

EAST-WEST ECONOMIC CORRIDOR AND SOUTHERN ECONOMIC CORRIDOR OF GREATER MEKONG SUBREGION ¹

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Abstract

The East-West Economic Corridor (EWEC) and the Southern Economic Corridor (SEC) of the Greater Mekong Subregion (GMS) are development projects with the potentials to significantly affect the region in a variety of ways. This article attempts to tentatively answer which stakeholder countries will gain and which will lose from the repercussions of the corridors, by first reviewing on the modern history of China, Japan, and Thailand, and the development history of the corridors, then identifying the stakeholders, identifying the social, economic, and environmental impacts, and evaluating all the associated benefits and costs.

Key Words: East – West Economic Corridor, Southern, Economic Corridor, Greater Mekong Subregion

1. Introduction

East-West Economic Corridor (EWEC) and Southern Economic Corridor (SEC) are part of Greater Mekong Subregion (GMS) Cooperation, a project initiated in 1992 with the support of the Asian Development Bank (ADB). ADB has aimed to enhance economic relations among the GMS countries, which include Cambodia, Laos, Myanmar, Thailand, Vietnam¹, and the Yunnan province and Guangxi Zhuang Autonomous Region of the Republic of China. There are 3 economic corridors pertaining to GMS Cooperation, namely North-South Economic Corridor (NSEC), East-West Economic Corridor (EWEC), and Southern Economic Corridor (SEC). This study focuses on the EWEC and SEC.

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The EWEC is a land route linking the Andaman Sea of the Indian Ocean with the South China Sea of the Pacific Ocean, starting from the Myanmar port city of Mawlamyine, passing through the Myawaddy-Mae Sod border crossing in Tak, Thai provinces in Central Thailand and Northeastern Thailand, the Mukdahan-Savannakhet border crossing in Mukdahan, Lao provinces, the Dansavan-Lao Bao border crossing, and the Vietnamese provinces along the R9, including the Vietnamese cities of Dong Ha and Hue, and ending at the port city of Da Nang.

Diagram 2 Southern Economic Corridor



Source: Asian Development Bank (2010)

The SEC links Thailand, Lao, Cambodia, and Vietnam by 4 subcorridors as follows:

1) Central Subcorridor, starting from Bangkok (or Dawei if its deep sea port is operational), passing through Aranyaprathet-Poipet border crossing, Phnom Penh, Ba vet-Moc Bai border crossing, Ho Chi Minh City, and ending at the port city of Vang Tau

2) Northern Subcorridor, starting as the Central subcorridor but after Poipet running eastward passing Stungtreng in Cambodia, Pleiku in Vietnam, and ending at the port city of Quy Nhon in Central Vietnam.

3) Southern Coastal Subcorridor, starting from Bangkok, running along the coast of the Gulf of Thailand, passing Klongyai-Chamyeam border crossing, Prek Chak (Lork) - Ha Tien border crossing, Ca Mau city, and ending at the port city of Nam Can; and

4) Intercorridor Link, a North-South route linking EWEC and the three SEC subcorridors from Kaysone Phomvihane in Lao to Sre Ambel in Cambodia.

To give a tentative answer to the question of who gains and who loses from EWEC and SEC, a review is conducted on the modern history of China, Japan, and Thailand and the development history of EWEC and SEC (Section 2), the nature of the stakeholders (Section 3), the social, economic, and environmental impacts (Section 4), and a discussion on the gainers and losers from EWEC and SEC (Section 5). The article is ended by a concluding session.

2. History of EWEC and SEC

Emergence of EWEC and SEC is part of the continual modernization of Southeast Asia, propelled by both the domestic elites and outside powers, allegedly the ultimate beneficiaries of the modernization. This development process can be traced back to the Western Colonial Era.

The Western Colonialism

The Europeans first came to Southeast Asia in the 16th century with the incentives to trade with the natives for silk, spices, and other exotic goods and to spread Christianity by the missionaries. Starting by Portugal's conquest of the Sultanate of Malacca in 1511, the Netherlands followed and took over Malacca from the Portuguese in 1641 while Spain began to colonize the Philippines from the 1560s. The Dutch East India Company established the city of Batavia (now Jakarta) as a base for trading and expansion into the other parts of Java and the surrounding territory. As a late comer, the British based their operations at Penang and gradually expanded their Southeast Asian empire, by acting through the British East India Company. In 1819, Stamford Raffles established Singapore as a key trading post for Britain. In 1824, an Anglo-Dutch treaty demarcated the two countries' respective interests in Southeast Asia.

Up to then, the European countries had had limited influences over Southeast Asia, even for the subjugated lands. However, New Imperialism emerged in the mid nineteenth century, where the colonial powers managed to conquer nearly all Southeast Asian territories by forces. The Dutch

and British governments dissolved their respective East India Companies to take over the direct administrations of the colonies. By 1913, the British ruled Malaya, the northern Borneo territories, and Burma, the French controlled Indochina, the Dutch occupied the Netherlands East Indies, and the Portuguese managed to hold on to Portuguese Timor. As for Spain, the Philippine revolutionaries declared independence in 1898 but Spain ceded control over the country to the United States as a result of the Spanish-American War.

