

Chapter 3

Three Tiers of Development Strategies

Economic Research Institute for ASEAN and East Asia (ERIA)

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CHAPTER 3.

THREE TIERS OF DEVELOPMENT STRATEGIES

This chapter presents comprehensive development strategies, focusing on the development of logistics and economic infrastructure, through three tiers of development stages in terms of the degree of participation in production networks. Tier 1 focuses on countries/regions trying to step up from middle-income to fully developed countries/regions. Tier 2 includes countries/regions that intend to participate in production networks. Tier 3 refers to countries/regions in which the development of long-distance logistics infrastructure would provide new perspectives for industrial development. Three sub-regions, and the concept of industrial/economic corridors, are presented in order to link the three tiers with active interaction and feedback in the overall spatial structure of ASEAN and East Asia.

3-1. Policy scope in our development strategies

Although a number of development plans and cooperation programs have already been planned and implemented, a solid and logical connection between infrastructure development and industrialization does not seem to be fully established. We frequently observed that when we constructed a highway the expected amount of traffic was not generated. The issue is not simply about the choice of traffic forecasting methods, but concerns our perspectives on industrial promotion with road and supplementary economic infrastructure. For example, in the Greater Mekong Sub-region (GMS), North-South, East-West, and Southern Corridors have heterogeneous potential for industrialization and require a different set of complementary policies. The CADP tries to establish an effective link between infrastructure development and industrialization in the dynamic spatial structure.

Our conceptual framework based on the extended fragmentation theory and new economic geography will be applied in the construction of three-tier development strategies. In East Asia, production networks have developed and reached the stage in which both fragmentation and agglomeration occur. The CADP provides development

strategies to further utilize forces of fragmentation and agglomeration in order to achieve both the deepening of economic integration and the narrowing of development gaps.

The extended fragmentation theory suggests that a crucial bottleneck is often to be found in service link costs. A reduction in service-link costs is obtained by the improvement of both soft and hard infrastructure. Soft infrastructure refers to institutional connectivity that includes trade liberalization and facilitation as well as various measures for *de jure* economic integration.¹ Hard infrastructure denotes physical connectivity and consists of logistics infrastructure and logistics services.

New economic geography, on the other hand, suggests that a reduction in service-link costs, or in other words, trade costs, generates agglomeration forces and dispersion forces. Without properly controlling these two opposing forces, we cannot realize the deepening of economic integration and the narrowing of development gaps at the same time. Policies to improve location advantages for production costs *per se* must be considered in order to complement the improvement of institutional and physical connectivity.

In the following section, we will list major policies in development strategies. For Tier 1, we will use a full set of the 2x3 policy matrix and consider further development of two-dimensional fragmentation along the geographical distance axis and along the disintegration axis (see Table 1-1 again). For Tier 2, the priority will be placed on the upper part of the 2x3 policy matrix in order to specify bottlenecks for participating in production networks. It will also be important to take care of the balance between agglomeration forces and dispersion forces. For Tier 3, the upper part of the 2x3 matrix should also be emphasized though in a looser context.

Then we will consider feedback among the three tiers. Both the extended fragmentation theory and new economic geography emphasize the importance of interaction among countries/regions in different tiers. Three sub-regions in ASEAN, which include three tiers at the same time, are proposed, and the concept of economic corridors emerges in order to stimulate interaction.

¹ Although institutional connectivity is not extensively discussed in CADP, its importance should not be neglected. ASEAN and East Asia have made considerable efforts towards the deepening of economic integration, which have helped to pave the way for the development of production networks. ERIA is also conducting a number of projects on institutional connectivity; see, for example, Corbett and Umezaki (2009) and Urata and Okabe (2010).

3-2. Tier 1 From middle-income to fully developed countries/regions

3-2-1. Exploring positive agglomeration effects

Countries or regions in Tier 1 have already been successful in participating in production networks, and some of them have attracted a considerable number of production blocks. The next task is to take advantage of positive agglomeration effects in developing arm's length (inter-firm) vertical division of labor in industrial agglomerations.

Table 3-1 is a replication of Table 1-1, with typical policies being required for Tier 1 in red letters. In Tier 1, the full scale of two-dimensional fragmentation should be promoted, and thus all items in the 2x3 policy matrix are essential. However, some of them must have already been accomplished, particularly for fragmentation along the distance axis. Some important leftovers in the upper part of the table would be on service links and location advantages for attracting a critical mass of production blocks within certain geographical extensions of metropolitan areas and formulating industrial agglomerations. Typical bottlenecks would be soft and hard logistics connections across national borders, metropolitan transport systems, electricity supplies, labor laws and practices, amongst others. After dealing with such issues, the lower part of the table for fragmentation along the disintegration axis becomes crucial for developing arm's length transactions.

Positive agglomeration effects emerge as a kind of economies of scale within a certain geographical extension and turn out to be a part of location advantages. Agglomeration effects also yield a certain level of stability in industrial structure.

Table 3-1. The 2x3 policy matrix for Tier 1

	Reduction in fixed costs to develop production/distribution networks	Reduction in service link costs connecting production blocks	Further costs reduction in production cost per se in production blocks
Fragmentation along the distance axis	Policies to reduce investment costs	Policies to overcome geographical distance and border effects	Policies to strengthen location advantages
	<ul style="list-style-type: none"> (1) improvement in stability, transparency, and predictability of investment-related policies; (2) investment facilitation in FDI-hosting agencies and industrial estates; and (3) liberalization and development in financial services related to capital investment. 	<ul style="list-style-type: none"> (1) reduction/removal of trade barriers such as tariffs; (2) trade facilitation including simplification and improved efficiency in custom clearance/procedures; (3) development of transport infrastructure and improved efficiency in transport and distribution services; (4) development of telecommunication and ICT infrastructure; (5) improved efficiency in financial services related to operation and capital movements; and (6) reduction in costs of coordination between remote places by facilitation of the movement of natural persons. 	<ul style="list-style-type: none"> (1) establishment of educational/occupational institutions for personnel training to secure various types of human resources; (2) establishment of stable and elastic labor-related laws and institutions; (3) establishment of efficient international and domestic financial services; (4) reduction in costs of infrastructure services such as electricity and other energy, industrial estates services; (5) development of agglomeration to facilitate vertical production chains; (6) establishment of economic institutions such as investment rule and intellectual property rights; and (7) various trade and investment facilitation.
Fragmentation along the disintegration axis	Establishment of economic environment to reduce set-up costs of arm's length transactions	Development of institutional environment to reduce the cost of implementing arm's length transactions	Policies to strengthen competitiveness of potential business partners
	<ul style="list-style-type: none"> (1) establishment of economic system to allow co-existence of various business partners as well as making various types of contracts; (2) various policies to reduce costs of information gathering on potential business partners; (3) securing fairness, stability, and efficiency in contract; and (4) establishment of stable and effective institutions to secure intellectual property rights. 	<ul style="list-style-type: none"> (1) policies to reduce monitoring cost of business partners; (2) improvement in legal system and economic institutions to activate dispute settlement mechanism; and (3) policies to promote technical innovations in modulation to further facilitate outsourcing. 	<ul style="list-style-type: none"> (1) hosting and fostering various types of business partners including foreign and indigenous firms; (2) strengthening supporting industries; and (3) various policies to promote the formation of agglomeration.

3-2-2. Development of SMEs in industrial agglomerations

In taking advantage of positive agglomeration effects, the role of small and medium enterprises (SMEs) is crucial. SMEs are essential participants in arm's length vertical division of labor within industrial agglomerations and work in a just-in-time setting in the first layer of transactions. Without them, each production block is kept isolated, and positive agglomeration effects are not realized.

Some countries have had a certain pool of local firms even before MNE entered the market, and these local firms can readily work in a supporting industry role in industrial agglomerations. Most LDCs in East Asia, however, have not completed such preparations. At the initial stage of formulating arm's length vertical division of labor within industrial agglomerations, multinational SMEs often become major players.² Compared with local (indigenous) SMEs, the strengths of multinational SMEs are to be found in non-price competitiveness including the stability of product quality, precise delivery timing, credibility, and low monitoring costs so that transaction costs or service link costs in the disintegration-type fragmentation are low. Aggressive hosting of multinational SMEs is indeed effective in the formation of industrial agglomerations.

Once a certain level of vertical links among multinationals is developed in industrial agglomeration, local SMEs begin to encounter opportunities to enter production networks. Local SMEs often have advantages in price competitiveness vis-à-vis multinational SMEs. Once they are successful in obtaining a certain level of non-price competitiveness, they are qualified to participate in vertical division of labor in industrial agglomerations.

An ERIA study investigates SMEs in the context of participating in production networks and examines methods for enhancing SME participation in production networks (Thanh, Narjoko, and Oum, 2010). In the study, Harvie (2010) provides a framework for the analysis of the core ingredients/characteristics required to enhance the capacity of SMEs participating in regional production networks (Figure 3-1). Furthermore, Harvie, Narjoko, and Oum (2010) develop the ERIA Survey on SME Participation in Production Networks implemented in Indonesia, Malaysia, the Philippines, Thailand, Cambodia, Laos, Vietnam, and China and conduct some basic regression analysis. The number of samples amounts to 912. The major findings are

² Ando (2010a) provides an overview of Japanese SMEs working in production networks.

