

Myanmar Comprehensive Development Vision (MCDV)

[Final Draft]

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Abbreviation

ACIA	ASEAN Comprehensive Investment Agreement
ACMECS	Ayeyawady -Chao Para -Mekong Economic Cooperation Strategy
ADB	Asian Development Bank
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AMS	ASEAN Member States
ASEAN	Association of Southeast Asian Nations
BDS	business development services
BOT	build, operate and transfer
BSPP	Burma Socialist Program Party
BTZ	Border Trade Zone
CBN	Cost of Basic Needs
CDZ	Central Dry Zone
CEPT	Common Effective Preferential Tariff
CIQ	Customs, Immigration and Quarantine
CKD	complete knock down
CLMV	Cambodia, Lao PDR, Myanmar and Vietnam
CMP	cutting, making, packaging
CNP	Chinese Nationalist Party
CSO	Central Statistical Organization

CCS	Central Cooperative Society
DBT	Department of Border Trade
E&E	electric and electronic
EAS	East Asia Summit
ERIA	Economic Research Institute for ASEAN and East Asia
EU	European Union
EWEC	East-West Economic Corridor
FDI	Foreign Direct Investment
FESR	Framework for Economic and Social Reform
FIL	Foreign Investment Law
FTA	Free Trade Agreement
FY	Fiscal Year
GDP	Gross Domestic Product
GL	Grubel-Lloyd
GMS	Greater Mekong Sub-region
GNI	Gross National Income
GRET	Group de Recherches et d'Echange Technologiques
GRP	gross regional product
GSM	Geographical Simulation Model
GTAP	Global Trade Analysis Project
HDI	Human Development Index
HDIs	Human Development Initiatives
HRD	human resource development
HS	Harmonized System

ICOR	Incremental Capital-Output Ratio
IDE	Institute of Developing Economies
IEDC	Indonesia Economic Development Corridor
IFS	International Financial Statistics
IHLCA	Integrated Household Living Conditions Assessment
IMF	International Monetary Fund
IMV	International Multi-purpose Vehicles
INGO	International Non-Governmental Organization
IPP	independent power producer
ISIC	Indonesian Standard Industrial Classification
IT/ICT	Information Technology/Information and Communication Technology
ITC	Individual Trading Card
ITD	Italian – Thai Development Public Co. Ltd
IZ	Industrial Zone
JETRO	Japan External Trade Organization
JPY	Japanese Yen
LDCs	Least Developed Countries
MADB	Myanmar Agricultural Development Bank
MCDV	Myanmar Comprehensive Development Vision
MDG	Millennium Development Goal
MDRI	Myanmar Development Resource Institute
MFI	micro-finance institution
MIDA	Malaysian Industrial Development Authority

MIEC	Mekong-India Economic Corridor
MIPL	Myanmar Integrated Port Ltd
MITT	Myanmar International Terminals Thilawa
MNCs	multi-national companies
MNDAA	Myanmar National Democratic Alliance Army
MNEs	multi-national enterprises
MNPED	Ministry of National Planning and Economic Development
MOC	Memorandum of Cooperation
MOC	Ministry of Commerce
MOU	Memorandum of Understanding
MPA	Myanmar Port Authority
MSC	Multi-media Super Corridor
NIEs	Newly Industrialized Economies
NR	national road
ODA	official development assistance
OSS	one stop service
R&D	Research & Development
SEEs	State-owned Economic Enterprises
SEZs	special economic zones
SITC	Standard International Trade Classification
SLORC	State Law and Order Restoration Council
SME	Small and Medium Enterprise
SMI	Small and Medium Industry
SPDC	State Peace and Development Council

SRG	Self Reliance Group
TFP	Total Factor Productivity
TVET	Technical/ Vocational Education/ Training
UMFCCI	Union of Myanmar Federation of Chambers of Commerce and Industry
UNCTAD	United Nations Conference for Trade and Development
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
US	United States
USD	United States dollar
WDI	World Development Indicators
WEO	World Economic Outlook
WTO	World Trade Organization

EXECUTIVE SUMMARY

The Myanmar Comprehensive Development Vision (MCDV) proposes a development agenda and a set of growth strategies for Myanmar, which are expected to be used as inputs to the National Comprehensive Development Plan (NCDP) of the Government of Myanmar. The MCDV aims to deliver a three pronged people-centered development which is high & globally linked, inclusive & balanced, and green and sustainable. The development strategies in the MCDV are designed in a manner so as to be consistent with the new reality and opportunities which stem from the ongoing changes in the external environment surrounding Myanmar.

The MCDV has set out a ‘MCDV Strategic Triangle’ which consists of three development strategies. These are (1) Agriculture Plus Plus, (2) FDI Driven Strategy, and (3) Two-Polar Development Strategies. The three strategic pillars are mutually connected through linkages of demand and supply and have to be promoted in an integrated manner to make them most efficient and effective.

In addition to these three key strategies, the MCDV also focuses on rural development and poverty reduction, infrastructure and energy issues, and green, inclusive and sustainable aspects of growth in order to accomplish comprehensive development. The MCDV also advocates the need for a sound financial sector and sustainable mechanism of project financing.

Agriculture Plus Plus

There are two ways to increase value added in agriculture, i.e. by improving land and labour productivity and by broadening economic function along the value chain. This strategy is to be named as ‘Agriculture Plus Plus’. Myanmar cannot just rely on the growth of labour inputs, because more and more workforce would be absorbed by other sectors, manufacturing in particular. So, the country has four other sources of growth to tap, namely expansion of agricultural land, enhancing labour and land productivity, and total factor productivity. The Agriculture Plus Plus strategy aims to move along the value chain of production from farming to higher value-added activities such as R&D, post-harvest businesses including distribution and marketing and also to shift the whole value chain to a higher level through productivity-driven growth.

Globally Linked & Private Sector-Led Industrial Development

Export-Oriented Industrial Development: Myanmar’s export value grew fifteen times during the period between 1990 and 2010. One important factor for export-oriented industrialization is the capability of export diversification. Along

with increasing the quantum of Myanmar's export, the export items and destinations needs to be diversified. In doing so, the first step will be to boost its ability to host export-oriented industries. The apparel industry seems to serve as a litmus test for this. After that, being a part of production and distribution networks for E&E industry in East Asia will be a key for Myanmar to proceed to the next stage of industrialization. Myanmar should also tap into intra-regional markets such as China, India and Thailand in addition to traditional export markets such as the US and EU.

FDI Driven Strategy: As low labour cost is one of the biggest advantages for Myanmar, economic growth can be driven by FDI through job creation, technology transfer and collaborations between MNCs and local companies. It will also facilitate participation in international production networks and form industrial agglomerations as MNCs are major players in the networks and drivers of industrial clusters. Myanmar can improve its investment climate by improving its fundamental infrastructure, human resource, labour laws and other business costs.

Economic Corridors: Enhancing Connectivity: Economic corridors in Myanmar will connect not only domestic network but also ASEAN, GMS and ASEAN-India network. The four economic corridors, namely the North South Economic Corridor, East West Economic Corridor, Northeast-Southwest (right sash) Corridor and the Southeast-Northwest (left sash) Corridor are the main routes which will connect hubs and nodes of the country, and all corridors have country to country connection. These corridors also have development features and transportation and logistics features which will have a potential contribution to Myanmar's economy and its international connectivity with neighbouring countries. However, the corridors have to be complemented with other actions such as trade and logistics facilitation, promotion of private investment and development of tourism.

Two-Polar Growth Strategy: The MCDV proposes a two-polar growth strategy that includes both "high" and "balanced" growth. The first growth pole is Yangon and the second is Mandalay. Nay Pyi Taw, the national capital, will develop as an administrative centre. The plan also proposes border development with enhanced connectivity to richer neighbouring countries as a complementary strategy to the two growth poles. A simulation analysis using an IDE Geographical Simulation Model (IDE-GSM), the relationship between the number of development poles, the national GDP of Myanmar, and Yangon and Mandalay's GDP share in national GDP have been analysed. From the viewpoint of poverty eradication also, the two-polar strategy

seems to be appropriate. The policy makers should be mindful that scarce development resources are not be spread to too many regions in the early stages of economic development. However, care should be taken relative to regions that are on the economic periphery, especially the mountainous and border regions.

Border Area Development: Since the two-polar strategy alone does not resolve the economic gap between the peripheral areas and the central ones, there is a necessity for the complementary strategy to develop the peripheral areas. However, the strategy for the peripheral development should not draw too many resources from the central areas to avoid an “equally poor” situation. Border development in Myanmar can be effected through border trade and through developing border industry. This can be done by enhancing inner- and outer- connectivity of border areas, developing human resources for border area development, reducing institution-wise service-link costs by SEZ framework, and the specific strategy by border areas. Border trade would achieve smoother cross-border economic transactions with neighbouring countries. This would also connect the nodes with neighbouring countries.