Colonial rule had a profound effect on Southeast Asia. The colonial powers attempted to implement institutional, political, or cultural changes to the region to facilitate their access and utilization of the natural resources and the regional markets. The colonial powers developed the agriculture, mining, and export sectors of the colonies. Increased labor demand resulted in mass immigration, especially from British India and China, which brought about massive demographic change. The introduction of Christianity also affected societal changes, notably for the Philippines. The institutions for a modern nation state, namely a state bureaucracy, courts of law, printed media, and modern education system, brought into existence a new class of intellectuals. This 'intelligentsia' led their countrymen in their aspiration for independence and self-governance. Since the first half of the 20th century, rising nationalism in the colonies threatened to upset the colonial powers' controls.

The Three Independents

Greatly affected by the power politics of the Western powers during the colonial period, Thailand remained independent from foreign rule, joining China and Japan as the only three Asian countries not colonized by Western powers. The contemporaneous history of each of the three countries deserves to be briefly mentioned here.

'The Sick Man of Asia' was a name given to China by those observing the country during the decline of the long-reigning Qing Dynasty (1644-1912) and the subsequent turmoil. Despite the country's poor condition, China was too vast and culturally advanced to be ruled by a single or few colonial powers. After the promulgation of the republic (1911) by revolutionaries led by Dr. Sun Yat-sen, and the subsequent Warlord Period (1916-1928), the Northern Expedition (1926-1927), and the Long March (1934-1935), only the nationalist-capitalist Kuo Min Tang and the Communist Party remained as the contenders for dominance over the country. Both made a truce with each other when the Japanese Imperial Army invaded mainland China in July 1937.

Having been under the isolationist-conservative regime of Tokugawa Shogunate for three centuries, Japan was finally forced by the American fleet under Matthew C. Perry to abandon isolationism in 1853 (Bakumatsu). Afterwards, the subsequent social and political reorganization, marked by Meiji Restoration, and the economic modernization during the Meiji period strengthened Japan against outside aggression. In the early 20th century, Japan aspired to be a regional and colonial power herself. The influence and size of Zaibutsu, the industrial and financial business conglomerates, allowed government control over significant parts of the Japanese economy. The resource-rich China had been the prime target for the industrialized Japanese Empire. After Mukden Incident (18 September 1931) and the subsequent conquest of Manchuria, the Japanese placed Puyi, the last Qing Emperor, as a constitutional monarch of her satellite state of Manchukuo. The Marco Polo Bridge Incident (7 July 1937), allegedly incited by the Japanese, brought about invasion of mainland China.

The Kingdom of Thailand adapted to cope with outside threats since the early Ratanakosin Era (beginning with the establishment of Bangkok in 1782), starting with relatively liberal trade policies during the reign of Rama III (1824-1851), followed by reformation of the state religion Buddhism and adoption of the scientific method and others of the Western culture during Rama IV (1851-1868). The kingdom was then greatly modernized by the Western-educated Rama V, whose reign (1868-1910) saw slavery and serfdom being abolished while a strong central bureaucracy being established, in effect transforming the traditional feudal state into an absolute monarchy. Construction of railroads and other infrastructure paved the way for economic transformations, while the Western-styled education exposed the younger generation to new political ideologies and economic dogmas. World War I, deficit spending during the reign of Rama VI (1910-1925), and the Great Depression adversely affected the finance of the kingdom under Rama VII (1925-1935). The 1932 Revolution by Gana Ratsadon (People's Party) established a constitutional monarchy and ushered in the era of elitists struggling for political power with occasionally observable outside interferences.