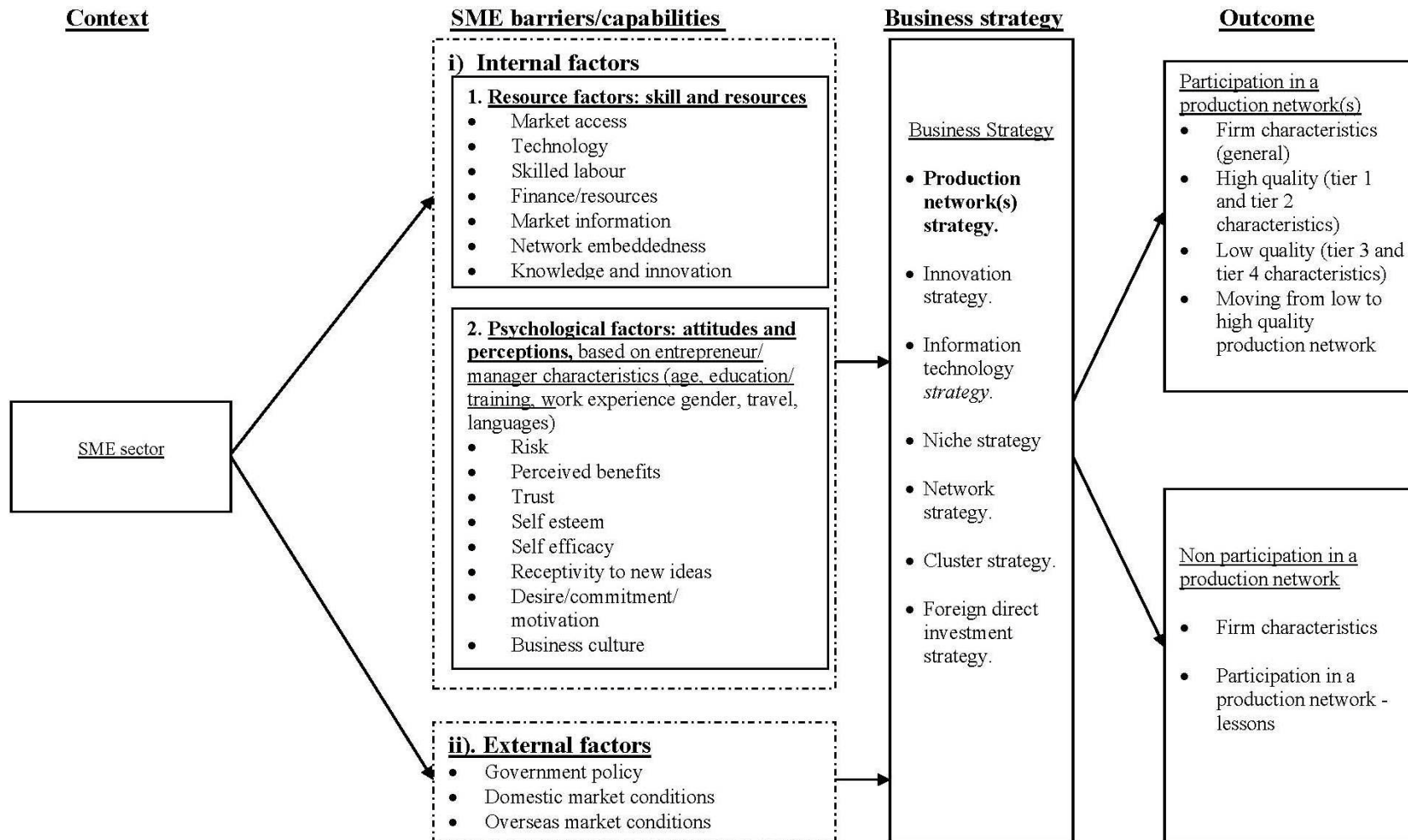
as follows:

- (1) SMEs in production networks care more about distribution-logistics and business environment barriers than those not in production networks.
- (2) SMEs in lower quality production networks are still occupied in taking care of internal constraints while SMEs in higher quality production networks seem to be keen on external constraints.
- (3) Productivity, foreign ownership, financial characteristics, innovation efforts, and managerial/entrepreneurial attitudes are key characteristics of SMEs in production networks compared with those outside such networks.
- (4) Size matters in particular for SMEs in higher quality production networks.

In summary, they find that SMEs must be qualified to participate in production networks by meeting a certain level of performance and once qualified, they can be important players in existing production networks.

In fact, local SMEs and local firms in general have active transactions with MNEs. Although official statistics do not provide such information, the results of a survey carried out on Japanese firms provide some clues. Figure 3-2 presents by-origin sources of procurement by manufacturing affiliates of Japanese firms located in ASEAN. In total procurement, 39.6% are from the host country, of which 46.9% are from local firms. Production networks are designed and operated predominantly by MNEs at an initial stage. However, a variety of evidence suggests that production networks can be shared with local firms at more advanced stages

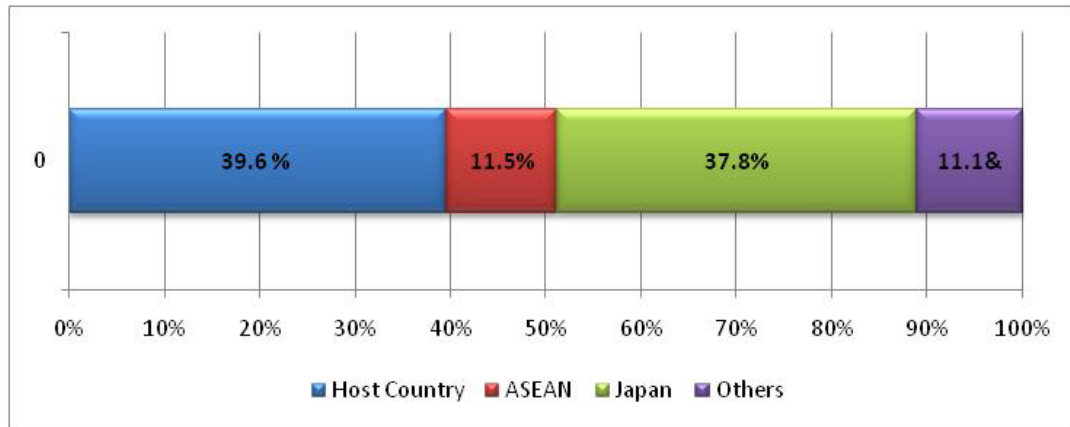
Figure 3-1. SMEs and production networks: Framework outline



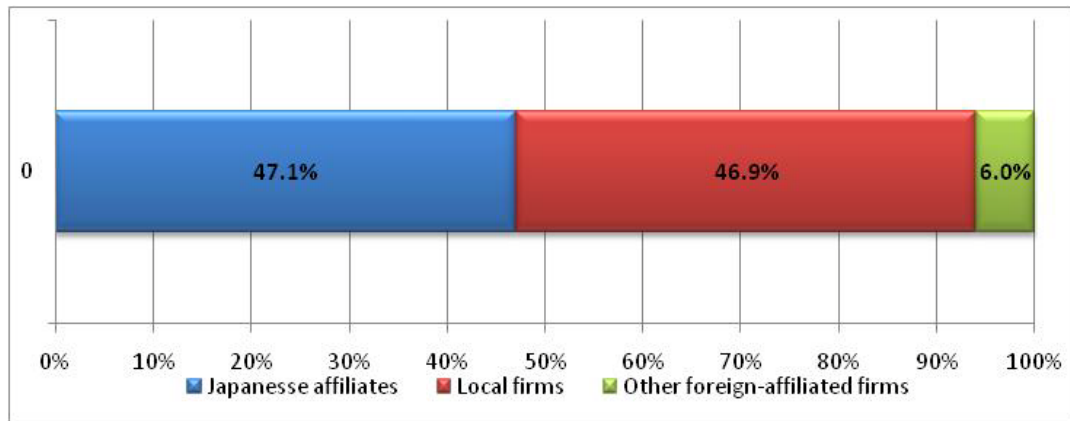
Source: Harvie (2010)

Figure 3-2. By-origin sources of procurement by manufacturing affiliates of Japanese firms in ASEAN

(1) By-origin ratios of procurement in total procurement



(2) By-firm-nationality ratios of procurement in local procurement



Source: Japan External Trade Organization (JETRO) (2008).

3-2-3. Making industrial agglomerations innovative

To progress from middle-income to the fully developed stage, we must construct an innovative society. Up to the middle-income level, industrialization has been fairly successful but has been led predominantly by MNEs. We observe the gradual penetration of local firms into production networks but cannot firmly conclude that it will result in the construction of an innovative society in which MNEs and local firms/entrepreneurs/engineers will work together for active innovation.

