ASEAN Connectivity: What could high speed rail bring to Thailand?

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Abstract

This study analyzes the opportunities and benefits from rail development plans in Thailand under the Master Plans on ASEAN Connectivity (MPAC). The purpose of this study is to identify and analyzes the opportunities, costs and benefits and the impact resulting from rail development plans in Thailand under the MPAC. Moreover, to examine how and to what extent, the Thai rail project fits in with the MPAC and to recommend the opportunities, benefits and impacts of Thai rail development plan under the MPAC. This paper is based on documentary research method. The researchers find out that if Thailand upgrades its antiquated railway to High Speed Rail (HSR) and connect to neighboring countries, Thailand will gain tremendous benefits from rail development project in many aspects. However, as there are benefits to be gained, there also will be tremendous costs and other negatives impacts that follow the rail development project. ความเชื่อมโยงระดับภูมิภาคอาเซียน: รถไฟความเร็วความเร็วสูงให้ผลประโยชน์อะไรแก่ประเทศไทย? บทความฉบับนี้มุ่งศึกษาและวิเคราะห์โอกาสและผลประโยชน์จากแผนพัฒนารถไฟของประเทศไทยภายใต้แผนแม่บทเชื่อมโยงอาเซียน โดยมีวัตถุประสงค์หลักดังนี้ วิเคราะห์และพิจารณาโอกาส ผลประโยชน์และผลกระทบจากโครงการพัฒนารถไฟไทยภายใต้แผนแม่บทเชื่อมโยงอาเซียน นอกจากนี้คณะผู้วิจัยได้ทำการศึกษาถึงความสอดคล้องและความเหมาะสมของโครงการพัฒนารถไทยภายใต้แผนแม่บทเชื่อมโยงอาเซียน อีกทั้งยังได้แนะนำโอกาส ผลประโยชน์ และผลกระทบจากการพัฒนารถไฟไทยภายใต้แผนแม่บทเชื่อมโยงอาเซียน คณะผู้วิจัยได้ทำการศึกษาค้นคว้าโดยการเก็บรวบรวมข้อมูลจากงานวิจัยทั้งในและต่างประเทศ โดยคณะผู้วิจัยพบว่าถ้าประเทศไทยพัฒนาการขนส่งระบบรางให้เป็นรถไฟความเร็วสูงและเชื่อมต่อกับประเทศเพื่อนบ้าน ประเทศไทยจะได้ผลประโยชน์มากมายจากโครงการนี้ แต่อย่างไรก็ตามการพัฒนารถไฟก็นำมาซึ่งผลกระทบในทางลบและมีการใช้เงินลงทุนเป็นจำนวนมาก

Keywords: ASEAN Economic Community (AEC), Master Plans on ASEAN Connectivity (MPAC), High Speed Rail (HSR), Singapore – Kunming Rail Link (SKRL), Thailand

Introduction

Master Plans on ASEAN Connectivity (MPAC) "Master Plan" on ASEAN Connectivity is to enhance the regional efforts in economic, political-security, and socio-cultural dimensions of ASEAN through synchronizing and accelerating the "Connectivity" related strategies and initiatives within the ASEAN frameworks in order to achieve a region of dynamic growth and an outward-looking region for global opportunities (ASEAN Secretariat, 2014). The vision is to connect ASEAN countries together through physical connectivity where there is integration in transportation, ICT, and energy, institutional connectivity where legal and institutional mechanisms are liberalized and people-to-people connectivity where citizens are fostered to understand each other (ASEAN Secretariat, 2014). "These three main types of MPAC are taking to heart the ASEAN vision 2020 of a dynamic region of peace, stability and prosperity" (Mekprayoonthong, 2013:5). In this paper the researchers focus on physical connectivity specific on Singapore – Kunming Rail Link (SKRL) project. Singapore - Kunming Rail Link (SKRL) SKRL project was proposed at the fifth ASEAN summit in Bangkok in December 1995, with Malaysia as the project coordinator (Chankosal, 2013). The project is the core agenda of the ASEAN Mekong Basin Development Cooperation (AMBDC) Program (Chankosal, 2013). During the second ASEAN informal summit in Kuala Lumpur on December 1997, ASEAN leaders agreed that the proposed rail link should be implemented by a consortium involving all ASEAN countries and a decision was made for its implementation (Chankosal, 2013). The leaders also agreed that non-ASEAN countries, such as the United States, Japan and the European countries, would be invited to participate in its construction (Chankosal, 2013). The 1998 Hanoi Plan of Action underscored the importance of the SKRL project (Chankosal, 2013). A team of Malaysian consultants commenced the feasibility study for the SKRL project on March 1997, which completed in August 1999 (Chankosal, 2013). The study examined six routes to link Singapore with Kunming (See Figure 1)(IAI Work Plan Activity, 2002). All the six routes have a common sector from Singapore to Bangkok in Thailand via Kuala Lumpur in Malaysia (IAI Work Plan Activity, 2002). Among the six routes, the consultants recommended route one that passes though Cambodia, Lao PDR and Vietnam because it has the highest social economic impact (IAI Work Plan Activity, 2002). The consultants also recommended the development of route two that would integrate Myanmar into the regional rail network. Overall these route configurations covered seven ASEAN member countries and China (ASEAN Secretariat, 2014).

