

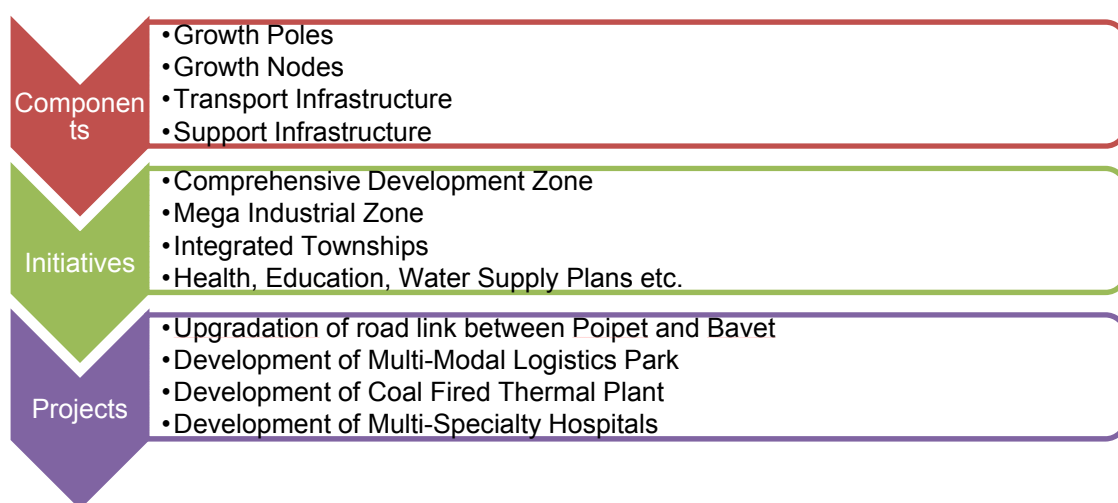
- Establish appropriate institutional arrangement to coordinate and facilitate development of the Corridor.

7. Components of MIEC

Development of MIEC envisages an integrated approach with a comprehensive regional planning perspective to transform the MIEC region into a major economic hub of East Asia. It will focus on building robust industrial and transport infrastructure for each of the countries, including promotion of industries based on locational strengths and exhibiting better efficiency in production. These industries along with good transport infrastructure provided by MIEC will promote inter-industry linkages, provide opportunity to countries to diversify their product lines, shift in production lines in emerging industrial MIEC economies. It is envisaged that high impact nodes are developed at the strategic locations in the corridor that will serve as engines of growth for the corridor. MIEC would therefore have four broad components:

- **Growth Pole:** Focal centre of economic activity or focal production blocks of national significance.
- **Growth Node:** Secondary production blocks or centres of economic activity with high potential to become future growth driver.
- **Transport Linkages:** To promote efficient linkages between the centres for economic activity, reducing service link costs and thereby attracting new production blocks to the corridor
- **Support Infrastructure:** Focuses on improving capacities of human capital to reduce costs in the production blocks and sustain long term development.

Figure 1: Link between Components, Initiatives & Projects and Exemplary Exhibition of Initiatives & Projects



After attaining a high-level of economic development, these nodes or production blocks would generate positive externalities thus also benefiting the region outside MIEC area. Further, MIEC concept has identified key **Initiatives** for each growth poles and nodes. These initiatives comprise of overall plans for the region related to Industrial infrastructure such as Comprehensive Development Zone³, Integrated Townships, Transport and Support Infrastructure. MIEC in terms of infrastructure primarily deals with only the hard infrastructure development as the soft infrastructure issues (such as regulatory and legal framework, policy controls, required incentives, social development etc.) have been addressed by various other organizations. However, some of the important issues such as border infrastructure, power supply across countries have been addressed

³ Note: Comprehensive Development Zone is a self-sustained area. Please refer to end note.

in the present report. These **Initiatives** have been molded into tangible **Projects** that can be implemented in the region. The components of MIEC have been discussed below:

7.1 Growth Poles

Growth Poles are focal centre of economic activity with national significance. They are usually big urban and industrial agglomerations that interact with surrounding areas spreading prosperity from the core to the periphery. These zones are at the heart of macro region of the country performing highly specialized secondary, tertiary, and quaternary activities. Growth poles will play two key roles in corridor development:

- Act as anchor for investments in entire corridor
- Facilitate development of secondary centres by providing forward and backward linkages to economic activities planned in secondary centres

Following Regions were selected as growth poles based on the regional analysis and factors such as region with high population, high density, high gross provincial product, established industrial base and clustering of industries:

Table 2: Identified Growth Poles in MIEC region

Name	Country	Brief on Growth Pole
Bangkok ⁴	Thailand	Primary Industrial cluster of Thailand and largest urban agglomeration. The city is also a major regional financial and logistics hub.
Eastern Seaboard ⁵	Thailand	Prominent Industrial cluster for Thailand with concentration of Manufacturing, Chemical and other industries. Also a hub of Automobile industry in East Asia, popularly known as “Detroit of the East” with more than 300 auto manufacturers, suppliers of auto parts and components
Phnom Penh ⁶	Cambodia	Primary economic centre of Cambodia with concentration of major industries and services.
Ho Chi Minh City ⁷	Vietnam	Largest metropolitan area in Vietnam and the most important economic centre in Vietnam accounting for largest contribution to Vietnam’s GDP. It attracts a major share of foreign direct investment in the country. .

7.2 Growth Nodes

Fragmentation theory is based on reducing set-up cost to develop production blocks and networks⁸. These nodes enable reduction by providing suitable investment climate through development of multiple Industrial Estates/zones with adequate infrastructure, one-stop services, simplification of setting up procedures, fiscal incentives, among others. These nodes can develop because of their

⁴ Note: Comprises of six Provinces

⁵ Note: Comprises of two Provinces

⁶ Note: Includes Kandal province

⁷ Note: Comprises of three Provinces

⁸ ERIA, 2009 (A detailed note on this theory is provided in Annexure 1)

locational advantage; proximity to Growth Poles, availability of natural & human resources, large investment, fiscal incentives, etc. These nodes emerge as core areas of economic growth and benefit the surrounding areas. Growth Nodes would play three key roles in corridor development:

- Reduce cost of setting up businesses by provision of industrial facilities and investment facilitation
- Channeling the economic benefits to hitherto underdeveloped areas

Selection Criteria for Growth Nodes

In MIEC, following Growth Nodes have been identified based on:

- **Locational Advantage:** inherent strengths of specific locations like mineral resources, agriculture base, skilled human resource, potential for setting up specific group of industries.
- **Trends in investments and industrial development** in region
- **Proximity** to Key Economic Zones or Growth Poles
- Others such as **availability of incentives, proximity to ports**, etc.

A snapshot of the identified growth nodes is given below:

Table 3: Identified Growth Nodes in MIEC region

Name	Country	Brief on Growth Node
Chachoengsao-Prachinburi	Thailand	<ul style="list-style-type: none"> • Centrally located from Bangkok, Eastern Seaboard, Laem Chabang Port and Cambodia • Proximity to Suvarnabhumi Airport (Chachoengsao) • More fiscal incentives: Nearest to Bangkok among province with Zone 3 benefits (Prachinburi) • Emerging industrial hub with highest number of Industrial parks in Zone 3⁹ (Prachinburi) and presence of anchor investors¹⁰ • Proximity to large pool of labor force as located adjacent to highly populated North-eastern Thailand
Ayutthaya	Thailand	<ul style="list-style-type: none"> • Proximity to Bangkok • Existing industrial base with emerging cluster of electronic industry • Availability of trained labor force from educational institutions in adjacent Pathum Thani¹¹
Kanchanaburi	Thailand	<ul style="list-style-type: none"> • Proximity to both Bangkok (about 150 Km) and Dawei (about 120 Km) • Emerging as major economic centre in Thailand clocking with over 10% growth annually • Robust existing industrial base particularly jewelry, agri-based like sugar, corn and others • High potential to emerge as major tourism hub • High potential for Agri-based industry as located amidst main agriculture belt of Thailand like Suphan Buri • Potential to emerge as major service centre due to anticipated border trade and emergence of Dawei as gateway port
Sihanoukville	Cambodia	<ul style="list-style-type: none"> • Presence of only deep sea port of Cambodia • Upgradation of rail link with Phnom Penh