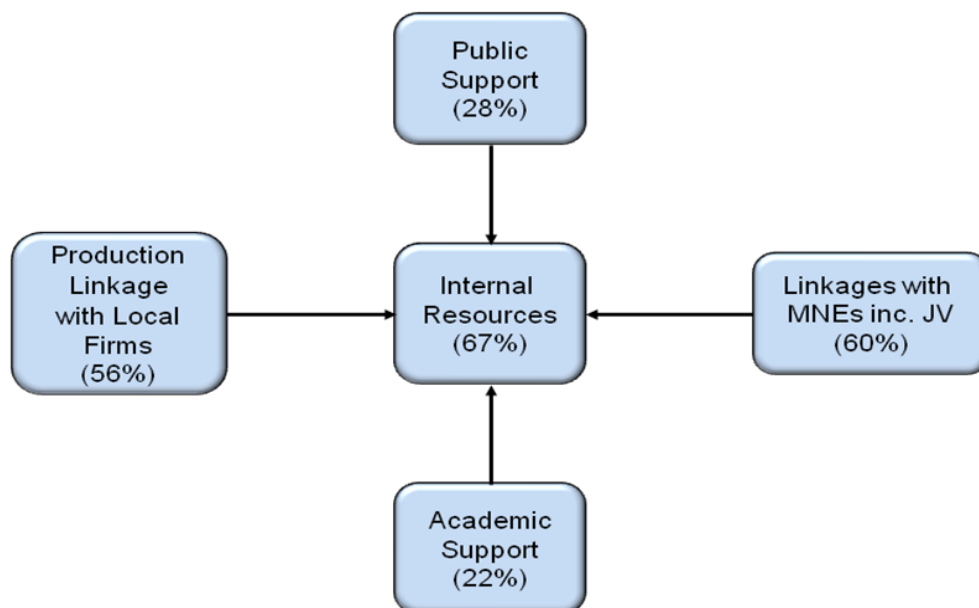
A three-year study of agglomeration and innovation by ERIA investigates innovative information flows among firms, both with and without foreign capital, in ASEAN.³ Following the Schumpeterian definition, innovation here includes (i)

³ See Limskul (2009) and Intarakunmerd (2010). Also see Machikita and Ueki (2010a, 2010b, 2010c, 2010d) for specific analytical works based on the project. There exists a huge amount of academic literature on agglomeration and technology spillover using firm-level microdata. See Hayakawa, Kimura, and Machikita (2010) for an extensive literature survey. However, in many

product innovation, (ii) application of new technology, (iii) organizational change, (iv) securing of new suppliers, and (v) securing of new markets. The study conducts extensive questionnaire surveys on what sort of innovative information is acquired by firms located in Indonesia, the Philippines, Thailand, and Vietnam, and through what sort of channels.

A part of the study results is presented in Figures 3-3 and 3-4. Figure 3-3 shows the sources of innovative information obtained by MNEs and joint ventures. Because firms can answer multiple choice questions, percentages are not summed up to 100%. While internal resources have a high share, inter-firm linkages, both with local firms and MNEs, are important sources of innovative information. The case of local firms presented in Figure 3.4 presents a similar pattern. Public support has a higher share than in the case of MNEs and joint ventures through inter-firm linkages are also important.

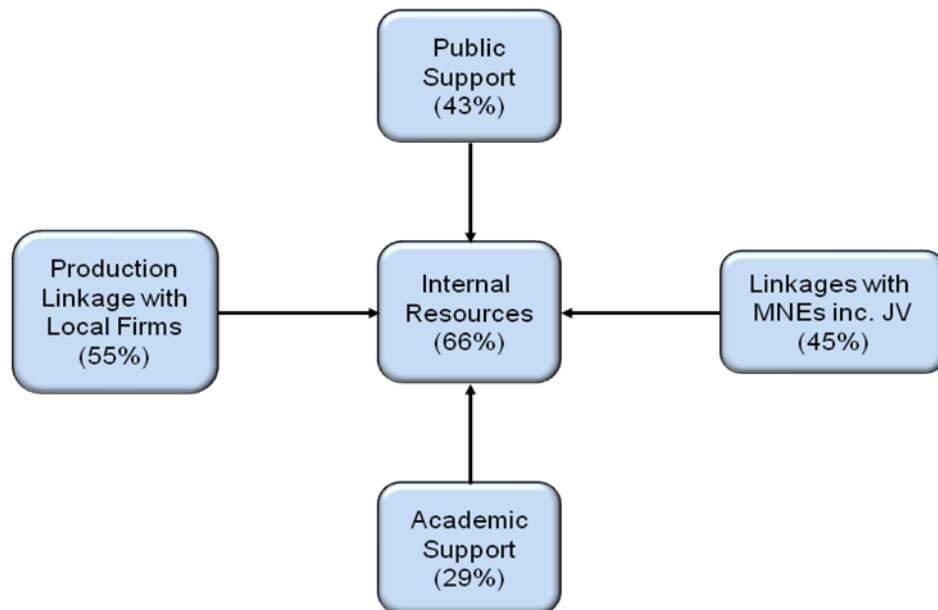
Figure 3-3. Sources of innovative information for MNEs including JVs in East Asia (Indonesia, the Philippines, Thailand, and Vietnam)



Source: ERIA/IDE-JETRO ‘Industrial agglomeration’ Project Team.

cases, studies do not pinpoint the nature of innovative information and the channels of its flows. The ERIA Study is unique in investigating these issues explicitly.

**Figure 3-4. Sources of innovative information for local firms
in East Asia (Indonesia, the Philippines, Thailand, and Vietnam)**



Source: ERIA/IDE-JETRO ‘Industrial agglomeration’ Project Team.

Intarakumnerd (2010) conducts more extensive and targeted studies on (i) knowledge transfer through production linkages, FDI, and trade, (ii) absorptive capacity and the current state of sourcing inputs for innovation inside firms, and (iii) agglomeration economies including pro-competitive effects, based on a total of 864 firms covered by the survey: 183 firms in Indonesia, 203 firms in the Philippines, 178 firms in Thailand, and 300 firms in Vietnam. In its statistical analysis, the following variables are significant for innovation: firm size, cooperation with MNEs, technical assistance financed or provided by government-owned financial institutions, licensed technologies from other firms, and the number of linkages with partners or sources of knowledge. It is also notable that the impact of face-to-face knowledge exchanges related to product innovation is significant and managerial experience with foreign firms is important for innovation and upgrading.

Overall, innovation activities are not uncommon even in developing East Asia; a large number of firms including local ones have multiple channels of innovative information. The issue is how to upgrade the contents and enter the phase of self-propelling innovation activities that capture positive agglomeration effects. Although more detailed research must be conducted, we can tentatively conclude that linkages with MNEs together with public support are crucial for local firms’ innovation but are established only with a certain level of absorptive capacity.

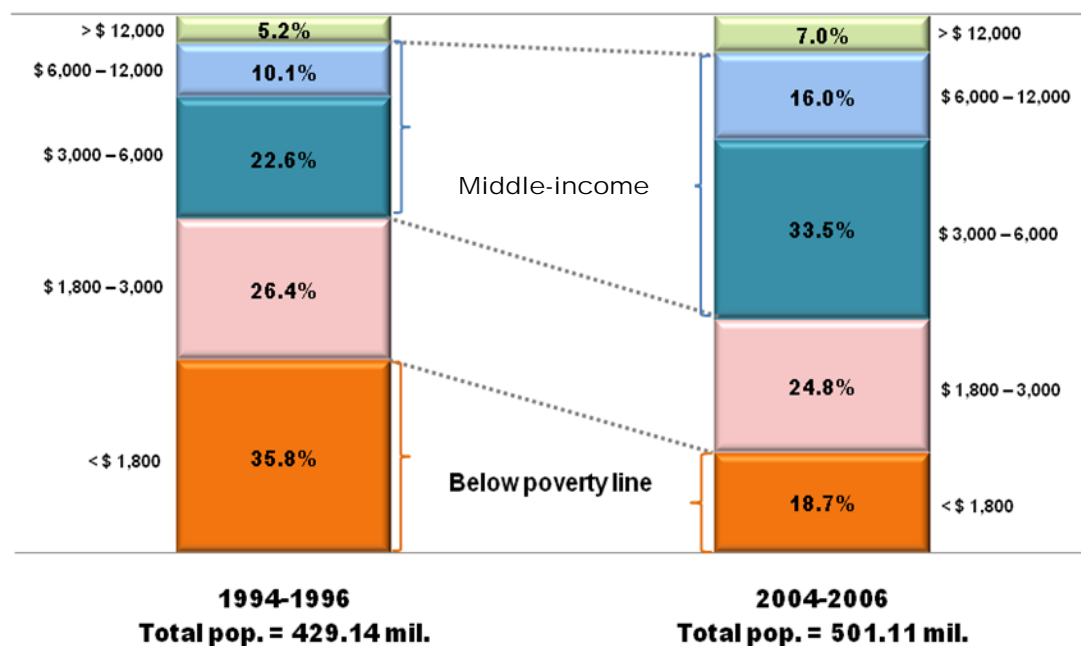
3-2-4. Expansion of middle-income population and human capital

In the last two decades, developing East Asia has accomplished a drastic decrease in the proportion of people living below the poverty line and a rapid expansion of its middle-income population.