Figure 1 *Singapore – Kunming Rail Link Project*
Source: *IAI Work Plan Activity, 2002, Retrieved June 16, 2016*

Thai Rail Development Strategy Plans Based on the Newspaper "The Nation" (2014), they explain that the strategic plan of HSR had been introduced and studied in 1992 under the former government of Prime Minister, Chuan Leekpai. After that in 2004, Prime Minister, Thaksin Shinawatra had set up a committee to study the possibility of the first route of HSR between Bangkok – NakhonRatchasima. Unfortunately, since the coup d'état in 2006, the project has been canceled. On December 2008, Democrat Party's government led by Abhisit Vejjajiva allowed Japanese and Chinese companies to study on Bangkok – Chiang Mai route (Japan) and Bangkok – NongKhai route (China). Two years later, the parliament approved the negotiation agenda in cooperation and development of railway system between Thailand and China in five routes which were Bangkok – NongKhai, Bangkok – Rayong, Bangkok – Padang Besar, Bangkok – Chiang Mai and Bangkok – UbonRatchathani. After, the general election in 2011, the new Prime Minister, Yingluck Shinawatradecided to delay HSR project on routes connecting Bangkok, NongKhai, Rayong and PradangBesar due to the impact of the problem of HSR route in Lao PDR. Hence, Yingluck's government signed the Memorandum of Understanding (MOU) with Chinese government including the project of HSR from Bangkok to Chiang Mai. On 19th of March 2013, the cabinet approved a special plan to borrow THB 2 trillion for investment in the logistics and transport infrastructure projects over the eight years.

The first phase HSR covers four routes – Bangkok - Phitsanulok, Bangkok – NakhonRatchasima, Bangkok – Pattaya and Bangkok – Hun Hin will be completed in 2018.Due to the political situation being unstable, the assembly of the People's Democratic Reform Committee (PDRC), made the government announced dissolution of the parliament and delayed this project further. On 22nd of May 2014, the Royal Thai Armed Forces, led by General Prayut Chan-o-cha, Commander of the Royal Thai Army (RTA), launched a coup d'état and the military established a junta called the National Council for Peace and Order (NCPO) to govern the nation. So,on the 21st of March 2015, the Prime Minister, Prayut Chan-o-cha introduced a development strategy plans for transportation infrastructure from 2015 to 2022. The strategy covers five key areas. One of them is rail development project. The rail strategy can be divided into two parts; the first is six double-track 1 meter gauge line. The second comprises two new high speed double-track railway lines. One links from NongKhai on the border with Lao PDR in the Northeast and onto the port of Map Ta Phut in Rayong province on the Eastern Seaboard. The other project will connect the port of Chiang Khong in Chiang Rai on the Mekong River in the North at the border with Lao PDR to Ban Phachi railway junction in Ayutthaya. This line will join the NongKhai – Map Ta Phut line. Both lines will be 1.435 meter standard gauge and capable of carrying quasi-high-speed passenger trains with high speeds of 200 to 250 kilometres per hour, as well as freight trains. This project Thailand will cooperate with China. Furthermore, based on the Newspaper "Bangkok Post" (2015),Thailand and Japan have agreed to establish a joint working committee to initiate plans to build a high speed train using the Japanese Shinkansen train system with the standard gauge 1.435 meter track, on which the trains can operate at speeds of up to 200 kilometres per hour. The agreement was reached after the two countries signed a Memorandum of Cooperation

(MOC) to facilitate transport development in the region. This agreement covers the construction of a 715 kilometres rail route for high speed trains from Bangkok to the northern province of Chiang Mai and the upgrade of 635 kilometres meter gauge double track rail routes running from Kanchanaburi – Bangkok – Chachoengsao – LaemChabang which link to Dawei port in Myanmar. In addition, Japan will conduct a study on a 700 kilometres rail development linking Mae Sot district of Tak province to Phitsanulok, KhonKaen and Mukdahan.