SME Development

Industrialization through Development of SMEs: SMEs in Myanmar are reported to be facing high cost of energy, infrastructure, limited access and high costs of finance, shortage of technical and professional expertise, and distortions resulting from past policies. Poor infrastructure and limited flows of technology have led to the limited utilization of ICT, low production technology and less involvement in R&D activities. There are major benefits for manufacturing SMEs joining the production networks in East Asia, especially in the manufacturing and machinery industries. The policies aimed at facilitating SMEs to participate in production networks should be synonymous with overall objectives of upgrading technological, finance, and management capacity of SMEs so as to be more competitive and move up the value chain of production.

Strategy for SME Development in Myanmar: The strategies proposed for SME development are based on the resource and capacity of the government, urgency and crosscutting nature of the problems and solutions; and international good practices. The proposed strategies include: (a) Improvement of regulatory and institutional framework. (b) Improvement of access to information and support services, (c) Facilitation of access to finance, (d) Improvement of technology and innovation capabilities, (e) Improvement of access to international market, and; (f) Human resource development.

Rural Development and Poverty Reduction

Strategic Framework: In order to achieve the objective to reduce rural poverty and rural-urban disparities/gaps, six strategies are proposed. These are: (a) Focusing on effective poverty reduction: provision of basic needs and safety net, (b) Developing rural infrastructure, (c) Strengthening agriculture productivity & agribusiness activities, (d) Encouraging the diversification of rural household's economy, (e) Promoting financial accessibility for rural development, and; (f) Conserving natural resources and environment of the rural communities.

Development of Green Economy with Inclusive and Sustainable Development: The MCDV proposes effective poverty reduction programs with gender and community development dimensions to be devised for different geographical conditions, growth patterns, and agro-ecological zones. The social safety net programs including cash transfer program, insurance, labour market interventions, public works, food subsidies and food transfer, should be provided. As social safety net programs are expensive, community-based organizations should actively participate in social mobilization of rural areas. Investments in strengthening the public service by establishing and implementing a robust regulatory framework and building project management capacity are also important.

Infrastructure and Energy Development

Infrastructure: Absence of reliable infrastructure such as transportation, energy and communication is a great bottleneck in both harnessing Myanmar's growth potentials and also to fulfil its obligation to ASEAN Economic Community in the near future. Recommended measures are (1) Need for Prioritization (2) Development of Yangon with International Standardized Infrastructure (3) Develop Mandalay and Yangon-Mandalay link (4) Develop Dawei and Kyaukphyu as Development Nodes

Integrated Energy Development: An Integrated Energy Strategy in Myanmar will facilitate broader access to power in Myanmar. This can be achieved by strengthening, extending and expanding the main grid. This strategy will require massive investment if it is to provide access to electricity in peripheral regions. As Myanmar has substantial energy resources including thermal, hydro, oil, gas and biofuel, it can be a valued supplier as well as a consumer of energy products in the region. Development of these resources for generation and supply, both domestically and for export, will be beneficial for neighbouring countries and the region and will attract foreign factories to the Myanmar side of the border. Further, as access to

electricity will not be universal in Myanmar in the medium term, development of alternate energy systems such as oil products like LPG, traditional biomass, and mini hydropower systems on an off-grid and/or mini-grid basis should be planned for rural areas.

Financial Sector Development

Necessity of Sound Financial Sector: A well-developed banking system will provide better environment to make monetary policies work. The roadmap of banking system development in three stages is proposed. The first stage, especially the control on monetization of fiscal deficits, is the most basic step. The second stage, promoting creditors' rights through human resource development and strengthening regulatory framework, and third stages, establishment of secondary market of treasury bond, can proceed simultaneously. Myanmar will also require planning for a longer term development of human resource in accountancy and judicial professions for institutional support to creditors' rights. Vietnam and China have undertaken this roadmap for their reforms towards a market-oriented economy. Myanmar can learn a lot from their experiences.

Funding Strategy for Infrastructure Projects: Starting-up developing countries such as Myanmar generally face a shortage of national budget, and it is difficult to create sufficient fiscal space for meeting huge infrastructure demands. Given the present situation, Myanmar needs to rely on external financial sources in order to bridge the gap between infrastructure needs and domestically available sources for the time being. However, as ODA cannot remain a main funding source for long, funding sources should be gradually shifted from public sources to private sources and from external sources to internal sources.

Necessary Actions to Attract Private Funds: It is proposed to create a Project Development Facility (PDF) which will undertake preliminary feasibility studies, environment impact assessment, external consultant's fee on legal and technical studies, and bid documents preparation, and the expenditures incurred for the project development could be reimbursed by the winning bidder or entity who is awarded the implementation of the project. The PDF would be sourced either from government budget, grants from foreign governments or concessional loans from multilateral agencies. Lastly, Myanmar must enhance its credibility. Credibility is gradually generated through sound macroeconomic policy operation (e.g. stable inflation and foreign exchange, etc.), healthy fiscal management and better governance, etc.

Conclusion

While Myanmar is behind the curve of development when compared to other countries in the region, there are vast opportunities for it to enjoy latecomer's advantages. Myanmar is presently in a transition towards a modern developed nation, and it is the most appropriate time to adopt a people-centered development which keeps the people at the center of economic and political reforms. The MCDV has given top priority to seek a people-centered development strategy for Myanmar, and provides ideas and strategies for developing the transitional economy of Myanmar towards a growth which is high and is globally linked, inclusive and balanced, and green and sustainable.

Introduction

After decades of isolation, Myanmar has been actively re-engaging with the global economy since the inauguration of the new administration led by the President U Thein Sein in March 2011. For the successful re-engagement, Myanmar's development strategy is inevitably comprehensive and challenging. Indeed, even the prioritized agenda in the Framework for Economic and Social Reforms (FESR), the first governmental document on planned reforms under the Thein Sein administration, consists of ten areas of interrelated reforms, namely, (1) fiscal and tax reform, (2) monetary and finance sector reform, (3) trade and investment liberalization, (4) private sector development, (5) improvements in health and education, (6) food security and agricultural growth, (7) governance and transparency, (8) mobile telephony and internet, (9) infrastructure investment, and (10) efficient and effective government. Translating these development agenda into a series of implementable programs is a challenging, but immediate task for Myanmar. This requires a shared comprehensive development vision as guidance for further prioritization and streamlining of equally important development agenda.

Vision is important as per rational expectation. When you think your economy grows, the economy will grow. With a bright expectation shared among the people, more investment will be forthcoming. Vision is also necessary to know where you are and to which direction you are heading. More importantly, active interaction to discuss and exchange information and opinions among Myanmar government officials from various ministries and departments, Myanmar private sector and academics, and ERIA and international experts is of great significance at the early stage of drafting

development vision. The process of formulating the Myanmar Comprehensive Development Vision (MCDV) itself offers a good opportunity for policy makers. Such an exercise is extensively and intensively done by all stakeholders under the guidance of the Ministry of National Planning and Economic Development (NPED).

The MCDV aims to present a long-term development aspiration and a set of growth strategies, which hopefully could be academic inputs to the National Comprehensive Development Plan (NCDP) of the Government of Myanmar. The ultimate goal of MCDV is to achieve people-centered development with supports of three pillars: high & globally linked, inclusive & balanced, and green & sustainable growth. In addition, it should be designed in a manner consistent with the new reality and opportunities which stem from the ongoing changes in the external environment surrounding Myanmar.

Now, the political and economic development scenario is being closely watched by countries, both close and afar. The primary question on most minds is - would Myanmar follow the growth model of its neighboring economies in Southeast Asia, and, if so, the extent of political and economic reforms that the country would commit to over the short and medium term. But more importantly, how far the development scenario in Myanmar keeps the people at the center of economic and political reforms would be the litmus test of the present government as also those that follow.

The unique demography of Myanmar seeks a reconciliation of conflicts among ethnic groups so as to not derail the development vision of the government. The ethnic peace processes have a close impact on political economy of the resource-rich regions, as well as the country as a whole. Indeed, peace among the population would bring economic dividends not only to people in Myanmar but also people in the region. It would also be the standard against which the extent of entry of foreign investments would be decided.

A preliminary public feedback on the development plan under FESR suggests that the people and the government are on the same page of reforms, as results start to show, even if only on ‘quick win’ targets. As development agenda unfolds in Myanmar, the FESR and the NCDP are being put to test (and also possible recalibration) in terms of their comprehensiveness as well as their ability to deliver peace, prosperity and democracy to the people in Myanmar.