Figure 3-5 presents changes in population structure by income level in ASEAN based on the World Bank Povcalnet. Povcalnet provides data on the number of people in each country by income level in US dollars on a 2005 purchasing power parity basis. Among ten ASEAN member countries, seven countries excluding Brunei, Myanmar, and Singapore are covered by the data set. Here, we define a person living below the poverty line as an individual with an income below US\$1.25 per day, the equivalent of a four-member family with an income below US\$1,800 in a year. On the other hand, middle-income population is defined as people with an individual income between US\$2 and US\$8 per day or with a four-member family income between US\$3,000 and US\$12,000 per annum.

In the decade between 1994-1996 and 2004-2006, the proportion of people living below the poverty line reduced from 36% of the total population to 19% in the seven countries, and the actual number of such people fell to below 10 million. On the other hand, the middle-income population expanded from 33% (23%+10%) of the total population to 50% (34%+16%).

Figure 3-5. Income distribution in ASEAN



Note: (1) Excluding Brunei, Myanmar, and Singapore. (2) In US dollars on the 2005 PPP basis. (3) For a family with 4 persons.

Data Source: The World Bank PovcalNet (<http://go.worldbank.org/NT2A1XUWP0>).

Figure 3-6. Population by income group: China (US dollars; 2005 PPP adjusted; annual total income of a family with four members)

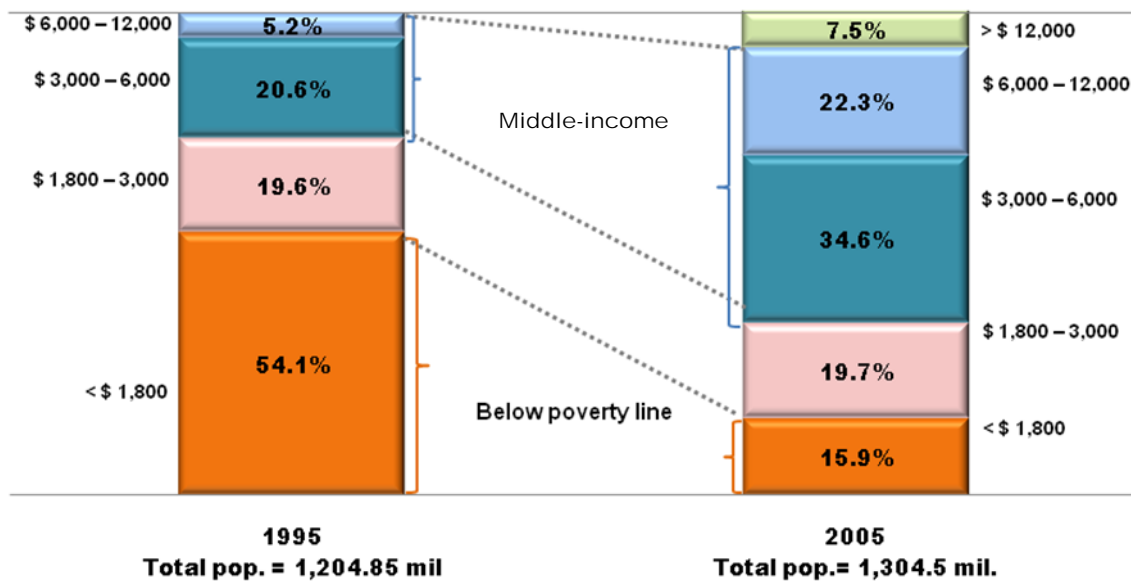
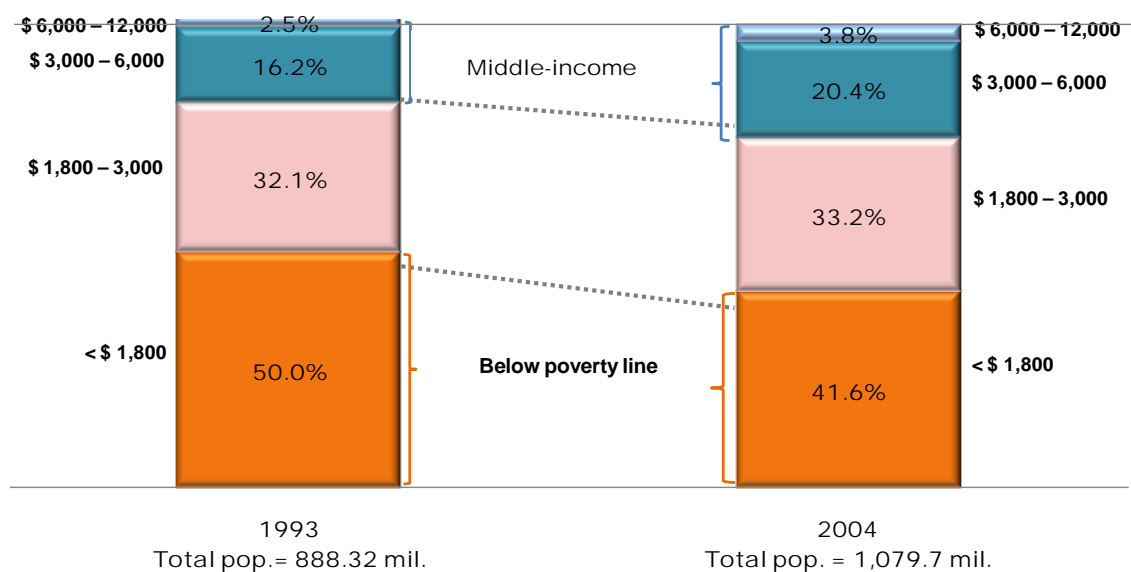


Figure 3-7. Population by income group: India (US dollars; 2005 PPP adjusted; annual total income of a family with four members)



Changes in population structure were more drastic in China (Figure 3-6). The proportion of people living below the poverty line shrank from 54% of the total population in 1995 to 16% in 2005 while the middle-income population exploded from 26% (21%+5%) to 57% (35%+22%). India lagged slightly but nonetheless recorded a steady change (Figure 3-7). Although the actual number of people living below the poverty line increased slightly between 1993 and 2004, the proportion reduced from

49% to 42%. The ratios of middle-income population increased from 18% (16%+2%) to 24% (20%+4%).

It is often claimed that economic growth inevitably worsens income disparity. The case of East Asia, however, seems to provide a counter-example. Although income disparity measures are not specifically examined here, we can at least observe a drastic reduction in the proportion of the population below the poverty line and a strong expansion of the middle-income population in sustained and rapid economic growth. These may be the consequences of East Asia's pattern of economic growth. In this region, economic growth has been reliant on the robust growth of productive sectors with massive employment creation, rather than being heavily dependent on the growth of resource exploitation. Although poverty alleviation remains an important issue for some countries and regions, the main focus of policymakers is gradually shifting to various issues related to the middle-income population.

The definition of middle-income people here may not match the definition of the middle-income people in fully-developed countries; their income is still comparatively low. However, their economic behavior is quite comparable to that of their counterparts in developed countries. Following Engel's law, the proportion of income spent for minimal daily nutrition reduces, and the demand for tradable goods, in particular, consumer durables, expands considerably. They are likely to possess items such as cellular telephones, TV sets, refrigerators, washers, and motorcycles whilst automobiles may still be out of reach. The expansion of the middle-income population increases international trade among East Asian countries, enhances trade openness, and accelerates *de facto* regional market integration.

Middle-income people are willing to make significant investment in their children's education, and this investment will surely be a major source of human capital in a decade or two. A typical failure in middle-income countries is a mismatch in the demand for and the supply of human capital. Investment in human capital is a long-term individual decision and is prone to be misguided due to wrong signals or incorrect predictions for future demands for human capital. It is inevitable that purely labor-intensive industries or production processes gradually lose international competitiveness at this stage. A strong foundation of human capital has yet to be achieved. Leapfrogging is sometimes possible, particularly in the field of ICT. However, solidly productive sectors such as manufacturing and related services sectors will continue to be important in order to make the smooth transition from middle-income to fully developed countries.

In the process of economic growth at this stage, proper restructuring of industrial structures from labor-intensive activities to capital or human-capital intensive activities

is essential. At the same time, countries tend to experience drastic changes in demographic pattern from rural to urban as well as in generational structure. Hence, formal social protection systems become necessary, rather than dependency on informal social protection provided by traditional communities. If governments fail to provide such support, sustained economic growth may be stalled, and political instability may ensue.⁴

As a basis for significant innovation, urban amenities to attract highly-educated human resources become important. An innovative city must have an efficient industrial basis whilst becoming an attractive cultural center at the same time. A comprehensive urban transport system and other urban infrastructure become crucial.

3-2-5. Necessary logistics infrastructure and other economic infrastructure

East Asia is leading the world in the development of international production networks and is exploring a new frontier of its development model. How to connect a strong industrial basis with further development from middle-income to the fully-developed stage is the issue. Effective coordination among different policy modes and various stakeholders is obviously needed.

