rai (T1) – Chiang Khon (T1020) + Houayxay – Luang Namtha (L3) – Na Teuy (L13B) – Boten (L13N) + Mohan – Xiaomengyang

Myanmar Route: Chiang Rai – Mae Sai (T1) – Tachilek – Kengtung (M4) – Mengla (unknown) + Daluo – Jingzhen (Y320) – Menghai – Jinghong - Xiaomengyang (Ch214)

NSEC (Kunming – Hai Phong)

Kunming – Yiliang – Shilin – Mile – Kaiyuan – Mengzi – Xinjie – Hekou (Ch324) + Lao Cai – Yen Binh – Doang Hung (V70) – Viet Tri – Noi Bai (V2) – Hai Phong (V5)

SEC (Central Sub-Corridor)

Bangkok – Bang Pakong (T7) – Bang Phla (T314) – Phanom Sarakham – Khao Hin Son – Kabin Buri (T304) – Sa Kaeo – Aranya Prathet (R33) + Poipet – Sisophon – Battambang – Pursat – Kampong Chhnang – Phnom Penh (R5) – Neak Leung – Svay Rieng – Bavet (C1) + Moc Bai – Go Dau – Ho Chi Minh City (V22) – Bien Hoa (V1) – Vung Tau (V51)

Sisophon – Siem Reap – Kampong Thom (C6) – Kampong Chhnang (Undeveloped)

SEC (Southern Coastal Sub-corridor)

Bangkok – Samut Prakan – Chon Buri – Sattahip – Chantaburi – Trat – Hat Lek (T3) + Cham Yeam – Sra Ambel (C48) – Veal Rinh (C4) – Kampot (C3) – Preak Chak (C33) + Ha Tien – Rach Gia – Vinh Roi (V80) – Minh Luong (V61) – Camau (V63) – Nam Can (V1)

SEC (Northern Sub-corridor)

Stung Treng (C216) – Ban Lung – O Yadav (C78) + Pleiku – Quy Nhon

Inter-Corridor-Link

Pakse – Nongnokkhen (L13) + Trapeang Kreal – Stung Treng – Kratie – Chlong (Kratie Province Road 308) – Kandaol Chrum (C73) – Kampong Cham – Skun (C7) – Phnom Penh (C6) – Kampong Speu – Srae Ambel – Veal Rinh – Sihanoukville (C4)

R2 (N)

Thakek – Vieng Kham (L13) – Nam Phao (L8) + Cau Treo – Tay Son – Hong Linh (V8) – Vinh

R2 (S)

Pakse – Paksong (L18) – Sekong (L1H) – Daktaoknoy (L16) + Nam Giang – A Roong (V14D)

R9

Stung Treng (C7) – Ban Lung – O Ya Dau (C78) + Le Thanh – Pleiku (V19) – Quy Nhon (V19)

Pleiku – Kon Tom – Pleikan – A Roong – Thanh My (V14) – Danang (V14B)

Sekong – Attapeu (L1I) – Phoukuea (L18A) + Bo Y – Pleikan (V40) – Grong (undeveloped) – Dung Quat (V622)

APPENDIX III. DETAILS OF NEW ECONOMIC CORRIDORS

Northern Corridor

Fangchenggan – Qinzhou (G312 or Ch221) – Nanning (Ch325 or Ch050) – Baise (Ch325 or Ch074) – Kunming (Ch324) – Chuxiong – Dali – Baoshan (Ch320 or Ch065) Ruili (Ch320) + Muse – Lashio – Mandalay (M3) – Shwebo – Zigon () – Kaleiwa → Kaleimyo () – Tamu

Eastern Corridor

Nanning – Pingxiang (Ch322 or Ch75A) + Lang Son – Hanoi – Thanh Hoa – Vinh – Dong Ha – Danang – Dung Quat – Quy Nhon – Nha Trang – Ho Chi Minh City – Can Tho – Ca Mau (V1)

Kunming – Yiliang – Shilin – Mile – Kaiyuan – Mengzi – Xinjie – Hekou (Ch324) + Lao Cai – Yen Binh – Doang Hung (V70) – Viet Tri – Hanoi (V2) – Hai Phong (V5) – Bieu Nghi (V10) – Cai Lan – Mong Khai (V18) + Dongxing – Fangchenggan (G312)