Therefore, would be naïve to believe that the development process in Myanmar would be easy for both government and the people. There are challenges in the road to reforms and there will be costs of transition. The absorption capacities of institutions may lead to a loss of effectiveness of the reforms, or, at the very least, the efficiencies may be impacted. Bureaucracy is the traditional tool of development in all developing economies. Development of capacities in the bureaucracy is a time taking process and these might cast a long shadow on the development agenda of the government. The lack of institutionalization in Myanmar also raises a valid question as to how much of reforms are intuitive and good intentioned and how much are a product of an institutionalized decision making process. These words of caution are not meant to be a dampener on the progress, or even the speed of development related reforms in Myanmar. The important message is to check the weak links in the reforms process and to address them even as the country moves towards openness and stability. At the end, a people centered development seeks balance and stability on both political and economic front. Shocks and surprises, whether internal or external, may not bode well for the development and opening of Myanmar. A sustained growth in the livelihood of people may well be the best cushion against any challenge to the development process in Myanmar.

In these regards, the MCDV firstly explores new opportunities and new challenges

derived from the present situation of the country itself and the changes of external environment. Then, it examines future role of agriculture in the economy and the ways to improve its efficiency toward high value-added one. As well, industrial development pathways such as dynamic export-oriented industrial development and FDI driven strategy are suggested together with economic corridor approach, two-polar growth, and border area development. Additionally, the development of small and medium enterprises (SMEs) is discussed as a means to industrialization.

The MCDV also focuses on rural development and poverty reduction as well as green, inclusive and sustainable aspects that are important to accomplish the concept of comprehensive development. Infrastructure and energy issues are also analyzed in this document. Last but not least, the MCDV advocates the need of sound financial sector and sustainable mechanism of project financing.

Now, Myanmar enters the new era of people-centered development. Such development will be beneficial to not only Myanmar but also the ASEAN and other regions in the world.

CHAPTER 1

New Reality, New Opportunities and New Challenges

After decades of isolation, Myanmar has been actively re-engaging with the global economy since the inauguration of President U Thein Sein, new administration in March 2011. For the successful re-engagement, Myanmar's development strategy is inevitably comprehensive and challenging. Indeed, even the prioritized agenda in the Framework for Economic and Social Reform (FESR) consists of ten areas of interrelated reforms, namely, (1) fiscal and tax reform, (2) monetary and finance sector reform, (3) trade and investment liberalization, (4) private sector development, (5) improvements in health and education, (6) food security and agricultural growth, (7) governance and transparency, (8) mobile telephony and internet, (9) infrastructure investment, and (10) efficient and effective government. Translating these development agenda into a series of implementable programs in itself is a challenging, but immediate task for Myanmar. This requires a shared comprehensive development vision as guidance for further prioritization and streamlining of equally important development agenda. The vision, which we name here as the Myanmar Comprehensive Development Vision (MCDV), needs to be sustainable in multiple fronts, namely, political, social, economic, and environmental. In addition, it should be designed in a manner consistent with the new reality and opportunities which stem from the ongoing changes in the external environment surrounding Myanmar.

1. The Present Situation and Prospects of Myanmar Economy

1.1. Growth Performance and Prospects

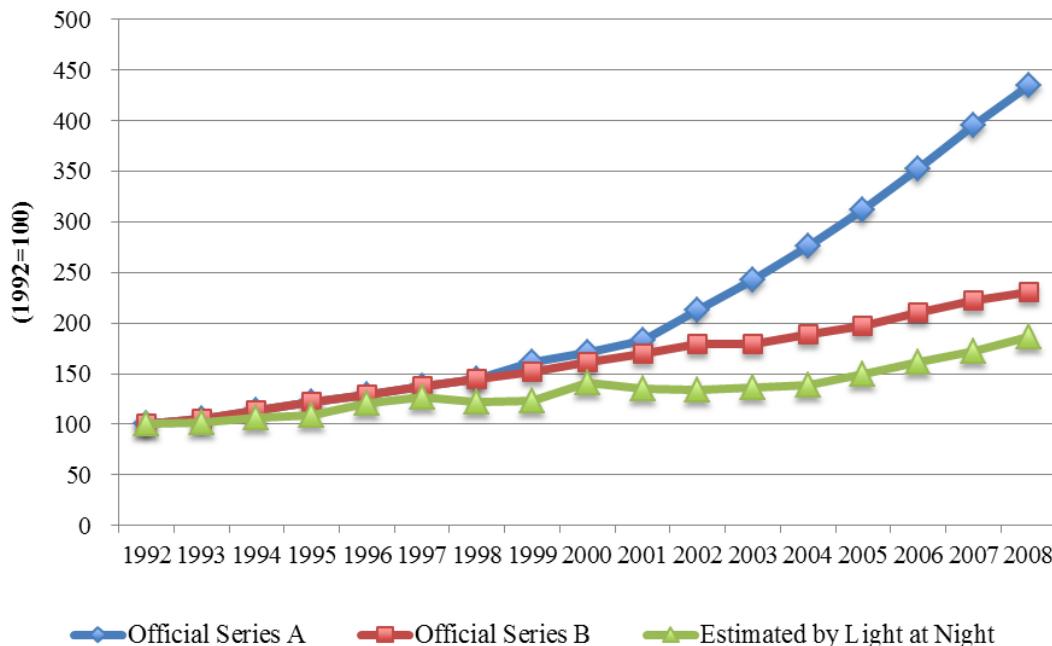
Surrounded by a group of ASEAN Member States on one side and a fast developing China and India on the other, Myanmar is aspiring to be the new member of the growth saga of the region. This subsection will highlight the performance and prospects of Myanmar's economic growth in comparison with neighboring countries.

Before exploring Myanmar's growth performance, we need to share some words of caution regarding the quality of official statistics on which our discussion will rely. According to the official GDP statistics, compiled and published by Myanmar government, Myanmar achieved double digit growth for twelve consecutive years from FY 1999 to FY 2010¹. However, few believe that Myanmar experienced such a high and sustained economic growth for the period under the economic sanctions. Let us take a look at Figure 1-1, which shows three series of GDP statistics, (1) the official series A, compiled and published by Myanmar government, (2) the official series B, estimated by the UNDP (2011) based on the official series A but adjusted for the strong controls on the exchange rate, and (3) an estimate based on a satellite images of lights at night by Kumagai, *et al.* (2012). Considerable discrepancies are observed. Although it is difficult to judge which series reflects the reality most, both of the additional estimates imply the possibility of over-reporting in the official statistics. Another sign of low reliability on the official statistics was indicated by Myanmar government itself. The government started its efforts to produce more reliable statistics after the inauguration of President U Thein Sein, new administration in March 2011. In addition, in his speech on 19 June 2012, President U Thein Sein clearly identified

¹ The fiscal year starts in April and end in March in Myanmar.

having accurate and reliable statistics as one of the four pillars of economic policies.² Even with this problem, it is worthwhile comparing the growth performance and prospects of Myanmar with those of neighboring countries to extract key policy directions for the future.

Figure 1-1: Myanmar's GDP in Different Sources



Sources: UNDP (2011) and Kumagai, *et al* (2012).

Table 1-1 shows the growth performance and prospects of selected Asian economies including Myanmar, based on the World Economic Outlook (WEO) Database compiled by the International Monetary Fund (IMF) based on the official statistics of its member countries. According to this, Myanmar experienced rapid economic growth in the last two decades, 7.9percent on average in the 1990s and 11.5 percent in the first decade of

² President U Thein Sein's speech on the four economic policies appeared in *the New Light of Myanmar*, the only English daily newspaper in Myanmar, on 20 June 2012.

the 21st century. Myanmar's nominal GDP per capita in terms of US dollar increased by 10.8 times during the last two decades, which is the second highest rate in ASEAN next to Vietnam. Nevertheless, even with this high performance, which may also reflect the over-reporting, Myanmar's GDP per capita in 2010 is USD742, the lowest in ASEAN and one of the lowest in developing Asia. The gap in GDP per capita between Vietnam and Myanmar widened from USD 30 in 1990 to USD 432 in 2010. Based on the IMF's statistics, the size of Myanmar's GDP is about 43.8 percent of Vietnam's as of 2010. In short, the new stage of Myanmar's economic development is starting from the one of the lowest income status in the region, with a strong expectation to catch up with its neighboring countries.