Infrastructure development is essential for the development strategy for Tier 1. Industrial agglomeration requires a spatial structure of just-in-time systems with highway networks, large-scale logistics infrastructure such as ports and airports, a massive supply of electricity, energy, and water, and dispersed accommodation for workers.

Furthermore, infrastructure development for the construction of a vigorous, innovative society is also required. Desirable urban amenities as well as an efficient industrial basis must be realized in metropolitan areas. It thus requires urban transport systems, modern residential areas, measures to deal with pollution problems, a system of reproduction of human capital including universities, laboratories, and other such facilities, in order for highly-educated people to be willing to live in these places.

Targets in infrastructure development are summarized as follows:

- (1) Infrastructure to support efficient industrial agglomeration in spacious metropolitan areas
- (2) Large-scale logistics infrastructure to connect with other industrial agglomerations
- (3) Infrastructure for innovation basis and the nurturing of human capital
- (4) Infrastructure for intelligent and vigorous urban amenities

⁴ ERIA started an extensive comparative study on social protection in East Asia. See Asher, Oum, and Parulian (2009).

Major sectors of infrastructure development are tabulated in Table 3-2.

Table 3-2. Infrastructure development in Tier 1

Logistics Infrastructure	Other economic infrastructure	Urban and social infrastructure
1. Road / bridges <ul style="list-style-type: none"> ▶ Highway system, bridges and bypass roads in and around metropolitan areas ▶ Access roads/bridges to gateway ports/airports 2. Railways <ul style="list-style-type: none"> ▶ Urban public transport system (subway, LRT, MRT) and railways to connect urban and suburban areas 3. Ports / maritime <ul style="list-style-type: none"> ▶ Sizable port facility to cater massive container transactions and specialized loading facilities 4. Airports <ul style="list-style-type: none"> ▶ Sizable airport facility to cater massive movements of passengers and freight 	1. Industrial estates / special economic zones <ul style="list-style-type: none"> ▶ High-tech park with private initiatives 2. Energy / power <ul style="list-style-type: none"> ▶ Stable and ample supply of electricity and energy for both industries and residences 3. Telecommunication <ul style="list-style-type: none"> ▶ Infrastructure services for innovative society 	1. Water and sanitation, medical and others <ul style="list-style-type: none"> ▶ Metropolitan and social infrastructure for urban amenity

3-3. Tier 2 Participating in international production networks

3-3-1. Frontiers of international production networks

Tier 2 includes countries/regions that intend to participate in production networks. Countries/regions that do not participate in quick and high-frequency-type production networks can utilize the mechanics of fragmentation to attract manufacturing activities. Taking advantage of fragmentation is actually the quickest way to initiate and promote industrialization in East Asia. There exist a number of successful cases in the neighborhood.

To participate in production networks, we must identify and solve major bottlenecks in three kinds of costs: (i) network set-up costs, (ii) servicelink costs, and (iii) production costs per se. Table 3-3 is again a replication of Table 1-1, in which particularly important policies for Tier 2 are highlighted in red.

At this stage of economic development, the first step is crucial. Whatever the industry or the firm, to host MNEs provides precious opportunities to learn about the

prevailing investment climate. Overall improvement of the investment climate in the whole territory is not necessary at the initial stage. It is appropriate to provide an ideal investment climate at some specific place; to start with special economic zones (SEZs) is a good idea. By working in small specific areas, we should gain experience and accumulate both large and small trouble-shootings.

Some labor-intensive factories producing garment or footwear may already be there. Their complaints and suggestions should be listened to in order to improve the investment climate. They are connected to the world market but operate in slow and low-frequency-type production networks. Finding bottlenecks in the scope of their business provides precious information about the investment climate. Bottlenecks typically reside in service links or some specific economic infrastructure such as the electricity supply.

Once a country or region is successful in attracting a certain number of production blocks, we should start making plans for the overall improvement of the investment climate. The empowerment of investment facilitation including one-stop services in investment attraction should be a priority. It is also important to solve bottlenecks in service links and location advantages in order to expand the scale of production networks. The improvement in the business environment for arm's length fragmentation can also start at this stage, which includes the establishment of legal systems and economic institutions favorable for industrial development.

Table 3-3. The 2x3 policy matrix for Tier 2.

	Reduction in fixed costs to develop production/distribution networks	Reduction in service link costs connecting production blocks	Further costs reduction in production cost per se in production blocks
Fragmentation along the distance axis	Policies to reduce investment costs	Policies to overcome geographical distance and border effects	Policies to strengthen location advantages
	<ul style="list-style-type: none"> (1) improvement in stability, transparency, and predictability of investment-related policies; (2) investment facilitation in FDI-hosting agencies and industrial estates; and (3) liberalization and development in financial services related to capital investment. 	<ul style="list-style-type: none"> (1) reduction/removal of trade barriers such as tariffs; (2) trade facilitation including simplification and improved efficiency in custom clearance/procedures; (3) development of transport infrastructure and improved efficiency in transport and distribution services; (4) development of telecommunication and ICT infrastructure; (5) improved efficiency in financial services related to operation and capital movements; and (6) reduction in costs of coordination between remote places by facilitation of the movement of natural persons. 	<ul style="list-style-type: none"> (1) establishment of educational/occupational institutions for personnel training to secure various types of human resources; (2) establishment of stable and elastic labor-related laws and institutions; (3) establishment of efficient international and domestic financial services; (4) reduction in costs of infrastructure services such as electricity and other energy, industrial estates services; (5) development of agglomeration to facilitate vertical production chains; (6) establishment of economic institutions such as investment rule and intellectual property rights; and (7) various trade and investment facilitation.
Fragmentation along the disintegration axis	Establishment of economic environment to reduce set-up costs of arm's length transactions	Development of institutional environment to reduce the cost of implementing arm's length transactions	Policies to strengthen competitiveness of potential business partners
	<ul style="list-style-type: none"> (1) establishment of economic system to allow co-existence of various business partners as well as making various types of contracts; (2) various policies to reduce costs of information gathering on potential business partners; (3) securing fairness, stability, and efficiency in contract; and (4) establishment of stable and effective institutions to secure intellectual property rights. 	<ul style="list-style-type: none"> (1) policies to reduce monitoring cost of business partners; (2) improvement in legal system and economic institutions to activate dispute settlement mechanism; and (3) policies to promote technical innovations in modulation to further facilitate outsourcing. 	<ul style="list-style-type: none"> (1) hosting and fostering various types of business partners including foreign and indigenous firms; (2) strengthening supporting industries; and (3) various policies to promote the formation of agglomeration.

3-3-2. Cities or border areas?

Where should we set up SEZs? Border areas located close to a neighboring country may provide good opportunities for a quick start (Kudo (2009)). In border areas with more advanced countries, wage differences across national borders generate location advantages while service-link costs can be minimized. Casinos and some other services industries are naturally located there, but it would be beneficial to attract some manufacturing activities as well. This can be a starting point in order to accumulate learning processes. However, border areas typically have small populations and may not be a core of industrial agglomerations in the future. Certain accumulation of population may become crucial at a further point in economic development.

Ishida (2009) investigates how EPZs can be placed in economic corridors. Benevolent interactions among different tiers are important. Rather than considering isolated development strategies, we plan to maximize synergy effects among neighboring different tiers.

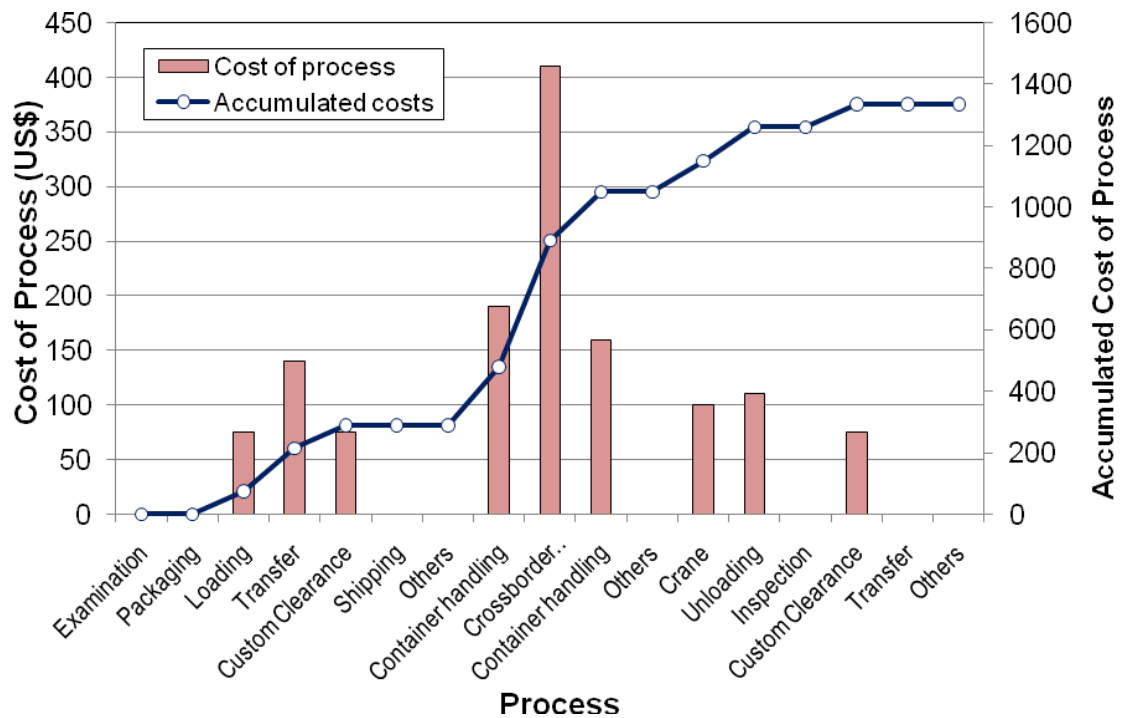
3-3-3. Soft and hard infrastructure

Bottlenecks for service links may be present not only in hard infrastructure such as roads and ports but also in soft infrastructure such as customs procedures, trade facilitation, and regulations governing logistics services. Bottlenecks may exist either at borders or behind borders. Although the CADP places a special focus on hard logistics infrastructure, the importance of effective coordination between soft and hard infrastructure should not be understated.