Purposes

To recommend the opportunities, benefits and impacts of Thai rail development plans under the Master Plans on ASEAN Connectivity.

Benefit of Research

To examine how, and to what extent, the Thai rail project fits in with the Master Plans on ASEAN Connectivity.

Research Process

The paper based on documentary research method in order to describe costs and benefits from rail development project in Thailand. The data collections very much depend on the secondary sources because there are many best available research that study about costs and benefits and impact from rail development project inside and outside Thailand. The secondary data was collected from existing information available in relevant books, textbooks, research, journals articles, newspapers and official government documents or statements from relevant departments and ministries. For data analysis, the researchers using document analysis followed by data reduce step in order to reduce the size of the data and the researchers select the information which has correlation with the research objectives. The last step is to arrange the conclusion which concluded from results to answer the research objectives.

Instruments

Theoretical Approaches The paper analyzes through (1) New Economic Theory (2) International Relations (IR) (3) Theory Regionalism and (4). Theory Economic Integration Theory

Data Analysis

Thai Rail Development Fits in with the MPAC According to SKRL project under the MPAC, the researchers find out that two new railway routes that Thailand cooperate with China have the destinations that ended at the border ofneighbor countries. Based on the Newspaper “The Nation” (2014), first line, Bangkok to NongKhai on the border with Lao PDR in the Northeast and link the route to the port of Map Ta Phut in Rayong province on the Eastern Seaboard. Second line that connects Bangkok with the port of Chiang Khong in Chiang Rai on the Mekong River in the North at the border with Lao PDR to Ban Phachi railway junction in Ayutthaya, this line will join the NongKhai – Map Ta Phut. All these railway lines will link Bangkok to Singapore via Malaysia and link up directly to Kunming, in China’s southern Yunnan province (See Figure 2).

Based on the Newspaper “Bangkok Post” (2015), Thailand and Japan have agree to build a high speed train covers the area from Bangkok to the northern province of Chiang Mai and upgrade rail routes running from Kanchanaburi to Bangkok, Chachoengsao and LaemChabang which link to

Figure 2 : *New Lines that upgrade to Link with neighbors*
Source: *The Guardian, Retrieved June 18, 2016*

Figure 3 : *Route of Double –Track (1.435 meter standard gauge)*
Source: *Bangkok Post, Retrieved June 18, 2016*

Dawei port in Myanmar. In addition, Japan will conduct a study on a rail development linking Tak to Mukdahan via Phitsanulok and Khonkaen provinces (See Figure 3). Based on Figure 2 and 3, the Thai rail development project fits in with the SKRL project under the MPAC, the project attracts tremendous benefits and positive impacts to Thailand. However, as there are benefits to be gained, there also will be tremendous costs and negatives impact that follow the rail development project. Benefits and Positive Impacts from Thai Rail Development Project Based on Table 1, rail development project attracts tremendous benefits and positive impacts to Thailand as follows:

• Job Creation and Reducing the Nation's Dependence on Foreign Oil Building HSR can create hundreds and thousands of jobs. According to American Public Transportation Association (2010) showed that "every $1 billion in investment creates 36,000 jobs. These include durable and non-durable manufacturing jobs, as well as jobs in other industries, such as construction, finance, insurance and real estate, retail and wholesale trade, and services" (cited in Songmuang, 2016:3). In addition, the dependence of foreign oil can be significantly reduced from the building of HSR. For example, in America, implementing HSR will keep billions of dollars in the U.S. economy by decreasing the amount of oil that the U.S. consumes (American Public Transportation Association, 2010 cited in Songmuang, 2016). This information corresponds to the result of the Brechr, Sposato and Kennedy

Table 1 Costs and Benefits from Rail Development Plans in Thailand

Costs from Thai Rail Development plans	*Benefits and Positive Impacts from Thai RailDevelopment plans*
1. Infrastructure Costs	1. Job Creation and Reducing the Nation's Dependence on Foreign Oil
2. Environmental Costs	2. Time Saving and Comfortable
Negative Impact from Rail Development Plans	3. Reduce Road Traffic Congestion
3. Corruption on Rail Development Project	4. Wider Economic
4. Waste of Public Money	5. Land use Benefits and Property Development

Source: Songmuang, Teerarat., 2nd National and International Conference on Philosophy, Politics and Economics, 29 July, 2016

(2014); "HSR is eight times more energy efficient than airplanes and four times more efficient than automobile use" (p.15) (cited in Songmuang, 2016). It will also decrease greenhouse gas emissions and improve air quality (Songmuang, 2016).