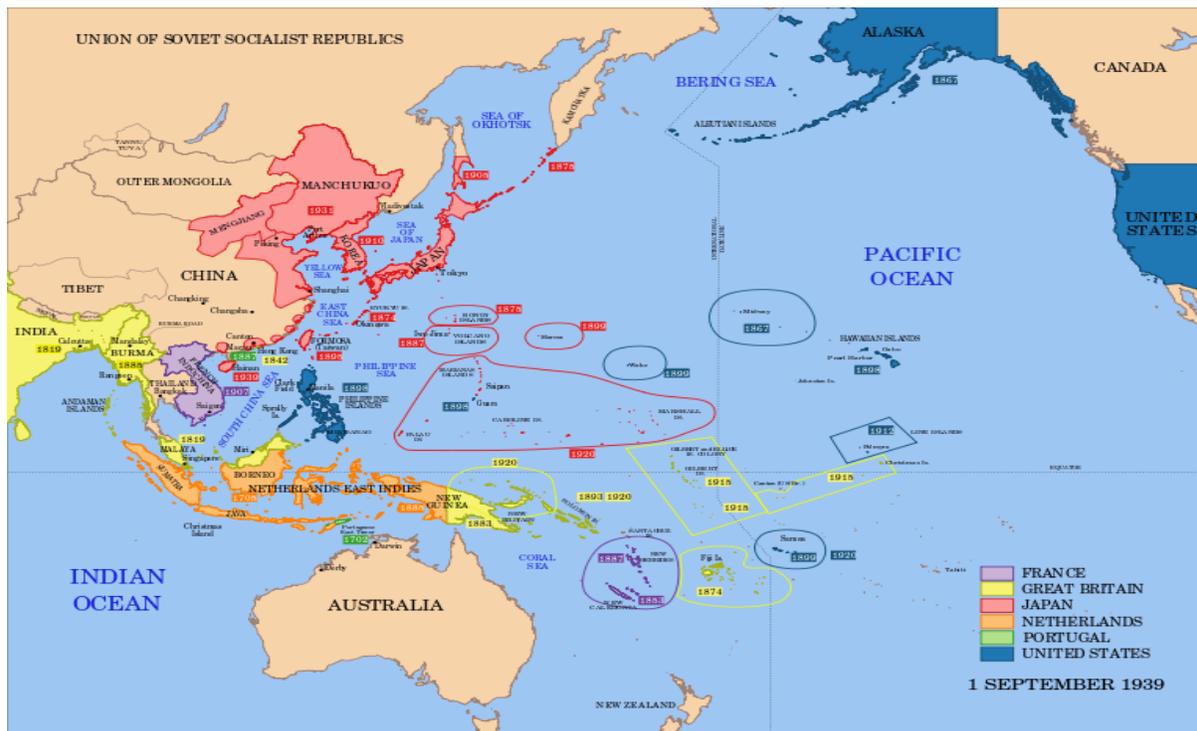
World War II and the Cold War

In the late 1930's, international conflicts led to renewed confrontations in Europe and East Asia. During this period, the Japanese Empire expanded her dominance or sphere of influence toward the resource-rich Southeast Asia. To sustain her Empire in East Asia, mostly over areas

conquered from China and coerced from the French Indochina, Japan needed to secure the strategic resources of iron, steel, other metals, rubber, and petroleum, all of which were placed in a coordinated embargo by the US, the UK, the Dutch East Indies, and Australia to deter Japan's further aggressions. In 1940, the Japanese government declared the 'Greater East Asia Co-Prosperity Sphere,' a self-sufficient autarky bloc of Asian nations freed from Western powers and led by the Japanese.² In reality, the peoples of the countries under the 'protection' of the Japanese Empire suffered oppressive treatments.

With only two-year of oil reserve³, Imperial Japan simultaneously attempted diplomacy to lift the embargo and planned for a full-scale, region-wide assault on the Allied. After diplomacy had repetitively failed, Japan attacked Pearl Harbour on December 7, 1941 and invaded Thailand and Malaya on the following day, opening the Pacific Theatre of World War II.

Diagram 3 Colonial Powers of the 1939 Pacific



Source: http://en.wikipedia.org/wiki/Pacific_war

On December 12, Thailand under Prime Minister Plaek Phibunsongkhram signed a military alliance with Japan, granting Japan rights of passage and military facilities for her offensive operations against British Burma. On January 25, 1942, Thailand declared war on Britain and the United States. Collaborating with Japan in the open, key figures in the Thai government secretly established Seri Thai (Free Thai Movement) as an underground resistance movement against the Imperial Japan. Headed by Seni Pramoj, Thai Ambassador to Washington, and joined by Pridi Phanomyong, Regent of the young king Rama VIII, who was studying in Switzerland, and Khuang Aphaiwongse, the new Prime Minister and the would-be founder of Democrat Party, Seri Thai provided military intelligence for the Allies in the region.

The awakened US finally defeated the Japanese Imperial Navy and zeroed in the Japanese archipelago. On 2 September 1945, Japan formally surrendered to the US after the two atomic bombs were dropped on Hiroshima and Nagasaki in late August. The victorious US conducted numerous institutional reforms in the occupied country, namely 1) disarmament of the Imperial forces, 2) democratization through constitutional reforms, 3) economic liberalization through dissolution of Zaibatsu and massive land reform, 4) legalization of trade unions, 5) standardization of working conditions, and 6) education reform. In the 'Reverse Course' of 1948, economic deconcentration was abandoned, resulting in emergence of Keiretsu, a group of companies whose members own small portions of the shares in each other's companies, all of which centered on a core bank⁴. Starting with the 'Golden Sixties' (1955-1961), Japan experienced a post-war economic miracle (1955-1991), in which Japan turned into a World-class economic power and which was ended by Japanese asset price bubble and replaced by the Lost Decade (1991-2000).