Links to the improvement of trade and investment regimes are also important. As Corbett and Umezaki (2009) and Urata and Okabe (2010) claim, integration efforts in ASEAN and East Asia have a practical effect on economic activity. This is particularly crucial for Tier 2 countries/regions that try to attract production blocks and participate in production networks.

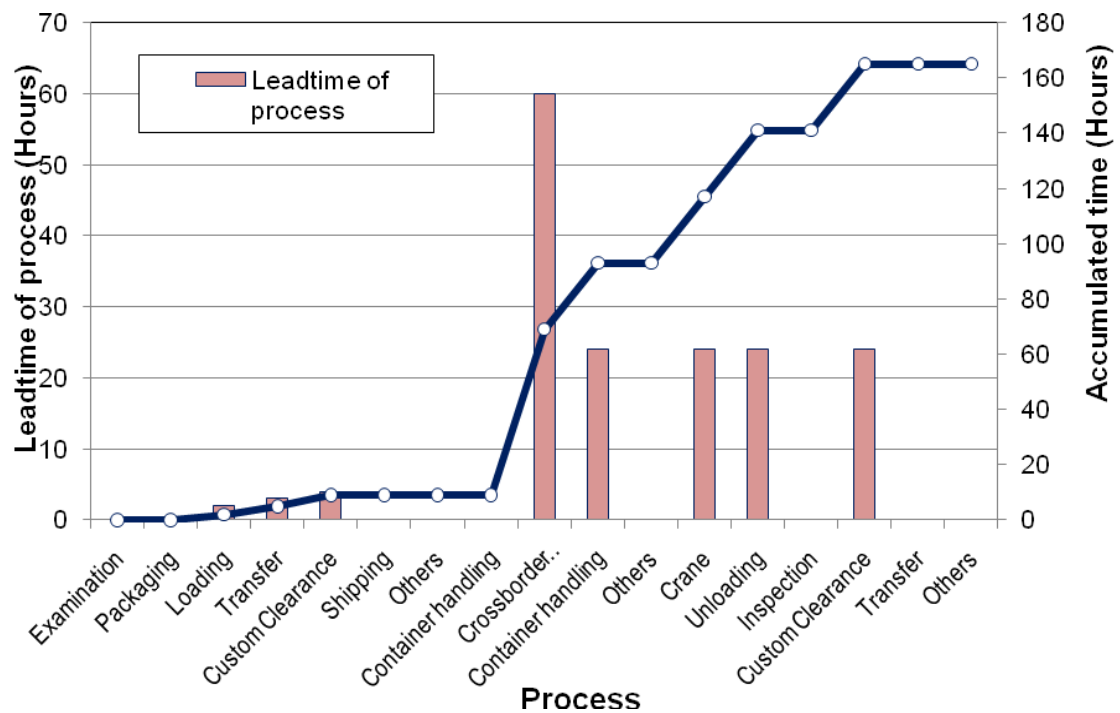
JETRO (2009) conducts a sample survey on logistics cost and time. Figures 3-8 and 3-9 depict logistics costs and time in a case in which automobile parts are transported from Bangkok to Singapore by maritime transport services. Logistics links consist of a number of stages through soft and hard logistics infrastructure, and a bottleneck is present in different phases. What logistics links amounts to a bottleneck varies from case to case.

Figure 3-8. The relation between process and costs (72_Route1_Sea)



Source: JETRO (2009)

Figure 3-9. The relation between process and leadtime (72_Route1_Sea)



Source: JETRO (2009)

Banomyong and Ishida (2010) conducted a semi-structured questionnaire survey on private companies and chambers of commerce in the region and found that logistics infrastructure, particularly soft logistics infrastructure, tends to be a constraint for CLMV to participate in production networks.

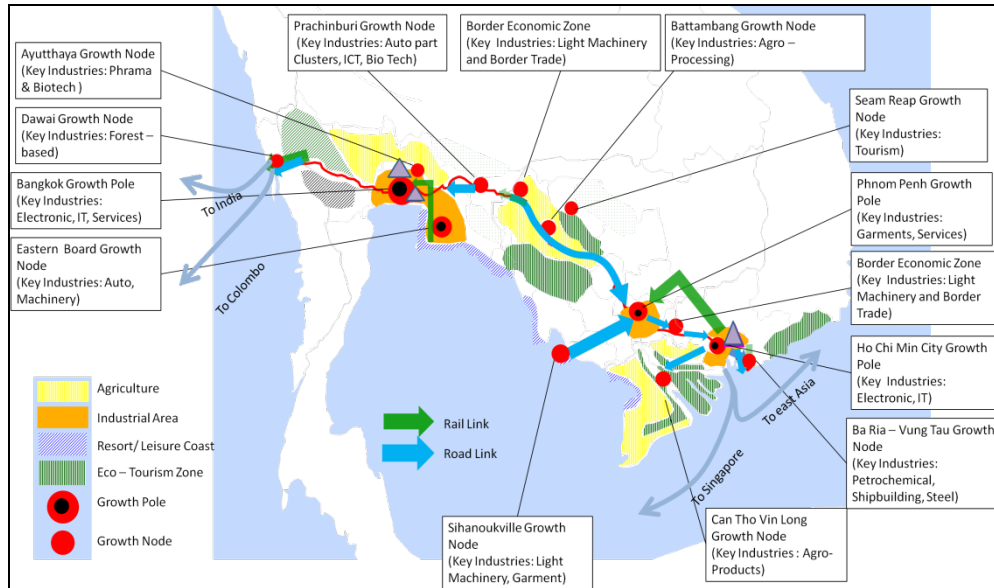
3-3-4. Mekong-India Economic Corridor: a pilot study by ERIA

ERIA conducted a pilot study on the Mekong-India Economic Corridor (MIEC) (ERIA, 2009). The corridor was intended to connect Ho Chi Minh City in Vietnam, Phnom Penh in Cambodia, Bangkok Metropolitan Area and the Eastern Seaboard of Thailand, Dawei in Myanmar, and the east coast of India. This corridor presented particularly good potential for manufacturing activities. The study applied a workable conceptual framework with an extended fragmentation theory and new economic geography, identified bottlenecks in service links and location advantages, and proposed effective coordination among multiple policy modes and various stakeholders in the development of logistics infrastructure and other economic infrastructure.

Figure 3-10 illustrates the overall spatial structure of the MIEC. Bangkok and the Eastern Sea Board of Thailand and Ho Chi Minh City in Vietnam are regarded as Tier 1 while Phnom Penh and other growth nodes correspond to Tier 2. Economic Activities in Tier 1 and Tier 2 generate trickle-down effects on neighboring Tier 3. By properly controlling agglomeration forces and dispersion forces, we can generate constructive interactions among the three tiers and pursue the goals of both deepening economic integration and narrowing development gaps.