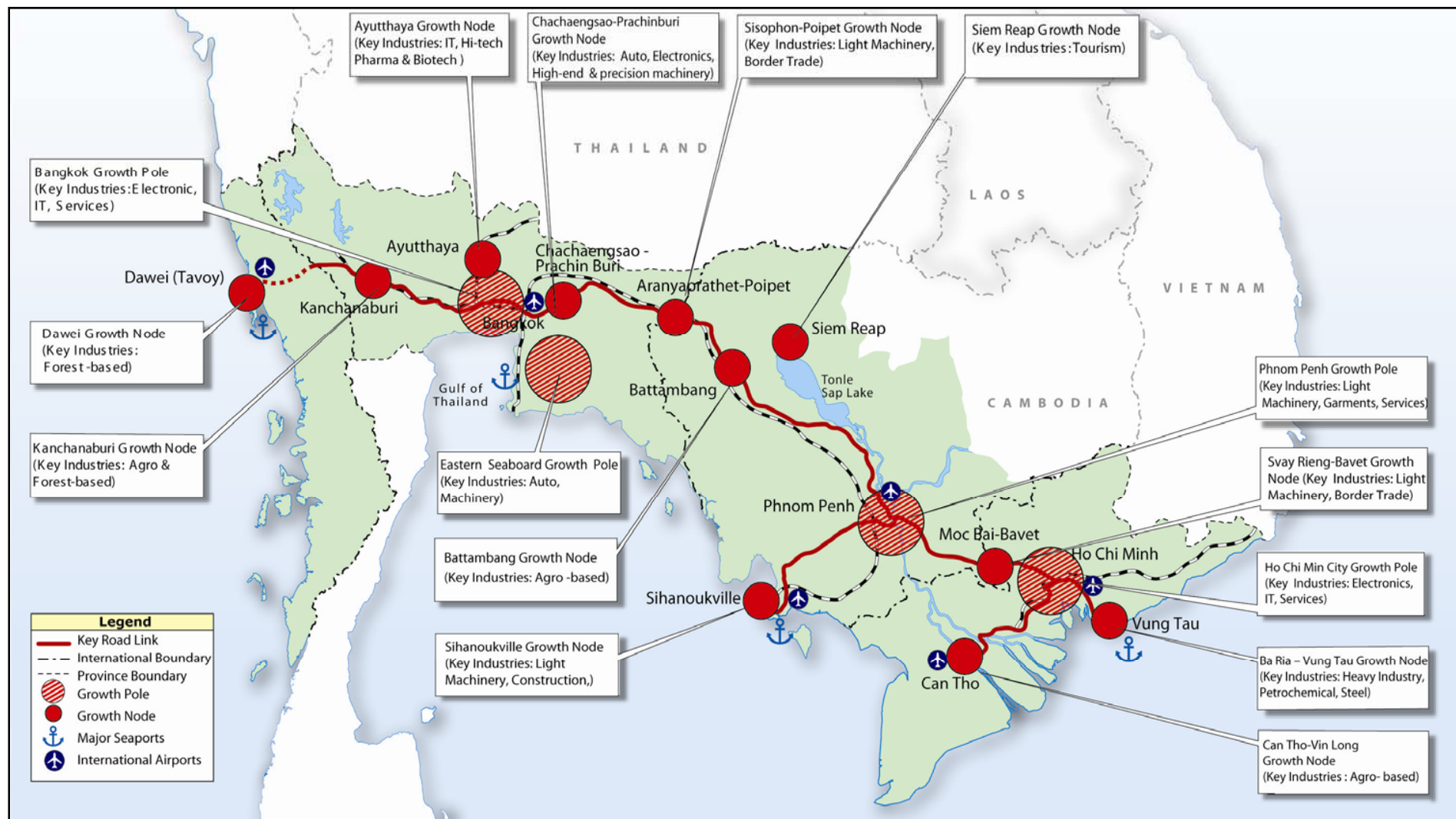
⁹ Board of Investment , 1993

¹⁰ Note: Hitachi GST

¹¹ Note: Asian Institute of Technology, Bangkok University etc

		<ul style="list-style-type: none"> • Large number of SEZs and industrial investments planned • Emerging tourist destination • Proximity to emerging O&G production areas (Khmer basin)
Battambang	Cambodia	<ul style="list-style-type: none"> • Nucleus of agricultural belt of Cambodia with large production of Paddy, Cassava, Corn, etc. • High Population concentration including surrounding provinces • Main commercial hub and Agri-service centre in Cambodia • Well-connected with Thailand and Phnom Penh
Svay Rieng-Bavet	Cambodia	<ul style="list-style-type: none"> • Proximity to industrial clusters of HCM City, Dong Nai, Binh Duong (about 100 Km) • Potential to emerge as key service centre due to anticipated border trade with industrial clusters in and around HCM City • Improved connectivity due to upgradation of road link with HCM City • Number of SEZs and industrials investments planned • Lower land prices than border area and availability of large parcels of land for industrial expansion
Sisophon-Poipet	Cambodia	<ul style="list-style-type: none"> • Proximity to industrial clusters of Bangkok, Eastern Seaboard and emerging Chachoengsao-Prachinburi (less than 250 km) • Potential to emerge as key service centre due to anticipated border trade with industrial clusters in and around Bangkok, Eastern Seaboard • Huge population in nearby provinces provides access to large labour pool • Proposed upgradation of road and rail link with Phnom Penh as well as Bangkok • Lower land prices than border area and availability of large parcels of land for industrial expansion
Ba Ria-Vung Tau	Vietnam	<ul style="list-style-type: none"> • Proximity to HCM City (less than 100 km) • Construction of Cai Mep-Thi Vai Ports (with upcoming capacity of 10 million TEUs) • Mega projects/ investments proposed in heavy industries such as Petro-chemicals, Steel, Shipbuilding, etc. • Proximity to largest natural gas production areas of the country (White Tiger, Lantay and Lando basins)
Can Tho - Vinh Long	Vietnam	<ul style="list-style-type: none"> • Centrally located in Mekong Delta (the agricultural belt of Vietnam) • High production of Paddy, Fruit and Vegetables in region and main agri-service centre • High population concentration in Mekong Delta • Good transportation linkages with HCM City and Cai Mep-Thi Vai Port • Main commercial and education hub in the region
Dawei	Myanmar	<ul style="list-style-type: none"> • Gateway of MIEC from South Asia, West Asia, Africa and Europe • Potential site for deep sea port of Myanmar • Rich in forest and timber resources • Potential to be tourism hub for Myeik Archipelago • Proximity to emerging O&G production areas (Yadana, Yetagun block)

Map 2: Location of Growth Poles and Growth Nodes in MIEC



7.3 Transport Linkages