• Time Saving and Comfortable There exists a need for face-to-face contacts for firms in all industries, even if these contacts vary in duration, extent, scope, purpose and so on between different firms and industries. Irrespective of if a company is dealing with manufacturing, trade or service production, it needs face-to-face contacts with suppliers and customers for buying and selling products, negotiations and contract signing. The education sector, in the widest sense and the R&D sector have a still larger relative need for face-to-face contacts and, hence, business trips. If we observe that a growing share of all employees are employed in service production, are employed in knowledge creating or knowledge handling jobs, and have a long education, often at the university level, we understand that there are strong forces working in the direction of increasing the demand for face-to face contacts (Andersson and Stromqvist, 1988 cited in Blum,Haynes and Karlsson, 1997). And we must also observe that the improved telecommunications and the general diffusion of computers, cellular telephones and other types of equipment based upon information technology have made it much easier to set up business meetings, and to book tickets, rental cars and meeting places. Hence, we could expect good conditions for business trips and hence face-to-face meetings to be a central condition for economic integration in the modern economy (Andersson and Stromqvist, 1988 cited in Blum, Haynes and Karlsson, 1997). As a result we can say that the development level of the infrastructure for travel is one factor that limits the integration of service production to geographical areas that are manageable from a time perspective (Blum,Haynes and Karlsson, 1997). Investments in infrastructure that reduce the travel times open up new opportunities to integrate markets for producer services by an increased volume of business travel and business travel extends the wider geographical area boundaries of functional economic areas thereby expanding their market potential (Blum,Haynes and Karlsson, 1997). Such integration undoubtedly leads to increased

economic growth through a more efficient resource allocation and via better solutions for all those firms that now can use a broader and more qualified supply of specialised producer services (Blum, Haynes and Karlsson, 1997).The establishment of a new high-speed train corridor results in increased travel speed. Hence, the travel time falls and potentially the direct travel costs. When the travelling occurs during normal working hours, as is often the case with business trips, it is easy to calculate the profit of the new travel opportunity for the business travel that takes place due to the establishment of the new high-speed train line. In such a case losses in connection with business trips is a direct loss of working time for the firms (Blum,Haynes and Karlsson, 1997). For example, "the TGV HSR in France reduce travelling time to 2 hours for 450 kilometers and passenger between Paris and Lyon were 12.5 million in 1980 and this number increased to 22.9 million in 1992. 18.9 million out of 22.9 million passengers were taking TGV. By the end of 2005, France had six TGV lines, which were a distance of 1520 kilometers. The amount of passengers having TGV service has grown consistently since 1981. About two hundred and fifty thousand passengers took the TGV every day" (Vickerman 1997, cited in Senanu and Wenbin, 2012: 24).

• Reduce Road Traffic Congestion Rail development project can help to reduce road traffic congestion. According to a survey of businesses done by the British Chambers of Commerce 2008 cited in the Eddington Transport Study (2011), it was found that road traffic congestion is accountable for around 90% of businesses, with around 45% viewing it as a significant problem. And it is also one of the major causes of increased CO2 emissions from transport. So, investing in HSR will reduce the environmental impacts of congestion and saving energy and environment issue, according to Okada 1994 cited in Ma (2011),"studies the energy consumption of Shinkansen in Japan. From 1973 to 1990, the Japanese oil consumption in the transportation section has grown from 47 million kiloliters to 80 million kiloliters. The energy resources in the Japanese transportation section rely largely on unrenewable fossil fuel. Based on the huge need in the transportation section in Japan, Okada addresses that it is urgent to figure out a sustainable transport method. Okada studied the energy consumption from many transport methods between Tokyo and Osaka. The Shinkansen has an absolute advantage in energy saving. If carrying 100 million passengers for a distance of 1 kilometer, the HSR consumes the energy of 136 kilocalories. For the automobiles and airplanes, this number is 631 and 714 respectively. From Okada's calculation, the Shinkansen has saved 360 millioin liters oil from 1964 to 1985" (p. 36). Energy saving relates to the environmental issue because the energy is transformed from other natural resources, and most resources are non-recyclable (Ma, 2011). Okada's research 1994 cited in Ma (2011) compared "HSR with other transport methods, the Shinkansen takes 80% of the volume of transportation between these two cities, but the amount of gas emitted is about 16% of that of the passenger cars. Okada also estimates that if the Tokaido Shinkansen had not been constructed, there would be 15 thousand tons of extra carbon dioxide emitted in 1985" (p. 37). Moreover, many scholars support the idea that the HSR is environmentally friendly (Ma, 2011).