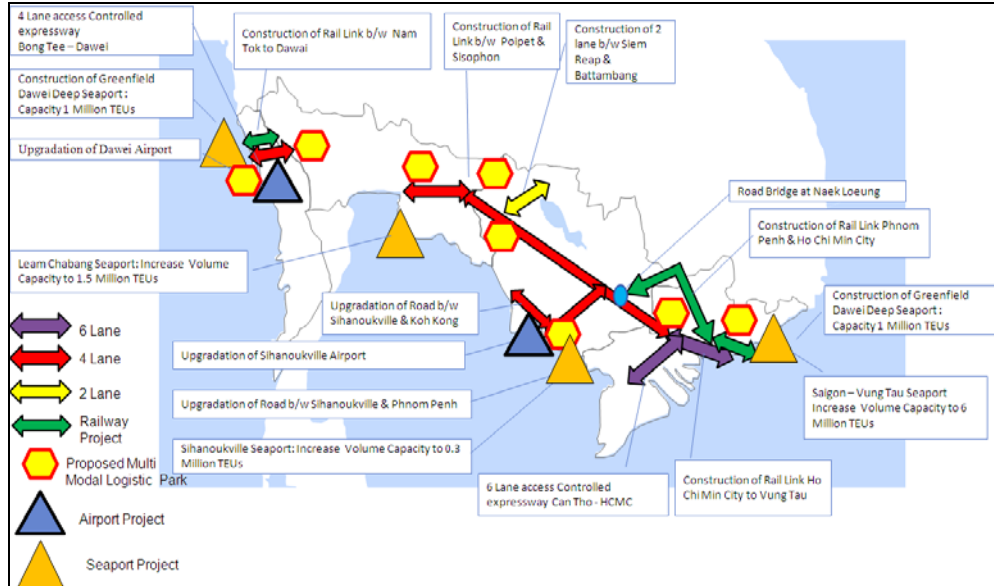
Figure 3-11 presents a list of transportation sector projects. Together with the necessary improvement in soft logistics infrastructure, service-link costs will be reduced, and the region can fully utilize globalizing forces and economic dynamism in its economic development. Actual project ideas are incorporated in our long list of prioritized projects presented in Chapter 6.

Figure 3-10. Growth poles and growth nodes proposed by the ERIA-MIEC project



Source: ERIA (2009).

Figure 3-11. Transportation sector projects proposed by the ERIA-MIEC project



Source: ERIA(2009).

The study suggests that a link to India would have a huge economic impact.⁵ The east coast of India would become a significant manufacturing base. By connecting

⁵ It is confirmed by the simulation results presented in Chapter 4.

three industrial agglomerations, i.e., Chennai/Bangalore, Bangkok, and Ho Chi Minh City, the manufacturing base in East Asia would surely be strengthened. The connection through Myanmar would be the key to success.

3-3-5. Necessary logistics infrastructure and other economic infrastructure

Infrastructure development for Tier 2 should be concentrated on solving bottlenecks in attracting production blocks. Differences in development stages naturally generate certain location advantages such as the availability of unskilled labor and access to some specific resources. Therefore, by removing bottlenecks, the threshold required to enter production networks can be cleared.

A bottleneck almost always exists in service links. Together with soft logistics infrastructure, hard logistics infrastructure should be developed in order to link with neighboring industrial agglomerations or the world market. Particularly for quick and high-frequency-type production networks, logistics infrastructure must meet three-dimensional quality; i.e., quality in terms of monetary cost, time cost, and reliability.

Location advantages providing a reduction in production cost *per se* sometimes have clear bottlenecks. The most common bottleneck is a stable electricity supply sufficient for manufacturing activities. A basic set of facilities and services on industrial estates or SEZs is also a typical bottleneck.

At the very first stage of industrialization, a country does not have to improve its countrywide investment climate immediately. That is often an overwhelming task. Rather, a country can start by setting up some specific areas such as SEZs and improve the investment climate locally. After successfully attracting a certain number of production blocks, learning from the head start will work effectively in establishing an overall favorable investment climate.

Targets in infrastructure development in Tier 2 are summarized as follows:

- (1) Reliable logistics links with neighboring industrial agglomerations or the world market
- (2) Other economic infrastructure such as electricity supply to solve bottlenecks in location advantages for manufacturing activities
- (3) Industrial estates and SEZs, particularly at the initial stage of industrialization
- (4) Coordination with other policy modes to control agglomeration and dispersion forces.

Major sectors of infrastructure development are tabulated in Table 3.4.

Table 3-4. Infrastructure development in Tier 2

Logistics Infrastructure	Other economic infrastructure	Urban and social infrastructure
1. Road / bridges <ul style="list-style-type: none"> ▶ Middle-distance roads for connecting industrial centers, logistics hubs, and neighboring industrial agglomerations ▶ Sub-urban road system for avoiding congestions 2. Railways <ul style="list-style-type: none"> ▶ Development of regional arterial railway networks 3. Ports / maritime <ul style="list-style-type: none"> ▶ Upgrading major ports to enhance handling capacity 4. Airports <ul style="list-style-type: none"> ▶ Upgrading major airports for both passengers and cargos 	1. Industrial estates / special economic zones <ul style="list-style-type: none"> ▶ SEZs in border areas and population centers 2. Energy / power <ul style="list-style-type: none"> ▶ Stable and ample supply of electricity and energy for industries 3. Telecommunication <ul style="list-style-type: none"> ▶ Development / upgrading of trunk telecommunication networks 	2. Water and sanitation, medical and others <ul style="list-style-type: none"> ▶ Improving water and sanitary conditions in urban areas

3-4. Tier 3: Invigorating industrial development by logistics infrastructure

3-4-1. Logistics infrastructure as a trigger

Tier 3 covers countries or regions that are located far from urban centers and often, but not always, have a small population size. In the case of ASEAN, the mountainous areas of Mekong, the islands of East Indonesia and the Southern Philippines are amongst those which fall into this tier.

For these areas, the traditional view has taken static comparative advantage for granted and has often recommended the development of primary industries conditional on the existing status of logistics infrastructure. Such a conservative view, however, does not allow for a break-through in a vicious cycle of small logistics and retarded industrial development. Although these countries/regions may not attract quick, high-frequency-type production networks in the short run, we can provide new perspectives for industrial development by making middle to long-distance logistics connection reliable.

Table 3-5. The 2x3 policy matrix for Tier 3

	Reduction in fixed costs to develop production/distribution networks	Reduction in service link costs connecting production blocks	Further costs reduction in production cost per se in production blocks
Fragmentation along the distance axis	Policies to reduce investment costs	Policies to overcome geographical distance and border effects	Policies to strengthen location advantages
	<ul style="list-style-type: none"> (1) improvement in stability, transparency, and predictability of investment-related policies; (2) investment facilitation in FDI-hosting agencies and industrial estates; and (3) liberalization and development in financial services related to capital investment. 	<ul style="list-style-type: none"> (1) reduction/removal of trade barriers such as tariffs; (2) trade facilitation including simplification and improved efficiency in custom clearance/procedures; (3) development of transport infrastructure and improved efficiency in transport and distribution services; (4) development of telecommunication and ICT infrastructure; (5) improved efficiency in financial services related to operation and capital movements; and (6) reduction in costs of coordination between remote places by facilitation of the movement of natural persons. 	<ul style="list-style-type: none"> (1) establishment of educational/occupational institutions for personnel training to secure various types of human resources; (2) establishment of stable and elastic labor-related laws and institutions; (3) establishment of efficient international and domestic financial services; (4) reduction in costs of infrastructure services such as electricity and other energy, industrial estates services; (5) development of agglomeration to facilitate vertical production chains; (6) establishment of economic institutions such as investment rule and intellectual property rights; and (7) various trade and investment facilitation.
Fragmentation along the disintegration axis	Establishment of economic environment to reduce set-up costs of arm's length transactions	Development of institutional environment to reduce the cost of implementing arm's length transactions	Policies to strengthen competitiveness of potential business partners
	<ul style="list-style-type: none"> (1) establishment of economic system to allow co-existence of various business partners as well as making various types of contracts; (2) various policies to reduce costs of information gathering on potential business partners; (3) securing fairness, stability, and efficiency in contract; and (4) establishment of stable and effective institutions to secure intellectual property rights. 	<ul style="list-style-type: none"> (1) policies to reduce monitoring cost of business partners; (2) improvement in legal system and economic institutions to activate dispute settlement mechanism; and (3) policies to promote technical innovations in modulation to further facilitate outsourcing. 	<ul style="list-style-type: none"> (1) hosting and fostering various types of business partners including foreign and indigenous firms; (2) strengthening supporting industries; and (3) various policies to promote the formation of agglomeration.

If we provide necessary logistics and other economic infrastructure and establish links with tier 1 and the world market, Tier 3 can also take advantage of globalizing forces in economic development. Here, we can still utilize the mechanics of fragmentation even though transactions are slow and of low-frequency-type. Table 3-5 highlights typical policies required for the industrial development in Tier 3 in red. Indeed, by making logistics links reliable, if not for quick or high-frequency-type services, various types of industrial development can be within reach.

3-4-2. New perspectives for industrial development

Reliable logistics infrastructure provides ample economic opportunities.

Even primary resource-based industries such as agriculture and fisheries can find a number of new business models with reliable physical links to Tier 1 and to the world. For example, agriculture may become a strong export base to improve economies; organic crops and vegetables are possibilities. The fisheries industry could be dramatically strengthened with the introduction of cold storage, ship maintenance facilities, and systems and measures for properly controlling limited resources.

Tourism also offers huge potential. For example, ancient cultural city links can work strongly to attract mass-tourism as well as providing opportunities for learning from neighboring countries, which may establish a solid basis for upgraded tourism. Eco-tourism and adventure tours also have great possibilities.

Mining activities and agricultural plantations may help to underpin further development. We can apply the essence of staples thesis as claimed by the Canadian economic historian Harold Innis.⁶ Knowing how to generate active linkages with other industries is the key.