Efficient linkage is the most important component of an Industrial/Economic Corridor. Fragmentation theory argues that reducing cost of service links is crucial to attract production blocks. One of the elements of reducing service costs is to develop a world-class transport infrastructure. MIEC proposes improvement of transport infrastructure with concerted and simultaneous actions on rail, road, sea, air transportation infrastructure and easing of cross-border movement of goods and passengers. The development of transport linkages will play two key roles in corridor development:

- Reducing logistic costs (one of key component of service link costs)
- Opening new channels for sourcing key factors of production

The vision of transport plan of MIEC is the development of a regional multi-modal transport network. Freight and passenger movement (intra-region and outside) can be made cost efficient by utilizing the most suitable mode of transport and enabling easy transfer between modes of transport. This will require coordinated action on rail, road, sea and air transportation infrastructure. Each of them is addressed below separately:

Roads

The road link from Bong Tee at Thailand-Myanmar border to Ho Chi Minh City is MIEC is main corridor. it is 1,131 km long with 61% link length as 2-lane road, 20% as 4-lane, 14% as 4-lane with service roads and 5% as 8-lane road. As per the analysis, 2-laned road sections in Thailand and Cambodia, and 4-laned sections in Vietnam would warrant capacity augmentation by 2010. Also due to the absence of bypasses to the cities of Phnom Penh and Ho Chi Minh, the long distance through traffic is required to wait at the city borders due to entry restriction of truck traffic during the day time causing delay in transportation of goods. In MIEC, roads or highways will continue to play a primary role in transportation & logistic movement. Thus the strategy for MIEC regarding road transportation would be:

- Upgradation of entire road corridor as access controlled facility
- Development of new service links with areas of economic growth
- Development of bypasses around major cities to facilitate long distance traffic movement
- Upgradation of road network to key economic centre and improve connectivity to rural areas.

Rail

Rail is not widely used mode of transport in Mekong countries in MIEC. The share of rail transport in total freight is low at 3%¹² (excluding Cambodia). Presently, the rail network has severe capacity constraints to deliver efficient and reliable services for heavy usage as axle load is low at less than 20 tonne (except Thailand). In order to develop multi-modal logistic chain, following strategy is suggested for development of rail transportation:

- Build the missing links to integrate the rail corridor between MIEC countries and upgrade existing rail network at key high volume routes
- Establishment of continuous end-to-end rail link for MIEC supported by spur rail lines
- Upgradation of rail track to meet potential traffic increase.