The Chinese Civil War resumed after the capitulation of Japanese forces in mainland China. The Chinese economy had been largely agrarian until the late 1950s when the Maoist Great Leap Forward, sought to transform the People's Republic of China (PRC) into a modern communist society through the process of industrialization but ended in catastrophe as a widespread famine was resulted with millions of deaths. After the turbulent Maoist Cultural Revolution in the late 1960s, the leadership of Premier Zhou Enlai and, after the overthrowing of the Gang of Four, of Deng Xiaoping put in motion a series of reforms which incrementally increased the role of market mechanisms and reduced government planning and direct control. The reforms started

by the "period of readjustment," where exports were expanded rapidly, key deficiencies in the sectors of transportation, communications, coal, iron, steel, building materials, and electric power were overcome, and a balance between light and heavy industry was made by increasing the growth rate of light industry and reducing investment in heavy industry. In 1984, the fourteen largest coastal cities were designated as economic development zones, including Dalian, Tianjin, Shanghai, and Guangzhou etc. As major commercial and industrial centers, these zones were to create productive exchanges between foreign firms with advanced technology and major Chinese economic networks.

During the Cold War, the stand-off between the Western democracies, led by the United States, and the Communist Blocs, led by the USSR, manifested as proxy wars in various parts of the World, including Vietnam, Laos, and Cambodia. Thailand was inevitably drawn into the conflicts. The Southeast Asia Collective Defense Treaty, or Manila Pact, was signed in September 1954 in Manila paving the way for Southeast Asia Treaty Organization (SEATO), whose formal institution was established on 19 February 1955. SEATO is generally considered a failure because internal conflicts and dispute hindered general use of the SEATO military and was dissolved on 30 June 1977 after many members lost interest and withdrew.

ASEAN and GMS

In 1961, the Association of Southeast Asia (ASA) was formed as an alliance consisting of the Philippines, Malaysia and Thailand. ASA was succeeded by Association of Southeast Asian Nations (ASEAN), which was composed of Indonesia, Malaysia, the Philippines, Singapore, and Thailand and established on 8 August 1967, when their foreign ministers signed the Bangkok Declaration. ASEAN represented the aspiration to prosper, the common fear of communism, and the mistrust of the superpowers.

In 1977, Japanese Prime Minister Takeo Fukuda, while on a tour of the ASEAN member states, made a speech in Manila articulating Japan's foreign policy which was later known as the Fukuda Doctrine. Prime Minister Fukuda pledged that (1) Japan would never become a military power, (2) Japan would build up a relationship of mutual confidence and trust with Southeast Asian countries in various fields, and (3) Japan would cooperate positively with ASEAN and the member

countries as an equal partner. The Doctrine has been serving as the foundation of Japan's diplomacy toward the rest of Asia.

ASEAN expanded afterwards. On 8 January 1984, Brunei Darussalam became the 6th member, after gaining independence from the British on 1 January 1984. In 1990, Malaysia proposed the creation of an East Asia Economic Caucus comprising the existing members of ASEAN as well as China, Japan, and South Korea, with the intention to counterbalance the growing influence of the US in the Asia-Pacific Economic Cooperation (APEC) and in the Asian region as a whole.⁵ This proposal failed due to heavy opposition from the United States and Japan. On 28 July 1995, Vietnam became the 7th member, followed by Laos and Myanmar (Burma) on 23 July 1997. After her internal conflicts were resolved and her government stabilized, Cambodia joined on 30 April 1999. East Timor submitted a letter of application to be the 11th member of ASEAN at the summit in Jakarta in March 2011.

After the 1976 Bali Summit, ASEAN attempted to implement a program of economic cooperation without much success. In 1992, the Common Effective Preferential Tariff (CEPT) scheme was signed as a framework for the ASEAN Free Trade Area. To create a network of bilateral currency swap agreements for preventing another regional financial crisis after the one in 1997, the Chiang Mai Initiative was announced on 6 May 2000. The Initiative sought a better integration between the economies of ASEAN as well as the ASEAN Plus Three countries (China, Japan, and South Korea)⁶, analogous to what Malaysian proposed in 1990.

In 1992, the Greater Mekong Subregion (GMS) Cooperation was initiated under the support of Asian Development Bank (ADB). The GMS Cooperation attempts to promote implementation of high priority subregional projects in transport, energy, telecommunication, environment, human resource development, tourism, commerce, private sector investment, and agriculture⁷. The GMS countries encompass the total area of 2.6 million square kilometers and the total population of 326 millions. Rich in natural resources, the countries are important producers-exporters of agricultural products and a 'hot spot' in biodiversity⁸. They are also a strategic link between South Asia, East Asia, Southeast Asia, and Oceania. Therefore, development projects would attract numerous interests and cause significant impacts on the region in a variety of ways. Table 1 lists the GMS flagship development projects. The ADB will continue to support GMS projects until at least 2025.⁹

Table 1 Cooperation Frameworks and Flagship Programs of GMS

Cooperation Framework	Flagship Project
1. Transportation	North-South Economic Corridor (NSEC) East-West Economic Corridor (EWEC) Southern Economic Corridor (SEC)
2. Telecommunication	Telecommunications Backbone
3. Energy	Regional Power Interconnection and Trading Arrangements
4. Trade	Facilitation of Cross-border Trade and Investment
5. Investment	Enhancement of Private Sector Participation and Competitiveness
6. Human Resource Development	Development of Human Resources and Skill Competencies
7. Environment	Strategic Environment Framework
8. Agriculture	Flood Control and Water Resource Management
9. Tourism	GMS Tourism Development

Sources: The GMS Economic Cooperation Program Strategic Framework 2012-2022

3. Stakeholders of EWEC and SEC

There are multiple criteria to categorize actors relevant to the EWEC and SEC, for example nationality, location, or type of activities. This study focuses on nationality and location by identifying countries along the EWEC and SEC and major ADB countries.