We should not forget labor-intensive industries or labor-intensive production blocks. Some areas in Tier 3 have population masses large enough to support serious manufacturing activities. Resource-based agro-industry can also be a core for industrialization. Working on longer value chains is not always successful but it is certainly worth exploring such possibilities.

The benefit of Indigenous SMEs in developing countries is often overlooked; indeed, those who participate in such ventures are sometimes viewed as needing to be taken care of by social policy and to be valued solely by the employment opportunities they create. However, SMEs in cottage industries or primary product processing can actually play important roles particularly in rural development. They can consist of strong export bases, too.

⁶ As for staples theory, Drache (1995) and Watkins (1963) are classical references.

3-4-3. Necessary logistics infrastructure and other economic infrastructure

Even in the context of narrowing development gaps, it would seem advisable to seek strong linkages between logistics infrastructure and industrial development so that both the deepening of economic integration and the narrowing of development gaps can be pursued at the same time. Whenever the situation allows, we should avoid social policies simply for the sake of income redistribution and apply economic policies which take advantage of market forces and invigorate industries.

The demand for logistics infrastructure and logistics services is generated by industrial activity. Infrastructure and industrial activity can be said to have a “Chicken and egg” relationship; if we simply extrapolated current demand for logistics infrastructure, nothing would happen. Logistics infrastructure should work as a trigger for new perspectives of industrial development.

Targets in infrastructure development in Tier 3 are summarized as follows:

- (1) Credible small to medium-scale logistics infrastructure to gain access to urban centers and the world market for creative business models
- (2) Logistics infrastructure for mining and agricultural plantations to work as staples of economic development
- (3) Effectively utilize green endowments
- (4) Seizing opportunities for manufacturing activities

Major sectors of infrastructure development are tabulated in Table 3-6.

Table 3-6. Infrastructure development in Tier 3

Logistics Infrastructure	Other economic infrastructure	Urban and social infrastructure
1. Road / bridges <ul style="list-style-type: none">▶ Long-distance road connection and rural road networks for various industrial development▶ Sub-urban road system for avoiding congestions 2. Railways <ul style="list-style-type: none">▶ Middle-distance railways for resource-based industries 3. Ports / maritime <ul style="list-style-type: none">▶ Upgrading of local ports 4. Airports <ul style="list-style-type: none">▶ Upgrading / development of local airports	1. Industrial estates / special economic zones <ul style="list-style-type: none">▶ Industrial estates in growth nodes 2. Energy / power <ul style="list-style-type: none">▶ Development of power plants taking advantage of location advantages▶ Local supply of electricity and energy 3. Telecommunication <ul style="list-style-type: none">▶ Local telecommunication networks	1. Water and sanitation, medical and others <ul style="list-style-type: none">▶ Improving water and sanitary conditions

3-5. Interaction among three tiers:

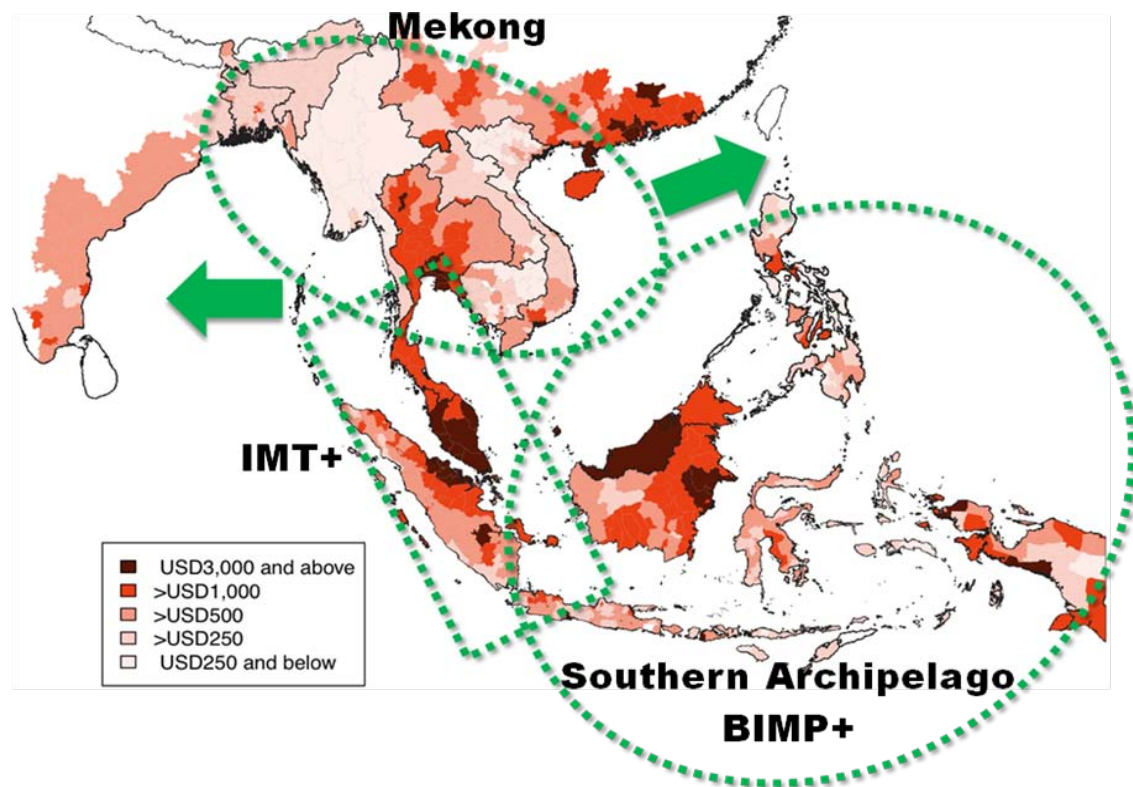
Three sub-regions and industrial/economic corridors

Our conceptual framework based on the extended fragmentation theory and new economic geography stresses the importance of interaction among the three tiers. The extended fragmentation theory calls for a reduction in service-link costs so that fragmentation of production occurs across tiers. New economic geography infers the importance of controlling agglomeration forces and dispersion forces by combining trade cost reduction with supplementary improvement of location advantages.

To encourage interaction among the three tiers, the CADP introduces three broad sub-regions in ASEAN: Extended Mekong Sub-region, IMT+ Sub-region, and BIMP+ Sub-region (Figure 3-12). Each sub-region is designed to cover a wider geographical range than the existing framework in order to include Tier 1, Tier 2, and Tier 3 and pursue both the deepening of economic integration and the narrowing of development gaps. It is often assumed that urban development and rural development cannot take place at the same time or that governments must make a choice between prioritizing one or the other. We believe, however, that these two forms of development should go hand-in-hand in order to be mutually beneficial. By developing efficient and innovative industrial agglomerations in Tier 1, the development of Tiers 2 and 3 can be accelerated. Development strategies for the three tiers must be cohesive and interactive.

There are multiple industrial/economic corridors in each sub-region. There are a large number of existing “corridors” in our development efforts, and all of these try to emphasize some sort of linkage across regions. The CADP particularly emphasizes the importance of industrial/economic corridors that connect regions at different stages of participation in production networks. In the Extended Mekong Sub-region, the Mekong-India Economic Corridor (MIEC) is an example of this. In IMT+ Sub-region, the Eastern Sumatra-North Western Java Corridor connected with Malaysia could be a good candidate. In BIMP+ Sub-region, the Northern Java Corridor must be in one of the first-round attempts. In the design and implementation of industrial/economic corridors, interaction and feedback among the three tiers as well as coordination among policy modes and stakeholders must be properly addressed.

Figure 3-12. Three sub-regions



Source: ERIA / IDE-JETRO GSM Team

3-6. Other considerations in planning and implementation

The CADP provides a cohesive framework for infrastructure development and industrialization in considering large disparities in stages of development. It does not however intensively discuss all of the issues necessary for planning and implementation of infrastructure development. Indispensable aspects for discussion are as follows.

First, the CADP does not explicitly investigate project feasibility in the context of macroeconomic management and fiscal sustainability. We do not expect policymakers and donors to be overwhelmingly risk-averse in its planning. Rather than extrapolating current trends, East Asia can have invigorating perspectives for further economic development once we establish a workable conceptual framework. Nevertheless, strict checking on the impact of development projects on macroeconomic management and fiscal sustainability is essential.

Second, it is important for people in countries in the region to be positive about participating in and feel ownership of development strategies, rather than simply following policies formulated by specific donors or international organizations.

Project implementation, particularly for cross-border projects, must be conducted so as to nurture regional identity.

Third, sustainability of environmental and perishable resource endowments must be comprehensively considered. While the economic value of the environment may differ between regions and peoples, a certain level of assessment of the environmental impacts is a must for all projects. Logistics infrastructure projects and other economic infrastructure projects surely impose certain burdens on the environment in the process of both project implementation and its consequences. The magnitude of environmental impacts differs widely due to the nature of projects, the location, and the method of implementation. Although we do not have a proper framework or sufficient statistical information at the macro level, we must pay serious attention to possible environmental impacts at the project planning stage.