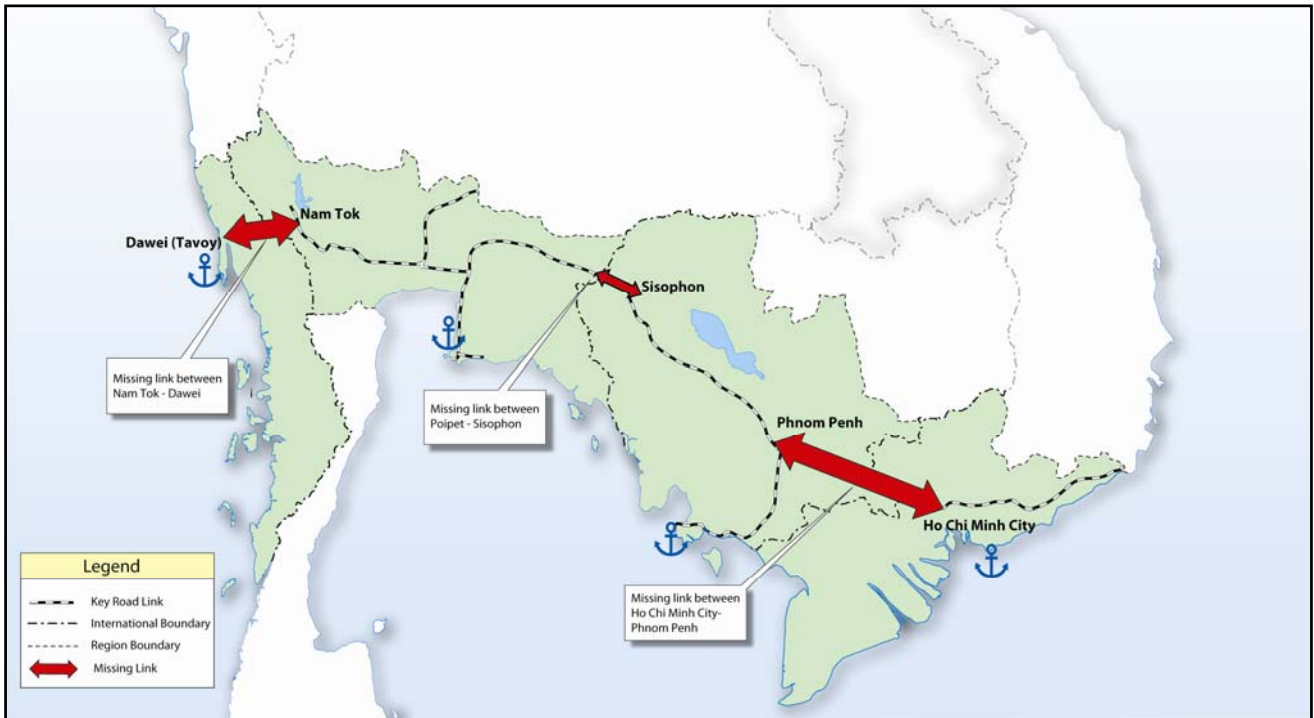
Given the present rail traffic volume, it is unlikely that cross-border freight volume will increase in initial years to make huge investments in Rail network. It is therefore proposed that priority shall be given to upgrading the key domestic rail networks which enables multi-modal transportation within the country. In later stages, investments in rail network shall be made to enable cross-border freight movement through rail network.

¹² JETRO, 2006

Map 3: Existing Lane Configuration of Road Network in MIEC



Map 4: Existing Railway Network in MIEC



Ports

Port network and sea transportation will be the main link of the region to the rest of the world particularly for bulk transport. Presently, ports¹³ in MIEC are hub of maritime activity for GMS. Going forward, the ports would witness increased traffic due to development of corridor and increased trade of MIEC with the rest of the world. Based on current trends, it is estimated that the upcoming capacity will suffice till 2014, after which it may witness potential congestion problems. After 2014, there will be need to increase the current capacity to cater both expected growth¹⁴ and incremental growth due to development of MIEC. Further, it shall also be noted that Mekong region needs efficiently operated ports facing Andaman Sea at this moment. Presently, all shipments from Mekong region to and from West go through Malacca Strait, which increases cargo-travel-time to India significantly. Malacca Strait is one of the busiest straits on the world shipping trade route with almost 35-40% of the world's container traffic and half of the world's oil annually passing through it¹⁵. This huge traffic leads to congestion in narrow strait. In addition to congestion, there is also risk of piracy and environmental damage due to increased ship movement. Given the strategic opening of MIEC on both East (South China Sea) and West (Andaman Sea), cargo movement through it can be avoided. Broadly the strategy suggested for development of ports in MIEC is as follows:

- Expansion of port capacities to meet growing traffic demand beyond 2014
- Development of deep seaport at Dawei and transshipment port at Vung Tau to reduce travel distance and time between India and Mekong countries and also to avoid congestion at Malacca Strait.