Table 1-1: Growth Performance and Prospects of Selected Asian Economies

	GDP growth, constant prices, local currency					Per capita GDP, nominal, USD				
	1970s	1980s	1990s	2000s	2010-18	1970s	1980s	1990s	2000s	2010
	Annual average in %					Times				USD
Singapore	9.9	8.6	8.0	6.3	4.3	5.4	2.6	1.8	2.0	44,697
Hong Kong SAR	10.0	7.5	4.4	4.5	4.5	5.9	2.3	1.9	1.3	32,429
Korea	8.5	10.9	7.3	4.6	4.1	5.9	3.7	1.8	1.8	20,540
Taiwan	10.9	8.5	6.9	4.3	4.4	5.5	3.4	1.8	1.3	18,488
Malaysia	8.9	6.7	7.9	5.1	6.0	4.4	1.3	1.7	2.2	8,634
Thailand	7.7	8.8	4.9	4.8	4.9	3.8	2.2	1.3	2.5	4,992
China	6.9	10.4	11.7	11.7	9.7	3.0	1.7	2.8	4.7	4,423
Indonesia	8.7	6.1	4.4	5.8	7.4	6.4	1.1	1.3	3.7	2,986
Philippines	6.7	1.9	3.2	5.3	6.3	3.8	1.1	1.3	2.0	2,155
Bhutan	4.5	10.9	5.3	9.7	11.1	1.8	1.7	1.5	2.6	2,063
Papua New Guinea	2.8	1.6	5.1	4.5	8.7	3.8	0.9	0.8	2.2	1,494
India	3.2	6.2	6.2	8.2	7.3	2.2	1.4	1.2	2.9	1,356
Vietnam	4.3	6.5	8.4	8.1	6.2	1.0	0.2	4.1	2.9	1,174
Lao PDR	4.1	6.2	6.8	8.0	9.1	0.3	0.7	1.4	3.6	1,105
Cambodia	n.a.	11.7	7.8	8.9	8.2	n.a.	3.9	2.7	2.6	753

Myanmar	4.7	1.4	7.9	11.5	7.5	2.6	2.7	2.6	4.2	742
Bangladesh	1.7	4.1	5.5	6.6	7.5	3.1	1.2	1.3	2.0	723
Nepal	1.8	5.3	5.6	4.5	4.6	1.8	1.6	1.2	2.3	533

Note: There is a sharp drop in Myanmar's per capita GDP in 1990 due to unknown reasons. To see the medium term trend, changes in per capita GDP in the 1980s for Myanmar covers 1980-1989, instead of 1980-1990. The data for Cambodia and Vietnam starts from 1986 and 1973 respectively.

Source: International Monetary Fund, *World Economic Outlook Database*, April 2003 for the 1970s, and April 2013 for the subsequent years. For Myanmar, September 2011 edition is also used for the 1980s and 1990s.

Despite the determination of the Myanmar government and expected support from the international community, it is still challenging for Myanmar to achieve and sustain high economic growth in the long-term. On 19 June 2012, President U Thein Sein announced the growth target of 1.7-fold rise in per capita GDP during the first five-year plan period under his administration. Referring to the 4.2 times increase in per capita GDP in the 2000s (Table 1), implying that more than twice increase in five-year period, this target might be attainable. However, of the crucial importance to Myanmar is how to sustain such high rate of economic growth in the long run, which is necessary to catch up with the neighboring countries.

According to the latest medium term projection by the IMF, Myanmar is expected to grow at 7.5 percent per year over the period to 2018. Although the estimated growth rate is reasonably high, it is lower than those of Lao PDR (9.1%) and Cambodia (8.2%). Asian Development Bank Institute (ADBI) (2012) published a longer term perspective of ASEAN Member States (Table 1-2). According to this report, Myanmar aspires to achieving the highest average annual GDP per capita growth rate (7.81%) among ASEAN for the two decades to 2030. With this growth rate, Myanmar' GDP per capita will increase from USD 714.8 in 2010 to USD 3,216.4 in 2030, slightly overtaking Cambodia which will remain below USD 3,000 in 2030. As advanced

ASEAN Member States also have aspiration for steady economic growth, CLMV countries will need to achieve significantly higher economic growth for a long term to narrow the development gaps in the region.

As shown in Table 1-1 above, and implied by the theories of economic growth, as economies grow, the growth rates tend to decline in the long run. This is one of the sources of convergence, i.e., narrowing the development gaps across countries. The so-called Asian NIEs (Newly Industrialized Economies), namely Singapore, Hong Kong, Korea, and Taiwan, achieved high economic growth over or close to 10 percent per annum in the 1970s and the 1980s, and slowed down in the subsequent decades. Similar tendencies are also observed in advanced ASEAN Member States namely Malaysia, Thailand and Indonesia, although the IMF views a higher potential in Indonesia for the years to come. For Myanmar, sustaining 7.81 percent economic growth on average for the next two decades is clearly a highly challenging aspiration.

Table 1-2: ASEAN Aspirations (2010-2030)

	GDP per Capita in 2010 (USD, at 2010 market prices)	2030 Target (2030 value as a multiple of 2010 value)	GDP per Capita in 2030 (USD, at 2010 market prices)	GDP per Capita in 2010- 2030 Average Yearly Growth (%)
Brunei Darussalam	30,173.20	2.5	75,432.9	4.69
Cambodia	733.50	4.0	2,933.9	7.18
Indonesia	3,023.30	3.5	10,581.6	6.46
Lao PDR	1,035.00	3.5	3,622.6	6.46
Malaysia	8,260.10	3.0	24,780.4	5.65
Myanmar	714.80	4.5	3,216.4	7.81
Philippines	2,013.60	2.5	5,034.0	4.69
Singapore	43,897.60	1.8	79,300.0	3.00
Thailand	4,734.80	3.0	14,204.4	5.65
Viet Nam	1,238.90	3.5	4,336.2	6.46
ASEAN	3,105.20	2.97	9,325.3	5.60

Source: Asian Development Bank Institute (2012).

Original sources: Population: World Population Prospects: The 2008 Revision, United Nations, Available at <http://esa.un.org/unpp/index.asp>; ASEAN 2030 background paper on country perspectives.

1.2. *Quality of growth*

In order to make the high economic growth sustainable in the long run, Myanmar needs to pay explicit attention to the quality of growth. Economic growth must be inclusive to reduce poverty and inequality; otherwise it will not be socially and politically sustainable. Economic growth must be underpinned by sound fiscal management and a prudent financial system; otherwise it will not be economically sustainable. Economic growth must pursue “green growth” to be environmentally sustainable. Although GDP is an important measure of economic development, it alone is not sufficient to capture the wide-ranging nature of economic development. Followings are selected snapshots highlighting the current status of Myanmar in terms of the quality of growth.

Table 1-3 shows the Human Development Index (HDI) compiled by the UNDP. Myanmar’s HDI in 2012 is 0.498, the second lowest in its neighboring countries next to Nepal, and is ranked 149th out of 187 reporting countries. Life expectancy at birth is 65.7 years, also the second lowest in Table 3 next to Cambodia, and is significantly lower than the average in the East Asia and the Pacific (72.7 years). Maternal mortality rate is 200, leaving ample room for improvement. Mean years of schooling is 3.9 years, the shortest in ASEAN Member States. Carbon dioxide (CO2) emission per capita is 0.3 tonnes, reflecting low energy usage due to the low level of economic activity rather than efficient use of energy. During the last two decades, Myanmar lost 19.0 percent of its forest area, among the highest in the region next to Nepal and Cambodia. Although a certain decrease of forest area is inevitable during the process of economic development, the speed of decrease seems to be higher than a sustainable level. Most of the detailed items are correlated with the HDI and income levels, but this

does not mean that an increase in income automatically improve each items. Rather, economic growth strategy needs to be designed to accompany improvements in these items.