Nanning – Litang (Ch324) – Liuzhou (Ch209) – Guilin (Ch322) – to Hunan Province

Southern Corridor

Dawei – Thi Tha – Hti Hkee + Baan Phu Nam Ron – Kanchanaburi (T3512, T3229) – Bang Pon (T323) – Nakhon Phatom – Bangkok (T4) – Bang Pakong (T7) – Bang Phla (T314) – Phanom Sarakham – Khao Hin Son – Kabin Buri (T304) – Sa Kaeo – Aranya Prathet (T33) + Poipet – Sisophon – Battambang – Pursat – Kampong Chhnang – Phnom Penh (C5) – Neak Leung – Svay Rieng – Bavet (C1) + Moc Bai – Go Dau – Ho Chi Minh City (V22) – Bien Hoa (V1) – Vung Tau (V51)

Siem Reap – Phnum Deik (C66) – Kampong Putrea Thmei (C213) – Stung Treng (C216) – Ban Lung – O Yadav (C78) + Pleiku – Quy Nhon (V19)

Western Corridor

Mawlamyaine – Bago (M8) – Naypyidaw – Meiktila (M1) – Chauk (M4) – Bagan – Nyang-U – Kyaw Zi – Pakokku – Pauk – Gangaw – Kaleimyo – Tamu (unknown)

North-South Corridor

Bangkok – Ayuttaya – Singburi – Uthai Thani (T32) – Nakhon Sawan – Tak – Lampang – Phayao – Chiang Rai (T1) – Xiaomengyang (Ch214) – Simao – Mohei – Yuangjiang – Yuxi – Kunming (Ch213)

Laos Route: Chiang Rai – Chiang Khon (T1020) + Houayxay – Luang Namtha (L3) – Na Teuy (L13B) – Boten (L13N) + Mohan – Xiaomengyang (Ch214)

Myanmar Route: Chiang Rai – Mae Sai (T1) – Tachilek – Kengtung (M4) – Mengla (unknown) + Daluo – Jingzhen (Y320) – Menghai – Jinghong - Xiaomengyang (Ch214)

Bangkok – Nakhon Phatom – Petchaburi – Hua Hin – Prachuap Khiri Khan – Chum Phon (T4) – Phatthalung (T41) – Srathani – Hat Yai – Sadao (T4) + Padang Besar – to Kuala Lumpur

Hat Yai – Songkhla (T407) – Chana (T408) – Pattani (T43) – Narathiwat (T42) – Takbai (T4084) – Su Ngai Kolok (T4057) + Pasir Mas – to Kuala Terengganu

Kunming – lishan (Ch213) – Dongchuan – Huize – Chehai (Y207) – Zhaotong – Duguan – Zhushan (Ch213) – Shuifeng (Ch040) – to Chongqing

East-West Corridor

Danang – Hue – Dong Ha (V1) – Lao Bao (V9) + Dansavanh – Savannakhet (V9) + Mukdahan – Somdet (T2042) – Kalasin – Yang Talat (T213) – Khon Kaen (T209) – Phitsanulok – Tak (T12) – Mae Sot (T105) + Myawaddy – Kawkareik – Kawpalut (M58) – Mawlamyaine

Northeastern Corridor

Thanh Hoa – Vinh Loc (V45) – Cam Thuy – Nameo (V217) + Namsoi – Xamnua – Houa Phou (L6) – Luang Prabang (undeveloped) – Xayabury – Nakhom (T4) + Dansai – Loei (T2114) – Lom Sak (T203) – Saraburi (T21) – Bangkok (T1) – Samut Prakan – Chon Buri – Sattahip (T3)

Central Corridor

Boten – Na Teuy – Oudom Say (L13) – Luang Prabang – Vangvieng – Vientiane – Paksan – Vieng Kham – Thakhek – Savannakhet – Pakse – Nongnokkhen (L13) + Trapeang Kreal – Stung Treng – Kratie – Chlong (Kratie Province Road 308) – Kandaol Chrum (C73) – Kampong Cham – Skun (C7) – Phnom Penh (C6) – Kampong Speu – Srae Ambel – Veal Rinh – Sihanoukville (C4)

Vientiane – Thanaleng + Nong Khai – Khon Kaen – Nakhon Ratchasima – Kabin Buri – Plaeng Yao (T304) – Sattahip (T331)

Southern Coastal Corridor

Bangkok – Samut Prakan – Chon Buri – Sattahip – Chantaburi – Trat – Hat Lek (T3) + Cham Yeam – Sra Ambel (C48) – Veal Rinh (C4) – Kampot (C3) – Preak Chak (C33) + Ha Tien – Rach Gia – Vinh Roi (V80) – Minh Luong (V61) – Camau (V63) – Nam Can (V1)

Veal Rinh (C4) – Sihanoukville (C4)

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