Airports

Air transport will play an important role in MIEC as it is an important mode of transportation for high-value fragile goods, perishable commodities and passengers. Presently there is a latent demand for air transportation since MIEC countries are amongst major producers and exporter of perishable commodities and hub for tourist destinations. With the realization of concept and progress on development plan proposed for MIEC in this concept paper, the trade in perishable commodities and high-value fragile goods is expected to grow significantly. The passenger (tourist) flow will also multiply as tourism potential of corridor is enhanced and new sites are developed. Thus the following strategy suggested for development of airports in MIEC is as follows:

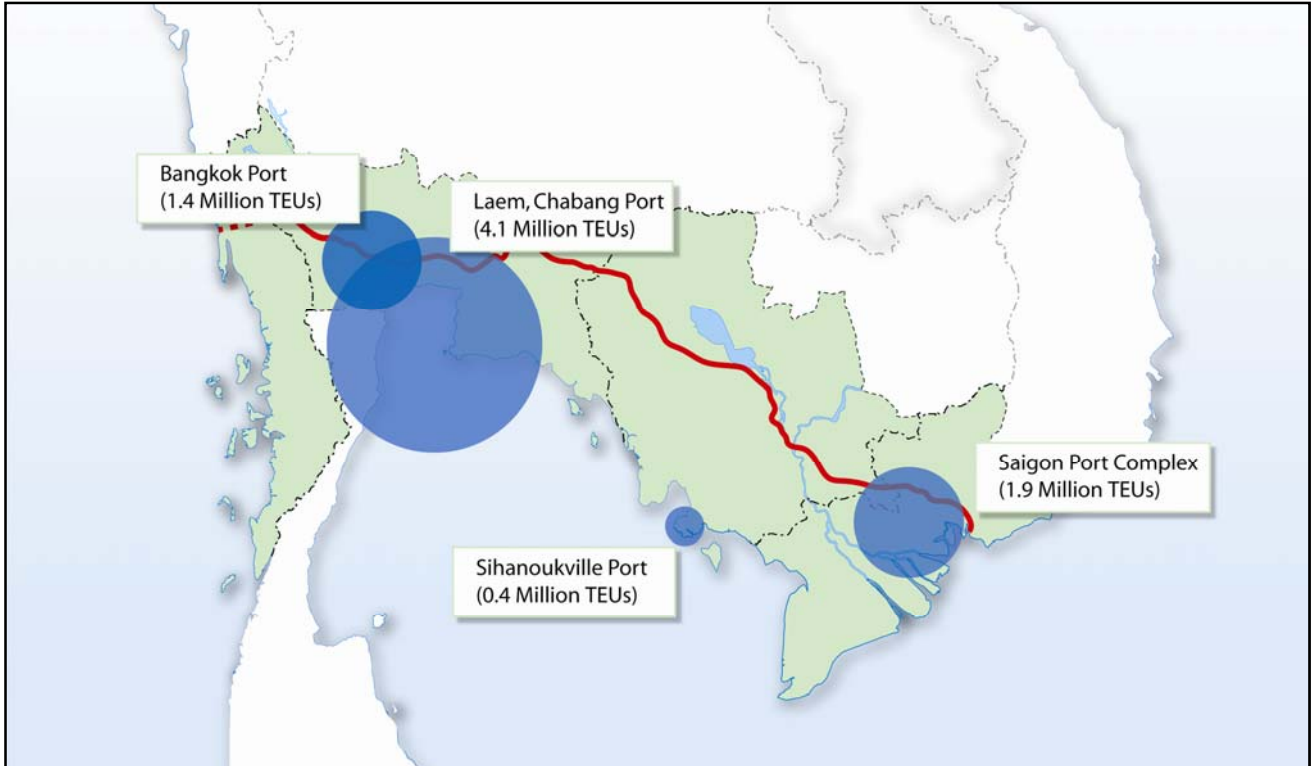
- Upgradation of key airports in MIEC to international standards in order to boost the tourism potential in key tourism zones or nodes
- Provide adequate airside and landside infrastructure to meet the growing demand for perishable cargo.