3.1 GMS Countries

The GMS countries, Cambodia, Laos, Myanmar, Thailand, and Vietnam, and the Chinese province of Yunnan and Guangxi Zhuang Autonomous Region (GZAR), are the most to be greatly impacted by the economic corridors. All subcorridors of the SEC pass Cambodia, with the southern subcorridor connecting many Cambodian ports, and hence potentially affecting Cambodia significantly. Natural resources of the landlocked Laos will be easier accessed by the EWEC and the Intercorridor Link of SEC, as well as the newly-open Myanmar, thus raising concerns. Although Thailand already has long coastal areas on the India and the Pacific Oceans, the Thai industrial

and business sectors as a whole may benefit from a greater variety of transports with reduced costs by EWEC and SEC. Vietnam has multiple ports on the coast of the Pacific Ocean, thus Vietnam can benefit substantially when the economic corridors are fully operational.

3.2 Major ADB countries: Japan, China, and the US

According to the 2011 Asian Development Bank Annual Report (Table 2), as of December 2011, Japan and the US each has the highest subscribed capital to the Asian Development Bank (15.65%) and consequently wields the highest voting power (12.82%). The two leaders are immediately followed by China, holding 6.46% shares of the total capital and 5.47% of voting power, and India, holding 6.35% shares and 5.38% of voting power.

Therefore, it is conceivable that each of Japan, the US, China, and India has an incentive seek to influence the ADB in decision making. As both development projects are initiated and sponsored by ADB, EWEC and SEC can be suspected of their ultimate beneficiaries.

Table 2 ADB Members, Capital Stocks and Voting Powers (as of 31 December 2011)

	Year of Membership	Subscribed Capital (% of total)	Voting Power (% of total)
REGIONAL			
Afghanistan	1966	0.03	0.33
Armenia	2005	0.3	0.54
Australia	1966	5.8	4.94
Azerbaijan	1999	0.45	0.66
Bangladesh	1973	1.02	1.12
Bhutan	1982	0.01	0.3
Brunei Darussalam	2006	0.35	0.58
Cambodia	1966	0.05	0.34
China, People's Republic of	1986	6.46	5.47
Cook Islands	1976	0.003	0.3
Fiji	1970	0.07	0.35
Georgia	2007	0.34	0.57
Hong Kong, China	1969	0.55	0.74
India	1966	6.35	5.38

	Year of Membership	Subscribed Capital (% of total)	Voting Power (% of total)
REGIONAL (Continued)			
Indonesia	1966	5.17	4.44
Japan	1966	15.65	12.82
Kazakhstan	1994	0.81	0.95
Kiribati	1974	0.004	0.3
Korea, Republic of	1966	5.05	4.34
Kyrgyz Republic	1994	0.3	0.54
Lao Peoples's Democratic Republic	1966	0.01	0.31
Malaysia	1966	2.73	2.48
Maldives	1978	0.004	0.3
Marshall Islands	1990	0.003	0.3
Micronesia, Federated States of	1990	0.004	0.3
Mongolia	1991	0.02	0.31
Myanmar	1973	0.55	0.74
Nauru	1991	0.004	0.3
Nepal	1966	0.15	0.42
New Zealand	1966	1.54	1.53
Pakistan	1966	2.19	2.05
Palau	2003	0.003	0.3
Papua New Guinea	1971	0.09	0.37
Philippines	1966	2.39	2.21
Samoa	1966	0.003	0.3
Singapore	1966	0.34	0.57
Solomon Islands	1973	0.01	0.3
Sri Lanka	1966	0.58	0.76
Taipei, China	1966	1.09	1.17
Tajikistan	1998	0.29	0.53
Thailand	1966	1.37	1.39
Timor-Leste	2002	0.01	0.31
Tonga	1972	0.004	0.3
Turkmenistan	2000	0.25	0.5
Tuvalu	1993	0.001	0.3
Uzbekistan	1995	0.68	0.84
Vanuatu	1981	0.01	0.3
Viet Nam	1966	0.34	0.57
Subtotal		63.43	65.07

	Year of Membership	Subscribed Capital (% of total)	Voting Power (% of total)
NONREGIONAL			
Austria	1966	0.34	0.57
Belgium	1966	0.34	0.57
Canada	1966	5.25	4.5
Denmark	1966	0.34	0.57
Finland	1966	0.34	0.57
France	1970	2.33	2.17
Germany	1966	4.34	3.77
Ireland	2006	0.34	0.57
Italy	1966	1.81	1.75
Luxembourg	2003	0.34	0.57
The Netherlands	1966	1.03	1.12
Norway	1966	0.34	0.57
Portugal	2002	0.11	0.39
Spain	1986	0.34	0.57
Sweden	1966	0.34	0.57
Switzerland	1967	0.59	0.77
Turkey	1991	0.34	0.57
United Kingdom	1966	2.05	1.94
United States	1966	15.65	12.82
Subtotal		36.57	34.93
TOTAL		100	100