Table 1-3: Selected indicators of the Human Development Index (HDI)

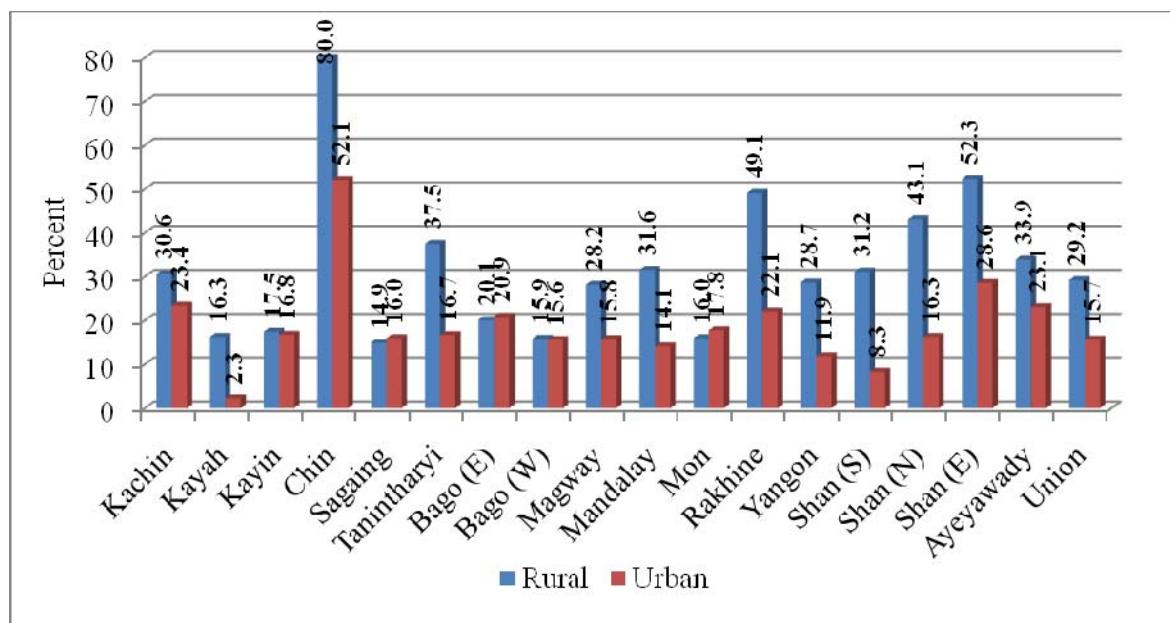
	Human Development Index (HDI)		Life expectancy at birth	Maternal mortality rate (/1000)	Mean years of schooling	CO2 emissions per capita (tonnes)	Changes in forest area: 1990/2010 (%)
	Value	Rank out of 187					
Singapore	0.895	18	81.2	3	10.1	6.7	0.0
Brunei Darussalam	0.855	30	78.1	24	8.6	27.5	-8.0
Malaysia	0.769	64	74.5	29	9.5	7.6	-8.6
China	0.699	101	73.7	37	7.5	5.3	31.6
Thailand	0.690	103	74.3	48	6.6	4.2	-3.0
Philippines	0.654	114	69.0	99	8.9	0.9	16.7
Indonesia	0.629	121	69.8	220	5.8	1.7	-20.3
Vietnam	0.617	127	75.4	59	5.5	1.5	47.4
India	0.554	136	65.8	200	4.4	1.5	7.0
Cambodia	0.543	138	63.6	250	5.8	0.3	-22.0
Lao PDR	0.543	138	67.8	470	4.6	0.3	-9.0
Bhutan	0.538	140	67.6	180	2.3	1.0	7.1
Bangladesh	0.515	146	69.2	240	4.8	0.3	-3.5
Myanmar	0.498	149	65.7	200	3.9	0.3	-19.0
Nepal	0.463	157	69.1	170	3.2	0.1	-24.5
East Asia and the Pacific	0.683		72.7	73	7.2		

Source: UNDP, *Human Development Report 2013*.

Figure 1-2 illustrates poverty incidence in 2010 by states and regions to see uneven distribution of poverty. At a first glance, there is strong positive correlation between rural and urban poverty, and the poverty incidence in rural areas tends to be higher than in urban areas. The highest poverty incidence is observed in the rural area of Chin

state, where 80 percent of the population is below the poverty line. The incidence is more than 5 times higher than that of the rural area of Sagaing (14.9%). The lowest poverty incidence is observed in the urban area of Kayah state, where the poverty incidence in the rural area (16.3%) is also significantly lower than the national average (29.2%). It should be noted that the poverty incidences in the rural areas of Yangon (28.7%) and Mandalay (31.6%), the centers of economic activity in Myanmar, are still comparable to the national average. These differences in poverty incidences can be a source of social instability and therefore Myanmar government explicitly pays attention to this issue in designing its economic growth strategy.

Figure 1-2: Rural and Urban Poverty Incidence in 2010



Source: UNDP and MNPED (2011)

1.3. Development Finance

The crucial role of infrastructure in economic development cannot be overemphasized, and one of the biggest challenges is how to finance infrastructure

projects. Most of Asian countries have effectively used official development assistance (ODA) from advanced countries, the World Bank, the Asian Development Bank and other donors, in meeting the huge demand for infrastructure finance during the process of economic development. Table 1-4 provides an overview of external debt of selected Asian countries. The debt burden in terms of total external debt stocks to gross national income (GNI) is the highest in Lao PDR in 2011 (80.3%), followed by Bhutan (65.0%), and Vietnam (49.1%). And this ratio is decreasing in the 2000s in most of the countries in the table. Advanced ASEAN Member States, Indonesia, Thailand, and Malaysia in particular, who were hit hard by the Asian currency crisis in the late 1990s, experienced significant increases in the debt burdens, and then have successfully managed the debts in the 2000s.

Table 1-4: External Debt of Developing Asia

	External debt stocks to GNI (%)				Debt service ratio (%)			
	1990	2000	2010	2011	1990	2000	2010	2011
Lao PDR	204.0	151.7	84.2	80.3	8.5	8.0	13.2	
Bhutan	28.1	50.5	63.9	65.0	n.a.	n.a.	13.5	11.1
Vietnam	384.0	41.9	48.4	49.1	n.a.	7.5	3.5	3.2
Cambodia	165.5	74.9	35.9	35.3	n.a.	1.7	0.9	1.0
Malaysia	36.4	48.7	37.1	34.8	12.6	5.6	5.5	3.9
Philippines	70.2	72.2	36.9	33.6	27.6	16.0	21.8	17.6
Indonesia	64.0	95.6	28.4	26.0	33.5	22.8	17.4	14.5
Thailand	33.3	66.1	26.4	24.0	16.9	16.3	4.7	3.8
Bangladesh	39.9	31.9	23.5	22.6	34.6	10.5	4.7	5.5
Nepal	44.7	52.2	23.5	20.8	15.2	7.5	10.5	9.5
India	26.6	21.5	17.4	18.3	34.9	17.5	6.8	6.5
Myanmar	168.0	65.5	17.2	15.1	18.2	1.2	7.1	n.a.
China	15.4	12.3	9.5	9.4	11.7	9.1	3.6	3.6

Note: For Myanmar, external debt stocks are expressed as the share to GDP, based on the data from IMF, *World Economic Outlook*, April 2013.

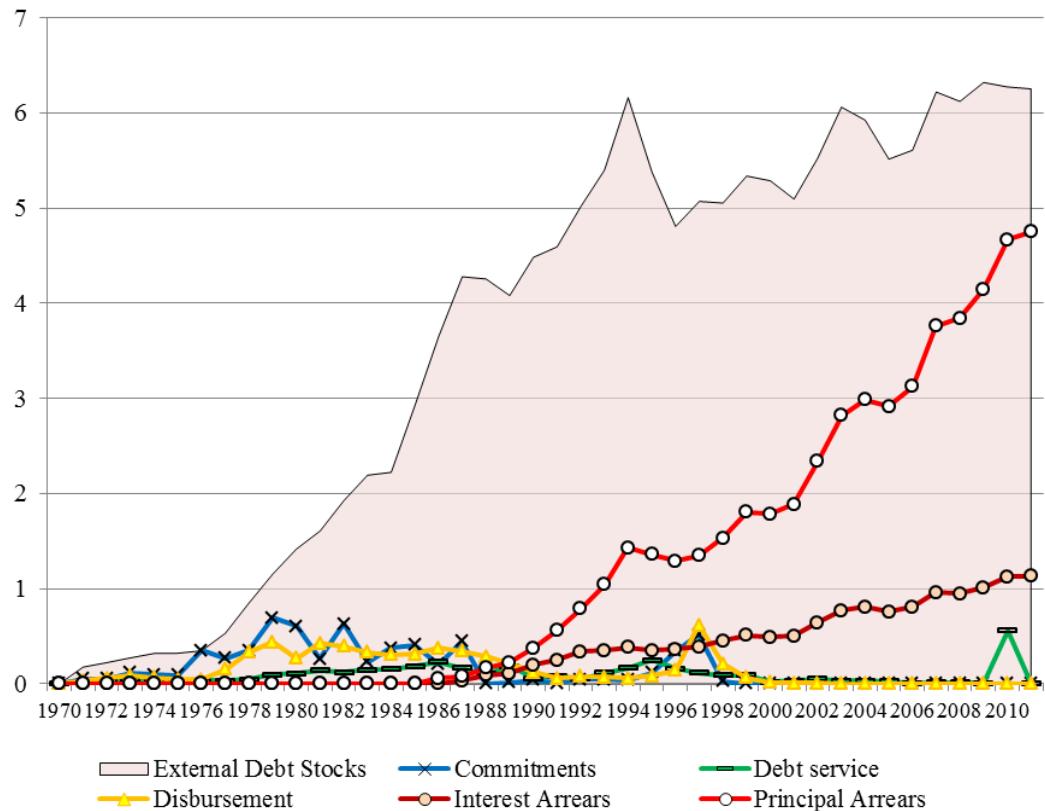
Source: World Bank, *International Debt Statistics 2013*.