• Wider Economic According to SKRL project, the researcher found that the project created a new Skill Road from China to ASEAN countries. This project leads to the development of the new areas, new economic zones and communities along the railway lines. For example, China built HSR in order to boosting their economic development by connecting key major cities and freeing up capacity on overcrowded freight corridors (Senanu and Wenbin, 2012 cited in Songmuang, 2016). This information fits in with the HSR in South Korea that opened in 2004, after one year of operation, "the market share of rail development increased from 38% to 61%" (Ma, 2011: 21 cited in Songmuang, 2016). Today, South Korea in building the second HSR line, which connect Seoul and Mokpo in order to expand their market share and increase the national economy. The construction start in 2006 and it supposed to be finished in 2017 (Ma, 2011, Cited in Songmuang, 2016). Hence, Thailand should upgrade its antiquated railway system to HSR in order to increased economic activity near border areas. Moreover, rail development project will transform Thailand into the leading manufacturing bases for foreign investors. The foreign investment will create a balance between capital inflow and outflow in the country (World Bank, 2013, cited in Songmuang, 2016). By having a modern transport and logistics, ASEAN will be able to distribute the goods and commodities throughout the region as well as promoting more economic flow between ASEAN nations. In doing so, Thailand will be the outlets of ASEAN in term of distribution hub, export processing zones for products be sold in China and ASEAN member countries and also import products from neighbor countries to be sold in Thailand (Songmuang, 2016).

• Land use Benefits and Property Development Rail stations can also boost land value, as the areas around stations suddenly become more accessible to a larger number of people and therefore, more attractive to development and real estate interests (Meng, 2015). For example, Japan Rail East, the largest of the seven companies operating Japan's HSR network, requires no public subsidy because it owns the land around its stations and is able to capture the added value of that land and reinvest it into its system. Nearly one-third of Japan Rail East's revenue comes from commercial developments along the railway route (Meng, 2015, cited in Songmuang, 2016). Hence, Thai rail development project can help improve and stabilize the income gap between the poor border cities and Bangkok because companies can expand their trade and investment along the railways line (Songmuang, 2016). However, as there are benefits to be gained, there also will be tremendous costs and other negatives impacts that follow the rail development project (See Table 1). Costs and Negative Impacts from Thai Rail Development Project

• Infrastructure Costs Thailand planned to upgrade its old railways to HSR. So, they have some infrastructure costs. The infrastructure costs include investments in construction and maintenance of the tracks including the sidings along the line, terminals and stations at the ends of the line and along the line, respectively, energy supplying and line signaling systems, train controlling and traffic management systems and equipment, etc. Construction costs are incurred prior to starting commercial operations (except in the case of line extensions or upgrades of the existing network). Infrastructure maintenance and

operating costs include the costs of labor, energy and other materials consumed by the maintenance and operation of the tracks, terminals, stations, energy supplying and signaling systems, as well as traffic management and safety systems (Rus, 2012 cited in Songmuang, 2016). Some of these costs are fixed, and depend on operations routinely performed in accordance with technical and safety standards. In other cases, as in the maintenance of tracks, the cost is affected by the traffic intensity. Similarly, the cost of maintaining electric traction installations depends on the number of trains running during operation (Rus, 2012). Moreover, railway infrastructure also requires the construction of stations. Although sometimes it is considered that the costs of building rail stations, which are usually singular buildings with expensive architectonic design, are above the minimum required for technical operation, these costs are part of the system and the associated services provided affect the generalized cost of travel (such as quality of service in the stations reduces the disutility of waiting time) (Rus, 2012). There are other costs involved in a HSR project. For example, planning costs are associated with the technical and economic feasibility studies carried out before construction (Rus, 2012). There are other costs difficult to allocate to infrastructure or operation, as general administration, marketing, internal training, etc (Songmuang, 2016)