4. Impacts of EWEC and SEC

Impacts from the EWEC and SEC can be beneficial, neutral, or harmful to the stakeholders. For a nation, the benefit of an activity can be defined as a resultant increase in the well-being¹⁰ of one or more of her individual citizens, while the cost of an activity can be defined as the benefit of the next best alternative forgone from choosing the activity. Logically, a harm to or a decrease in the well-being is a cost, but not vice versa.

4.1 Activity Types

To evaluate all benefits and costs of an economic corridor project, all activities directly associated to it must be identified. Such activities can be categorized as follows:

1. Creation of the corridor, which is both physical and institutional and falls in the following steps:
 - 1.1 Initiation
 - 1.2 Planning and design
 - 1.3 Execution and construction
 - 1.4 Monitoring and controlling systems
 - 1.5 Completion
2. Maintenance of the corridor, both physically and institutionally
3. Commutation and transportation through all or part of the corridor, and
4. Other activities in the vicinity of the corridor.

4.2 Impact Types

Before the question of who gain or lose from the economic corridors can be answered, all the benefits and costs of the corridor projects must be identified. There are economic, social, and environmental aspects of impacts from EWEC and SEC as described in the subsequent subsections.

4.2.1 Economic Aspect

An economic benefit or cost is one shown in a transaction. Therefore, an economic benefit may be the rent from capital lending, the wage from job fulfilling, the profit from sale revenue minus production, transportation, and transaction costs, or the consumer surplus¹¹ from consuming a goods or service etc. On the other hand, an economic cost is a forgone economic benefit from any activity.

Following the categorization of activities related to economic corridors, the economic benefits are:

1. **Rents, wages, or profits from activities pertaining to the creation of the corridor**, especially the construction, leading to the economic benefits of the contractors and subcontractors.
2. **Rents, wages, or profits from activities pertaining to the maintenance of the corridor**. Physically and institutionally maintaining the corridors requires
3. **Rents, wages, profits, or consumer surplus from transportation, or increases in consumer surplus from transportation cost reduction**. As the project, once complete and functional, will reduce the costs of transportation, the number of commutation and transportation will arise.

4. Rents, wages, profits, or consumer surplus from increased activities on or nearby the corridor. The reduced transportation costs by the newly-built infrastructure will induce more movements of workforce, producers' products, and consumers' products throughout the region.

Consequently, the region will face an overall increase in economic activities, which translates into an increased welfare of the regional population.

By the same token, the economic costs are rents, wages, profits, or consumer surplus forgone from activities pertaining to the creation of the corridor, the maintenance of the corridor, the increased commutations and transportations, or the other increased activities along the corridor.

One important kind of economic costs is spatial, namely the forgone rents, wages, profits, or consumer surplus from activities previously existing in some area outside the vicinity of the corridor but diverted away by the corridor.

Taken altogether, all the increases or intensifications of economic activities in areas along or close enough to the corridors and all the decreases in other areas farther away may lead to a net economic benefit. However, the resultant welfare reduction in the latter areas makes the corridor development fail in the criterion of Pareto improvement.

4.2.2 Social Aspect

A social benefit or cost is a sociological change which is not shown in any transaction but affects the well-being. A sociological variable can be (1) a human or social characteristic of an individual or a group of individuals, e.g. age, gender, race, education, health etc., (2) a measure of their social organization or social environment, e.g. social mobility, number of community gatherings, level of social cohesion, level of safety in life and properties etc.

Following the activity categorization, the social benefits or costs are:

1. Positive or negative changes in human or social characteristics or in the social organization or social environment by the creation of the corridor, most importantly from construction. The displacement of people for and by the construction will affect the way of life of the local people.

2. Positive or negative changes in human or social characteristics or in the social organization or social environment by the maintenance of the corridor, for example

3. Positive or negative changes in human or social characteristics or in the social organization or social environment by induced transportation. Reduction of transportation costs can increase the number or the intensity of socially undesirable or criminal activities.

4. Positive or negative changes in human or social characteristics or in the social organization or social environment by from increased activities on or nearby the corridor. Mekong Institute (2006) states that social impacts from economic corridors comprise relocation of local communities, epidemics, slavery on women and children and other illegal trades, rising land prices, and increased accidents.

As a secondary set of effects, economic benefits or costs from the economic corridors can cause income differences across a society, called economic disparity or inequality¹², which can in turn cause social impacts. Even though a development project will increase the overall income from increased economic activities, economic disparity is usually aggravated, either between different nations of the same region, different income levels, or between different ethnic groups (ethnic disparity)¹³. Inequality affects the society in the following ways:

1. Changes in human or social characteristics, for example population health etc. Researches in epidemiology demonstrated that income or social status difference of population is inversely proportional to the population health, which include those of the higher and lower incomes (Wilkinson & Pickett, 2009).