CLMV countries had heavy debt burdens in 1990, and all of them have successfully decreased the external debt to GNI ratios but in a different way than Myanmar. During the last two decades, Cambodia, Lao PDR, and Vietnam have granted debt restructuring with the total amount of USD 3.2 billion, USD 2.21 billion, and USD 12.4 billion, respectively³. In contrast, debt restructuring granted to Myanmar during the same period was only USD 76.0 million, reflecting Myanmar's isolation under the military government.

As illustrated in Figure 1-3, Myanmar started to receive ODA in 1971, and the resulting long-term external debt stocks sharply increased to USD 6 billion by 1994. Commitments on long-term loan were regularly made in the 1970s and the 1980s, but stopped in 1998, when the military government seized power in a coup. Since then, the amount of both commitments and disbursement has been limited, mainly as a result of economic sanctions imposed by the US and European countries. Along with this trend, the repayment of principals and payment of interests started to fall into arrears. As a result, the amount of external debt has remained at around USD 5-6 billion with a slight upward trend. By the end of 2011, the total external debt has accumulated to USD 7.8 billion, of which USD 6.3 billion is long-term debt. That is, the observed reduction in the debt to GNI ratio in Table 1-4 was caused solely by the increase in GNI, instead of repayments. In short, Myanmar was isolated from the international aid community in both directions during the last two decades.

³ Calculated based on World Bank, *International Debt Statistics 2013*.

Figure 1-3: Myanmar's Long Term External Debt (billions USD)



Note: For Myanmar, external debt stocks are expressed as the share to GDP, based on the data from IMF, *World Economic Outlook*, April 2013.

Source: World Bank, International Debt Statistics 2013.

Ongoing changes in Myanmar since March 2011 have been welcomed by the international community with keen interests to resume official assistance to Myanmar. At this stage, the accumulated external debt and the arrears were exposed as a major bottleneck. However, the problem has been overcome by highly cooperative responses of the international community, the government of Japan in particular. As the first major reaction from the international community, Japan decided to waive USD 3.7 billion debt and overdue charges, and reached to an agreement when President Thein Sein first visited Tokyo, Japan in April 2012. This agreement enabled Japan to resume its yen loans to Myanmar. Japan also played a key role in the agreement in the Paris

Club. The Paris Club agreement on 25 January 2013 to provide a debt relief of USD 6 billion to Myanmar was the second monumental step, because this enabled other major donors, including the Asian Development Bank (ADB) and the World Bank, to provide fresh aids to Myanmar in the emerging context⁴. The ADB announced that the arrears owed to it had been cleared with the help of Japan, and thereby resumed the assistance to Myanmar by offering a USD 512 million loan for social and economic projects. Myanmar's arrears to the World Bank had also paid, again with the help of Japan, and the World Bank responded with a USD 440 million credit.

2. Changing External Environments: The Rise of Developing Asia

Past few decades, when Myanmar was substantively in isolation from the global economy, have witnessed a number of dramatic changes in the global economy. The rapid advancement of transportation, logistics, information and communication technologies have been transforming the world into a more integrated business space. Consecutive rounds of multilateral trade talks contributed in lowering tariff and nontariff barriers. Reflecting the stalemate of the multilateral trade talks under the WTO Doha round, bilateral and regional free trade agreements have been proliferated, underpinning the momentum for trade liberalization. Taking advantage of these environments, developing economies, particularly those in Asia, have achieved remarkable economic growth by implementing export-oriented growth strategies. As a result, Asian economies have jointly become a factory of the world supported by the

⁴ The Paris Club agreed to cancel half of the arrears Myanmar owed them in two stages, rescheduling the rest over 15 years, with seven years' grace.

development of regional production and distribution networks and the strong demand in the United States and other advanced countries.

As a natural and logical consequence, the rise of developing economies caused the relative decline of advanced countries. As summarized in Table 1-5, there are notable changes in the share of GDP in terms of purchasing power parity (PPP) in the last two decades. The share of advanced economies declined rapidly from 61.2 percent in 1992 to 48.2 percent in 2010, and the speed of decline has accelerated in the 2000s. This decline of advanced economies has largely been filled by the rise of developing Asia, which expanded the GDP share from 14.4 percent in 1992 to 28.0 percent in 2010. Although the emergence of China is outstanding, the GDP shares of other developing Asia also recorded steady increases during the same period despite the serious negative shock from the Asian crisis in the late 1990s. In contrast, the GDP shares of the rest of the world, comprising of transition economies and developing economies in other part of the world, have been sluggish, experiencing a slight decline from 24.5 percent in 1992 to 23.9 percent in 2010. Even the popular emerging economies, i.e., Russia and Brazil, decreased their shares in the world GDP. In short, the most significant change in the share of world GDP is the shift from advanced economies to developing Asia.

Table 1-5: PPP-based GDP Shares in the World (%)

	1992	1995	2000	2005	2010
Advanced Economies	61.2	60.6	59.1	54.8	48.2
G3	38.0	37.3	36.3	33.4	29.2
: United States	22.8	22.9	23.5	22.2	19.4
: Japan	9.4	8.9	7.7	6.8	5.9
: Germany	5.9	5.6	5.1	4.4	4.0
Other G7	13.3	13.0	12.6	11.6	10.0
Other Advanced Economies	9.8	10.3	10.3	9.8	8.9
Developing Asia	14.4	16.9	18.8	22.2	28.0
Asian NIEs	2.8	3.1	3.3	3.4	3.5
ASEAN	3.3	3.8	3.6	3.9	4.2
: ASEAN-6	3.0	3.5	3.2	3.4	3.7
China	4.3	5.7	7.1	9.4	13.6
India	3.0	3.3	3.7	4.3	5.4
Other Developing Asia	1.0	1.0	1.1	1.2	1.3
Rest of the World	24.5	22.5	22.1	23.1	23.9
Central and Eastern Europe	3.1	3.2	3.3	3.5	3.4
Commonwealth of Independent States (CIS)	5.9	4.0	3.6	4.1	4.3
: Russia	4.2	2.9	2.6	3.0	3.0
Latin America and Caribbean	9.1	9.2	8.9	8.4	8.6
: Brazil	3.0	3.2	2.9	2.8	2.9
Middle East and North Africa	4.3	4.2	4.3	4.8	5.1
Sub-Saharan Africa	2.1	2.0	2.0	2.2	2.5

Note: Asian NIEs include Korea, Hong Kong, and Taiwan. Singapore is included in ASEAN.

Source: IMF, World Economic Outlook Database, October 2012.

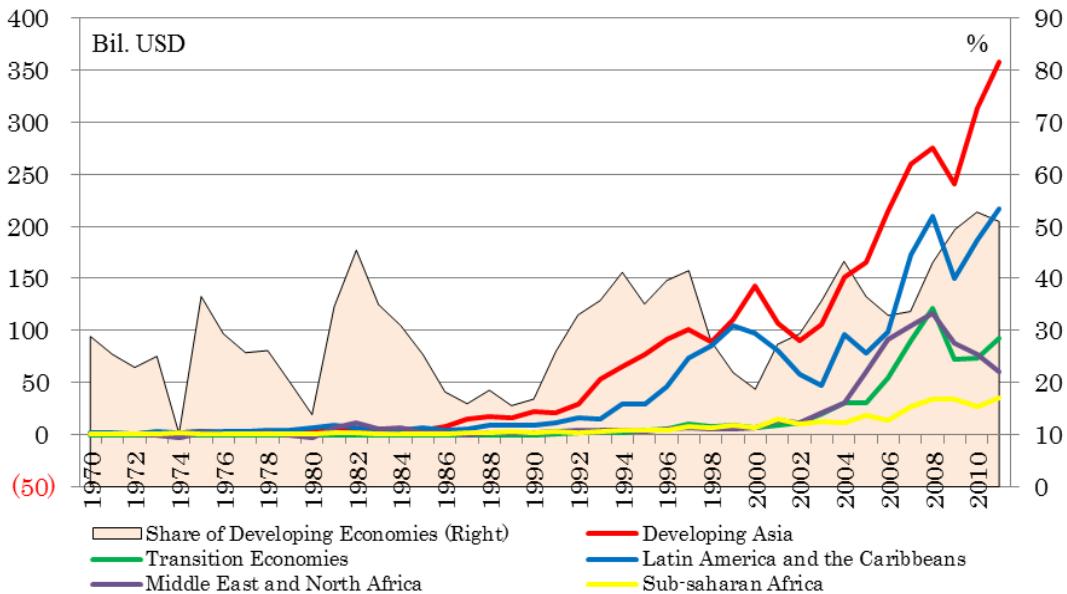
The deep recession in the United States and debt crises in the European Union since the late 2000s have further increased the attractiveness of developing Asia both as the place to expand economic activities through foreign direct investments and the vigorous markets backed by rapidly growing middle class population in the region. The United States under the Obama administration and Japan, for example, have aggressively increased their commitments with developing Asia. In addition, developing Asia itself has been enhancing regional cooperation by concluding free trade agreements (FTAs) and other economic cooperation programs, to take more advantages of its own development momentum while reducing the dependence on advanced economies under recession. All these developments can be regarded as strong reasons for us to believe that developing Asia will be the driving force of the world economy at least in the foreseeable future.