¹³ UNESCAP, 2007

¹⁴ Note: UNESACP estimates

¹⁵ IMO, 2004

Map 5: Cargo Volume Capacity of Ports in MIEC



Map 6: Location of Existing Airports in MIEC



Cross Border Facilities

At present, the cross-border facilities are suffering from both soft and hard-issues. These include space for customs and immigration facilities, lack of warehousing and parking facilities, absence of no-man's land, lack of acceptance of mutual truckage and hassle free movement of persons across countries, etc. leading to operational inefficiencies and hassles to users. Also the cross-border check posts, especially at Poipet is very congested and does not have any additional land for expansion of the facility. In order to achieve seamless movement of freight and persons across countries, development of integrated cross-border facilities is proposed at the international borders of the countries in the corridor. There are three border points which fall in MIEC: (i) Bong Tee (Border between Myanmar and Thailand), (ii) Aranyaprathet-Poipet (Border between Thailand and Cambodia), and (iii) Bavet-Moc Bai (Border between Cambodia and Vietnam).

As part of MIEC, development of integrated international check posts (ICPs) is proposed on priority which would essentially have the following 4 major components:

- Sovereign activities like **Customs, Immigration, Border Security**
- **Cargo Terminal** including facilities like cargo loading/unloading and transshipment yards, office buildings scanning and examination area, warehouse, weigh bridges, truck parking, fuel repair facilities, driver dormitories etc.
- **Passenger Terminal** including office buildings, immigration counters, customs screening areas with baggage scanners, immigration and security offices, public and semi public service area etc.
- **Common Infrastructure** Facilities broadly include utilities within the ICP boundaries e.g. water and power supply networks, drainage and sewerage networks, solid waste management facilities.

Inland Container Depot/Logistics Parks

In Thailand there are two key existing Inland Container Depots (ICDs) [ICD at Lat Krabang (1.2 Mn TEU capacity) and ICD at Laem Chabang Port]. These ICDs are currently linked by a single rail track which causes delays due to necessity of switching tracks. The capacity augmentation of Lat Krabang ICD from existing 1.2 Million TEUs to 2 Million TEUs is underway along with double tracking of railway line from Lat Krabang ICD to Laem Chabang Port.

In Cambodia the two key ICDs are located at Phnom Penh and Sihanoukville along with other dry ports. In Vietnam the key ICDs are at Transimex, Tanamexco, Ben Nghe and Phuc Long which are primarily catering to domestic logistics needs.

The existing ICDs have several hardware side issues. The key issues in logistics chain are related to storage capacities and inefficient handling. Also the existing movement of freight from source to destination in the region is unorganized and mainly by roads. The lack of rail integration, storage and handling capacities at existing ICDs and (especially in Cambodia and Vietnam) result into wastage of energy and incurring high transportation costs.

Due to this reason the countries in corridor lack in logistic market which is affecting competitiveness of industry and impacting FDI. In order to overcome the logistics bottlenecks in the region significant investments are required to address gaps in "hard" infrastructure as well as "soft" infrastructure along with an integrated approach to enable region to "leap frog" into the developing logistic infrastructure category.

The strategy suggested for MIEC is related to augmentation of existing ICDs with rail integration and development of new multi-modal logistics parks on priority to cater to likely demand from ports expansion and facilitate 'Just-in-Time' inventory management to reduce cost of logistics in the region.

7.4 Support Infrastructure

Apart from transport, there are various key support policies or interventions required to support industrial development and reduction in production costs¹⁶. Fragmentation theory argues that a key element of capturing dispersion forces is reduction in production cost per se in production blocks through various measures to strengthen location advantages¹⁷. This can be enabled by building productive human capital through holistic approach of education, training, health, and reduction in costs of services such as energy costs.

Some of these interventions have direct implications and some like human resource development have indirect implication on production costs and competitiveness of economies. This Concept Paper focuses on two key interventions: (1) Human Resource Development, and (2) Power.

Human Resource Development

Building human capital is an important aspect of MIEC. HRD strategy would have two aspects: (i) Education and Skill development; and (ii) Health. There is huge disparity among the countries in MIEC in human resource development and each of the country has distinct issues:

Education and Skill Development: All four countries have different characteristics based on the demographics, existing education level and requirement of economy. Thailand, for instance, has a high Gross Enrollment Rate (GER) in Tertiary Education (46%), but it lags behind other High Income Countries like USA, Australia, UK which have GER of more than 60%. In Cambodia, the skill level of the workforce is largely inadequate for employment in industries. Moreover, unlike other countries in MIEC, it will have an advantage of 'demographic dividend' in the long run and would therefore need to provide a fillip to the education sector. Vietnam's GER, which is in the range of 11-14%¹⁸, when nearly 65% of the population is below the age of 30 years, suggests that the tertiary education system is unable to meet the current demand for education in the country. In Myanmar, Secondary & Tertiary Education rates are very low. The enrolment rate for secondary education is 49% and tertiary education is mere 12% even though enrollment in Primary Education is 100%¹⁹. These figures show that all countries need attention to improve upon their tertiary education system and impart skills to its population which can cater to the needs of industries. The strategy suggested for education and skill development in MIEC would be:

- Provide facilities for tertiary education as per the requirement of the country
- Provide facilities for skill development or upgradation to meet requirements of industries in MIEC

Health: The availability of health facilities reduces the loss of man-hours and labor productivity due to timely treatment of illness. The health security of the workers has become imperative for investment decisions and the importance of health in improving the quality of life of citizens is well recognized. MIEC countries are very distinct in level of health services and each of them has different issues which need specific attention. It is evident from the above health indicators that Cambodia and Myanmar need urgent attention particularly in child and maternal care. There is need to add more hospitals and specialized healthcare facilities in Cambodia, Vietnam and Myanmar. The frequent health problems diagnosed are respiratory infections, Diarrhoea, Dengue fever, Cerebrovascular diseases, Septicaemia, Congestive heart failure and Pneumonia and Cancers. Furthermore, MIEC countries face acute shortage of health professionals i.e. Doctors, Nurses, Para-medics. Thus health sector requires a set of coordinated action on the following issues;

¹⁶ Kimura. F, 2008

¹⁷ Kimura. F, 2008

¹⁸ Note: UNESCO estimates

¹⁹ Note: Demographic dividend is a rise in the rate of economic growth due to a rising share of working age people in a population..

- (i) Providing adequate health facilities including specialized facilities
- (ii) Providing facilities to produce qualified medical professionals.

Power

It is evident that MIEC region is facing demand-supply mismatch and it is likely to continue in future with development of proposed Growth Nodes/ Poles and other industrial hubs. Several power projects are under planning or implementation stages but unable to meet the ever increasing demand for power. Thus MIEC will support development of power projects to reduce demand-supply gap, reduce electricity costs and improve generation. The strategy suggested for power sector for MIEC is as follows:

- Increase generation capacity to lower demand-supply gap in MIEC countries.
- Promote rural electrification and make proper use of available fuels
- Promote cross-border power trade
- Promote renewable or alternative energy sources.

8. Proposed Initiatives for Growth Poles

Bangkok Zone: Bangkok Zone serves as the chief growth pole of MIEC. The city is also a major regional financial and logistics hub. It is expected that the zone would grow further and major need to address problems of congestion, environment, transport, housing etc. One of the strategies could be adopt to promote satellite towns creating sufficient incentives for industries to move outside the zone. Following initiatives are planned for Bangkok Growth Pole:

Key Initiatives

- ✓ **Comprehensive Development Zone (CDZ)²⁰:** It is proposed that two Comprehensive Development Zones be designated in this Growth Pole clustered around Samut Prakan and Pathum Thani provinces. Samut Prakan CDZ shall focus on expanding its electronic manufacturing industry to upstream value chain such as semiconductor material, diodes, transistors, etc. and downstream industries for exports like auto electronics. Pathum Thani CDZ shall focus on knowledge based industry i.e. IT/ITES/software and biotech.
- ✓ **IT/ITES/Biotech Parks:** Pathum Thani has potential to become hub/cluster of Knowledge-based industry because of high concentration of higher education institutions particularly in science and technology²¹ and many research agencies in the province. Thus it can be developed as the preferred location for IT/ITES/biotech companies desirous of setting up/expanding their operations in GMS. The creation of Technology Parks like Thailand Science Park will further facilitate growth of knowledge industry.
- ✓ **Integrated Townships:** Pathum Thani and Samut Prakan have robust industrial activity that should continue to grow further. Thus it is proposed that an integrated township be developed as part of Comprehensive Development Zone. It would provide residential, institutional, commercial and leisure/recreation facilities for the workforce and resident population. Integrated townships will assist in of CDZs.

Eastern Seaboard: For both export and local manufacturing, the Eastern Seaboard has become Thailand's destination of choice for foreign investors. The Eastern Seaboard is home to major automobile giants and has more than 300 suppliers of auto parts and components apart from the firms engaged in automotive assembly. Superior logistics facilities like Laem Chabang Port (one of the world's busiest

²⁰ Note: Comprehensive Development Zone is a self-sustained area. Please refer to end note.

²¹ Note: Asian Institute of Technology, Bangkok University etc