2. Changes in the social organization or social environment, e.g. social cohesion and crime etc. A social economy with higher inequality will have lower trusts (von Braun & Eugenio Diaz-Bonilla, 2007), leading to fewer community involvements (Putnam et al, 1993), and higher rates of crimes, such as murder (Daly et al, 2001). Other examples are competitions, innovations, and conspicuous consumption. Recent researches in sociology and economics show that individuals have more incentives to compete, innovate, or conspicuously consume to demonstrate their higher statuses in a society with more inequality.

On the other hand, social benefits or costs can cause economic impacts, for example higher education leads to higher income, different occupations are rewarded by different incomes, a change in income lead to a change in the consumption pattern subsequently affecting the health and safety of the individual etc.

4.2.3 Environmental Aspect

An environmental benefit or cost is one not shown in any transaction but through a change in environmental quality, which ultimately affects the well-being. A crucial characteristic of environmental impacts is that their majority is negative, in words most development projects only create environmental costs. Related issues are natural resources, biodiversity, environmental quality, and disaster occurrence.

Natural Resources

Without adequate institutional protection, a source of natural resources will be an open access, where any party can freely exploit the resources. The result will be overutilization or overharvesting of the resources, where the natural growth of the resources falls short of the depletion to the extent that the intertemporal utility of the society is not maximal. The reduced transportation cost from the EWEC and SEC can potentially translate into reduced cost of freely accessing the natural resources, resulting in more severe overutilization.

Biodiversity

Biodiversity is the degree of variation of life forms within a given species or an ecosystem, and is a measure of the health of such system. Encroachments on the natural habitats of the various species by either the physical infrastructure of the corridors or the relocated economic activities will disturb activities of the wildlife or even threaten the survival of some, culminating in a reduced number of species in the area.

Environmental Quality

Environmental quality is a measure of a set of services, e.g. air and water purification, water storage, toxic neutralization etc., freely provided to humans by the environment. Environmental quality can be affected by outside interferences. Development projects which fail to adequately consider possible environmental impacts usually reduce the environmental quality in the surrounding areas.

Disaster Occurrence

Changes in the geographical landscape and climate might increase the frequency or severity of natural disasters, e.g. typhoons, floods, storm surges, droughts, wildfires etc., including climate change from accumulated atmospheric greenhouse gases (GHG) from human activities, such as carbon dioxide (CO₂) from combustion and methane (CH₄) from agriculture etc. The more severe and more pandemic nature of natural disasters incurred by Thailand and other GMS countries in recent years are shown by the floods of 2006 and 2011 in Central Thailand, the Nargis Cyclone of 2008 in Myanmar, and harmful wildfires in Indonesia, Malaysia, and Northern Thailand etc.

5. Who Gains and Who Loses?

After the information of the benefits and costs of the economic corridors are spelled out, ex-ante and ex-post information of all relevant aspects of the project are then required to properly evaluate the net gain or loss of each stakeholder of the corridors. As the study limits the scope to state-level players, we shall follow the categorization of Section 3.

5.1 GMS Countries

The GMS countries of Cambodia, Laos, Myanmar, Thailand, and Vietnam are the bearers of the construction and maintenance costs of the EWEC and SEC. The construction costs may be funded by the ADB loans and there is even some possibility of loan waivers, it is conceivable that the GMS countries would be demanded compensations in some form or another. Besides paying the construction and maintenance costs as tax payers, the citizens of the countries may either enjoy most the benefits or suffer most of the other costs. The citizens are composed of the local people and the non-local commuters.

Most benefits to the local are economic, in terms of increased economic activities from higher wages, resource rents, producers' surplus, and consumers' surplus, which lead to the increased welfare. Most benefits to the non-local are decreased transportation costs, and if the road utilization is free of charge the benefits become positive externalities¹⁴ which can be free-ridden by the non-local.

Most costs to the local are (1) social, such as decreased social cohesion, increased crimes, community displacement etc., and (2) environmental, namely depleted natural resources, decreased biodiversity, polluted surroundings and degraded environmental quality, and higher susceptibility to disasters. Most costs to the non-local are (1) economic, by possible diversions of economic activities away from certain areas; (2) social and environmental, which are shared between the non-local and the local to a certain extent. If the costs are not compensated the agency supervising the realization or the utilization level of the corridors, the costs become negative externalities.

A crucial characteristic of an externality is the third party's inability to influence making of the decision on the magnitude or level of the activity. Consequently, for a positive (negative) benefit the chosen activity level is accompanied by the marginal benefit higher (lower) than the marginal cost and thus the activity level is lower (higher) than the socially optimal level, in words economic efficiency is not met. Therefore, social welfare, or the total benefits minus the total costs, is not maximal under a non-intervention or free-market policy of this setting.