Let us look at more details of the changes in developing Asia. According to Ozeki (2008), on the top of the growth of the world trade, East Asia⁵ expanded its share in the world trade from 15.0 percent in 1980 to 23.5 percent in 2006, indicating a significantly faster rate of growth than other part of the world. As often described, the economic development of Asia has been driven by the expansion of international trade underpinned by open economic policies of its own and of the United States in particular as the main export destination.

Moreover, the nature of international trade itself has been changing. Historically, a large part of international trade between advanced economies (the North) and developing economies (the South) was based on comparative advantages at national levels. Typically, advanced economies exported manufactured goods to developing economies, and imported agricultural products and natural resources. Reflecting the enhanced competition among advanced economies, open economic policies in developing economies, and the advancement of transportation, logistics, information and communication technologies, advanced economies started to shift their manufacturing activities to developing economies through foreign direct investments (FDI) particularly since the 1980s. As a result, the connectivity between the North and the South has dramatically enhanced by the development of international production and distribution networks.

⁵ East Asia is defined as sixteen original members of the East Asia Summit (EAS), namely, ten ASEAN Member States, Australia, China, India, Japan, Korea, and New Zealand.

Figure 1-4: FDI Inflow to Developing Economies



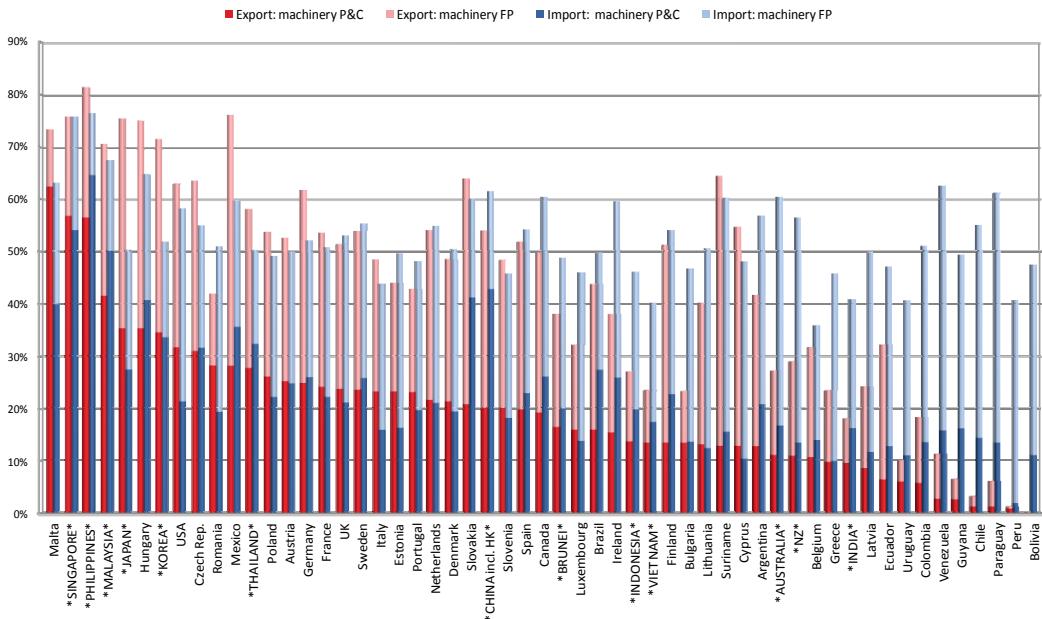
Source: UNCTAD website.

According to the UNCTAD statistics, the world FDI had increased from USD 13.3 trillion in 1970, USD 54.1 trillion in 1980, USD 207.5 trillion in 1990, USD 1,400.5 trillion in 2000, and to USD 1,524.4 trillion in 2011, marking more than 100 times increase in the last four decades. The share of developing economies as the hosts of FDI recorded several declines as illustrated in Figure 4, largely because of the oil crises in 1974 and 1980, the Asia crisis in the late 1990s, the burst of the IT bubble in 2000, and the world-wide recession triggered by the financial crisis in the United States in the late 2000s. However, the amount of FDI inflows to developing economies increased significantly since the late 1980s. As a consequence, manufacturing activities have spread to the South, and the international trade in parts and components of manufactured goods has increased. Again, developing Asia has been receiving the largest part of FDI inflows to developing economies throughout the periods since the

late 1980s. Indeed, as discussed fully in ERIA (2010), “(i) international production networks in East Asia have become the most advanced and sophisticated in the world and have been the source of dynamism for East Asian economies with strong resilience against macro shocks”, and this contributed a lot in the remarkable economic development of the region. Moreover, since the formation of regional production networks in East Asia, they have been upgraded and sophisticated by a self-enforcing manner. Experiencing the positive impacts on employment and economic growth, developing Asia has strong incentives to attract FDI through continuous policy reforms and infrastructure developments. On the other hand, advanced economies have strong incentives to cooperate with developing Asia to support their own companies operating in developing Asia. The successful economic development of developing Asia can be attributable to such a favorable win-win situation.

Figure 1-5 illustrates the shares of machineries in total exports/imports of manufactured goods to/from the world in 2007, sorted by the share of machinery parts and components in exports of manufactured goods. There is a clear tendency that East Asian economies are ranked higher than economies in other regions, indicating higher levels of participation in regional production networks. This can be regarded as indirect evidence supporting the views that regional production networks in East Asia is the most sophisticated in the world.

Figure 1-5: Share of Machineries in Trade of Manufactured Goods with the World (2007)



Source: Kimura and Obashi (2010).

In summary, one of the most significant changes in the world economy in the last few decades is the rise of developing Asia, where sophisticated regional production networks have been formed through the continuous improvement in business environments. The sophisticated production networks nowadays enable fragmentation of manufacturing activities to the division of labor in terms of production processes and tasks. Baldwin (2011) named this phenomenon as the second unbundling in contrast to the traditional first unbundling which is characterized by international division of labor in terms of industry. This change in the nature of international trade calls for fundamental changes in international cooperation for economic integration. Countries interested in effectively joining the regional production networks need to implement a number of policies including trade facilitation, investment liberalization and facilitation,

services trade liberalization, infrastructure development in transport, ICT, and energies, and so on, in addition to the traditional policies for trade liberalization. These are exactly what ASEAN has collectively envisaged in the ASEAN Economic Community (AEC).