• Environmental Costs Rail investments can considerably affect environmental. For example, "the British high speed link, which connected to the Channel Tunnel, is the most expensive high speed line ever built because of the lengthy tunneling at the approach to London terminal to avoid environmental objections" (Nash, 2010: 4, cited in Songmuang, 2016). In addition, rail development can affect air quality either by reducing or increasing the level of air pollutant emission. The economic cost of air pollution consists of the following elements such as health effects, impacts on ecosystems and biodiversity and so on (Nash, 2010, cited in Songmuang, 2016). However, as there are positive impacts, there also will be negative impacts that follow the rail development project.

• Corruption on Rail Development Project According to the Corruption Perception Index in 2015, Thailand ranked 76 out of 168 countries around the world (Corruption Perception Index, 2015 cited in Songmuang, 2016). In the country, corruption through political power, based on the Newspaper "Bangkok Post" (2014) cited in Songmuang, (2016), building a new railway routes requires a large investment of capital and takes a long period of time to finish the project. The cost of construction, maintenance and overhead expenses are very high when compared to other modes of transport. In this particular situation, Thai railway projects are tied to one company to do all routes of rail development plans. The government will set up bidding for the project and several companies will offer funds to the government in order to be selected as the constructor of the project, in doing so some real estate businessmen with close connection to the government also have bought the lands that the railway lines will pass in order to gain profit from the expropriation". Moreover, some Member of Parliaments have connection with local landlords who are also local politicians may use this project to plan their business in the cities that railways pass through. For example, the Ministry of Railways in China was found guilty of corruption which led to the removal

of longtime minister Lieu Zhijun and caused the construction of HSR in Lao PDR to postponed (BBC News, 2013, cited in Songmuang, 2016).

• Waste of Public Money Based on the Newspaper "The New York Times" 2012, cited in Songmuang (2016), they explain that The U.S. plan to build a very expensive railroad line between Los Angeles and San Francisco. But American people said HSR should not build it because the project does not touch the huge mass of traffic in the area between Los Angeles and San Francisco and it will become an expensive problem itself and waste of public money. This information correspond to the information, based on the ERIA study team 2010, cited in Songmuang (2016), the bilateral MOU for Thai rail development project signed by China and Thailand was not a good sign due to Lao PDR was required to be brought into the discussions right at the beginning. As the land-link country, if Laos does not go along with the project, the plan of double track of standard-gauge electrified rail line from Bangkok will simply end at Nong Khai, which will be a tremendous waste of public money (Songmuang, 2016). Therefore, an early trilateral project and mechanisms set up needs to be initiated in order to work out all the fine details. Only then can a truly effective north-south rail link from Kunming to Bangkok and Thailand's eastern seaboard, and possibly on to Singapore, will finally be implemented successfully (ERIA Study Team, 2010).

Conclusion

In this paper the researchers find tremendous benefits and positive impacts from HSR investment are transfer of knowledge and rail technologies, time saving and comfortable, becoming a regional hub, develop a new Skill Road from China to ASEAN countries, creates and sustains employment, offers mobility for people in small urban and rural areas, increase real estate values and wider economic activities. It encourages Thailand to become a competiveness country. However, as there are positive impacts, there also will be costs and negative impacts that follow the rail development project. Upgrade its old railways to HSR, Thailand have to pay for some infrastructure costs. The infrastructure costs include investments in construction and maintenance of the tracks including the sidings along the line, terminals and stations at the ends of the line and along the line, respectively, energy supplying and line signaling systems, train controlling and traffic management systems and equipment, etc. Construction costs are incurred prior to starting commercial operations (except in the case of line extensions or upgrades of the existing network). For the negative impacts, Thai rail development effects environmental. They will cause problem to air pollution and natural resources. The second negative impact is corruption on rail development plans. It means some real estate businessmen with close connection to the government also have bought the lands that railway lines will pass in order to gain profit from the expropriation and finally waste of public money. As the land link country, if Laos does not go along with the project the plans of HSR line from Bangkok will simply end at Nong Khai, which will be waste of public money because Thailand cannot link to China. These are some costs and benefits and impact resulting from rail development plans in Thailand under the MPAC.

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