To correct the inefficiency in the presence of an externality, a Pigouvian internalization or a Coasian market mechanism can be employed. In a Pigouvian regime, for an external benefit (cost), a benefit-internalizing (cost-internalizing) mechanism is required in which the outside benefit receivers (cost originators) pay the value (damage) of the external benefit (cost) to the benefit originators (cost receivers). In a Coasian regime, the government defines succinctly and protects vigorously every right, either the right to have a clean environment or the right to pollute, and let the stakeholders negotiate for the socially optimal activity level. The Pigouvian works well with an efficient administration, while the Coasian excels under the circumstance of low negotiation and transaction costs and/or a small number of actors. In the case of economic corridors, the Pigouvian is conceivably more practical, thus government interventions are warranted.

After summing up the economic, social, and environmental benefits and subtracting by the economic costs (including construction and maintenance costs) and the social costs, the resulting net benefit should provide the host countries with the answer about the appropriateness of operating the corridors and openness for future logistic development projects.

5.2 Major ADB countries: Japan, China, and the US

Japan, the US, China, and India are major subscribers to ADB and large internationally trading countries. Development of logistic capacity of a nearby region such as GMS should worth massive loans by the ADB. Even with loan waivers or defaults, the alternative functional routes will more than compensate for the initial investment.

As non-GMS countries will not suffer economic, social, and environmental costs as the GMS countries and will not pay any compensation thereof, those economically benefiting from reduced costs of inter-regional transportation in effect 'free-ride' by not paying for the costs faced by the host countries. The non-GMS countries become thus the winners of the bargain, while the GMS are the oblivious losers.

In addition, economic corridors will accelerate regional integration, which will ease negotiations and transactions on certain issues and replace bilateral agreements with multilateral ones. If the law enforcement or a cost internalization of a host country is inadequate, though the resultant diplomatic facilitation may lead to a better correction mechanism between the host countries and the outside powers, it will further amplify the impacts to the local in the host countries. As an outcome, the local in the GMS countries suffer while the beneficiaries fail to take that into account and adjust the activity level accordingly. The entire international community thus fails to achieve an international optimal outcome.

6. Conclusions

Economic corridors, such as East-West Economic Corridor or Southern Economic Corridor, have sizable impacts and far-reaching consequences for the local and non-local stakeholders. Economic development by the corridors may increase the national income and per capita national income, but the society will face depletion of natural resources, degradation of environmental quality, and diminished livelihood, all of which are short-term and long-term determinants of the welfare of the population. Therefore, a comprehensive, ex-ante analysis of all benefits and costs is crucial in the decision making, if belated for the already-completed construction then for the utilization level.

Even if the analysis shows that the economic, social, and environmental benefits exceed the economic and social costs for the host countries, cautions must be made if the countries have a weak law-enforcing system or an inadequate cost-internalizing scheme. Megaprojects in the past, such as Mabtapud and Lamphoon industrial estates, Laem Chabang deep sea port etc., are testament of how ever-increasing economic activities due to the development projects and a lenient law enforcement allow economic actors to externalize costs by, for example, emitting pollutants, dumping hazardous wastes, or conducting socially-undesirable activities, with consequential degradation of the surrounding communities and the environment.

It is therefore the duty of the citizenry of the GMS countries to make sure that the administration chooses a corridor project appropriately and supervises the relevant activities adequately, that the legislature makes adequate and up-to-date legislations, and that the regulations are enacted strictly and benefit/cost internalization mechanisms are motivated effectively so that an appropriate utilization level is attained.

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¹ Besides being part of GMS, Cambodia, Laos, Myanmar, Thailand, and Vietnam also belong to Association of Southeast Asian Nations (ASEAN), whose upcoming economic community (AEC), in 2015, can have profound effects on each country member.

² <http://wgordon.web.wesleyan.edu/papers/coprospr.htm>

³ <http://www.americanforeignrelations.com/E-N/Embargoes-and-Sanctions-World-war-ii.html#b>

⁴ This system helps insulate each company from stock market fluctuations and takeover attempts, thus enabling long-term planning in innovative projects. It is a key element of the automotive industry in Japan. Keiretsu maintained dominance over the Japanese economy until the present.

⁵ http://digital.library.unt.edu/ark:/67531/metacrs66/m1/1/high_res_d/93-633f_1993Jun30.txt

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¹⁰ While the well-being of an individual is defined on his/her preference, the well-being of a group of individuals is more complicated, defined on each individual's preference and an aggregation algorithm.

¹¹ The consumer surplus is the sum over all units of a goods or service of the difference between the willingness to pay minus the transaction price.

¹² Inequality differs from inequity, which arises from unequally providing welfare to agents of the same economic stratum (horizontal inequity) or equally providing welfare to agents of different economic strata (vertical inequity).

¹³ JICA (2007)

¹⁴ An economic activity, i.e. production, exchange, or consumption, can positively or negatively affect an outside, third party who does not participate in the activity, a phenomenon called 'externality.' A positive one is called positive externality or external benefit, while a negative one is called a negative externality or external cost.