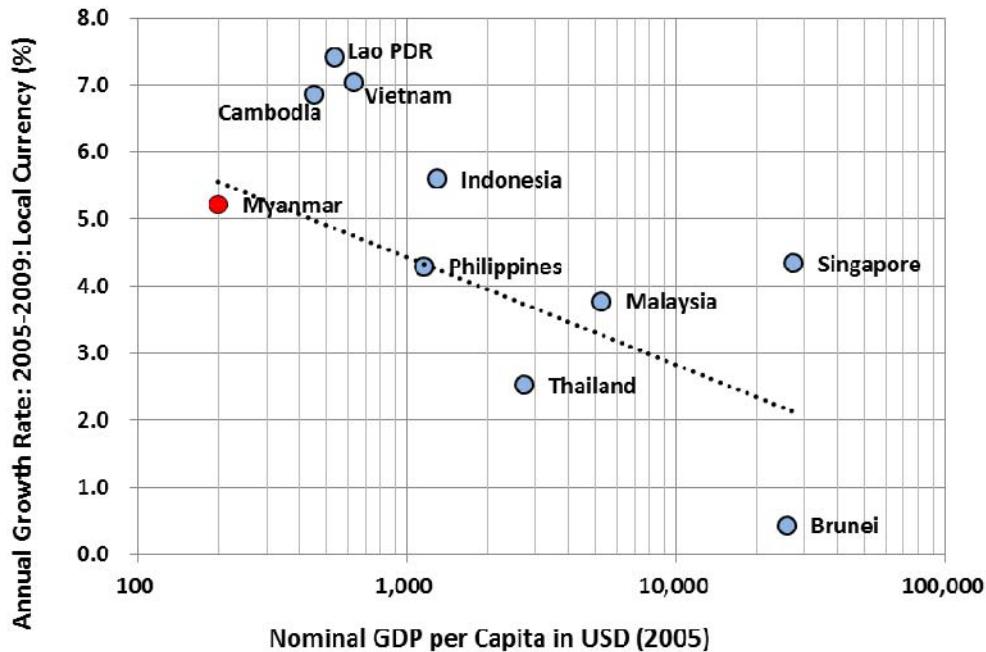
At the same time, the emergence of developing Asia as “Factory Asia” has been supported by “the rise of mass marketing in the West and, in particular, changes in the consumption structure of the US market” (WTO and IDE-JETRO: 2011). As argued fully in the report, “this demand-supply relationship between the United States and Asia has led to Asian economies being structured in accordance with their respective comparative advantages. Over time, economic roles within East Asia have changed, leading to a regional clustering of supply chains based on close industrial interconnections. This industrial interconnection has paved the way for closer regional integration, facilitating trade within the supply chains.” As a natural consequence, this trend resulted in global imbalance. And, reflecting the recessions in the West since the late 2000s, the role of developing Asia as emerging markets for the global economy has become more important, in addition to the role as the factory of the world.

3. Changing Regional Environments: the ASEAN Economic Community Building

One of the major emerging regional changes surrounding Myanmar is the deepening of economic integration in ASEAN, well known as its endeavor to establish the ASEAN Economic Community (AEC) by 2015. With the goal of establishing the AEC by 2015, the ASEAN Member States (AMS) adopted the AEC Blueprint as a

binding document in November 2007 (ASEAN: 2007, 2009), where the AEC is characterized as (a) a single market and production base; (b) a highly competitive economic region; (c) a region of equitable economic development; and (d) a region fully integrated into the global economy⁶.

Figure 1-6: Converging ASEAN



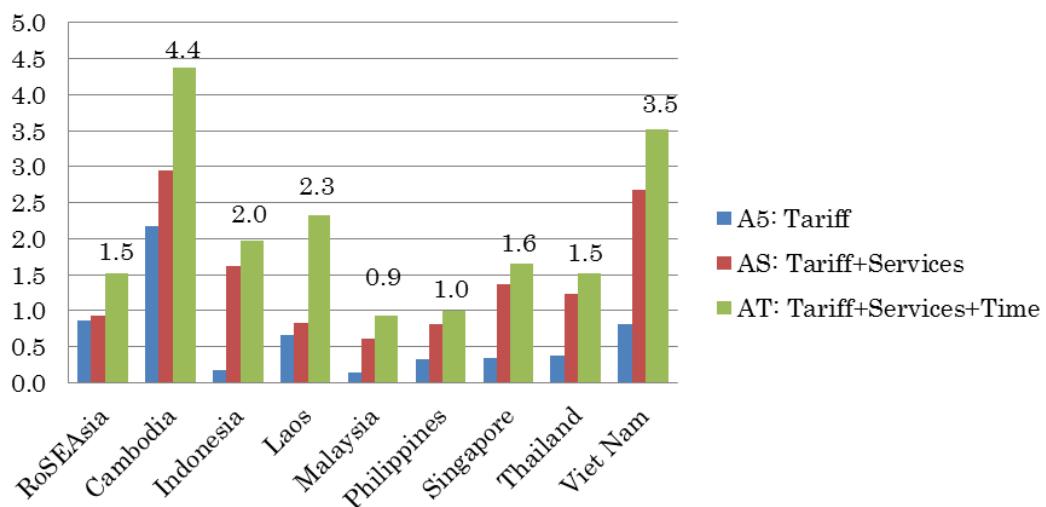
Source: Data from ASEAN Statistics, <http://www.asean.org/resources/category/asean-statistics>

As the AEC is a highly comprehensive initiative, it is expected to have wide-ranging impacts on Myanmar. Figure 6 may provide an indirect indication by comparing Myanmar's recent economic growth with that of other AMS, particularly Cambodia, Lao PDR, and Vietnam. The horizontal axis shows nominal GDP per

⁶ Although the progress of implementation of the AEC Blueprint itself has been a major issue of interest, it is beyond the scope of this chapter. For more on the issue, refer to ASEAN Secretariat (2010, 2012), ERIA (2012), ERIA Study Team (2010), Ishido (2011), Ishido and Fukunaga (2012), Itakura (2013), and Umezeki (2013), for example.

capita in 2005 and the vertical axis shows the subsequent rates of economic growth. The negative correlation indicates a sign of convergence; one of the most important goals of the AEC is to narrow such development gaps. Although Myanmar's growth performance is higher than those of five advanced AMS, it is lower than Cambodia, Lao PDR and Vietnam, all of which have been connected with neighboring countries. During the years under the military government, Myanmar's exposure to the global economy was much lower than these three AMS due to its restrictive economic policies and economic sanctions imposed by the United States and others. The establishment of the AEC, reinforced by the ongoing economic reforms and the lifts of economic sanctions, is expected to change this trend, and thereby enable Myanmar to draw more dividends from the regional economic integration.

Figure 1-7: Impact of AEC on GDP



Notes: The impacts are expressed in terms of cumulative percentage increase over baseline 2011-2015 in 2015. Brunei Darussalam is proxied by RoSEAAsia (Rest of Southeast Asia) in the simulation, and Myanmar is not included in the analysis because of Global Trade Analysis Project (GTAP) modeling constraints.

Source: Itakura (2013)

Given the complexity of growing regional production networks, which are observed

as a key driving force of the economic development of emerging economies, including the original AMS, it has become more important to pay explicit attention to facilitate international divisions of labor in terms of production processes. The AEC Blueprint, therefore, includes a wide range of liberalization and facilitation measures in addition to trade liberalization, the traditional mode of economic integration. According to a dynamic GTAP analysis by Itakura (2013), as referred in ERIA (2012), the expected impacts of complete tariff elimination is largely marginal for most of AMS because their CEPT rates are already low (Figure 1-7)⁷. In contrast, the expected impacts are higher in Cambodia, Lao PDR, and Vietnam, where average CEPT rates are the highest among AMS. Although Myanmar is not explicitly analyzed in the study due to lack of data, it is reasonable to expect significant impacts comparable to what has occurred in Cambodia, Lao PDR and Vietnam. Another important implication identified by Itakura (2013) is that the scope of economic integration does matter for higher gains in terms of GDP. Expected impacts of the AEC on GDP is the highest in AT scenario in Figure 4, which includes trade facilitation measures in addition to liberalization in trade in goods (A5) and services (AS). This result provides encouraging evidence for ASEAN to pursue deeper economic integration in the AEC which goes far beyond the traditional type of economic integration under the ASEAN Free Trade Agreement (AFTA).

In order to realize the potential opportunities of the AEC, however, Myanmar needs to overcome a number of challenges. First of all, Myanmar needs to squarely face the fact that the impacts of economic integration will be unevenly spread across economic sectors and across regions. The benefits of economic integration in general are not just

⁷ According to ERIA (2012), “CEPT-rates are virtually zero in ASEAN-6. The average CEPT rate for CLMV was 2.6% in 2010”, and as a result, “intra-ASEAN trade share increased for around of top 25 traded commodities” in ASEAN, indicating successful implementation of trade liberalization in terms of tariff reduction.

added on to existing economic activities. In reality, the process of economic integration requires member countries to experience major structural adjustment through the relocation of production factors such as labor and capital to maximize the profits in the new environment. The AEC is expected and designed to allow the private sector, regardless of nationality, to relocate operations to a more profitable place in ASEAN without being confined in a specific country, in terms of factor intensity, adjacent to the market, and convenience to supply chains. Therefore, it is natural to expect that some existing economic activities in a country might lose out while others gain in the new environment of a more integrated economic space. Of crucial importance during the process of structural adjustment is to not excessively protect incumbent economic activities that operate from a disadvantageous position, but to pay necessary adjustment costs by facilitating intersectoral or interregional mobility of production factors and by designing and implementing effective redistribution policies from those who gain to those who are losing out.

A typical example of this challenge can be found in Myanmar's struggle to revise the Foreign Investment Law. The envisaged vision and initiatives of the AEC, including the ASEAN Comprehensive Investment Agreement (ACIA) for example, require Myanmar to introduce more liberal policy measures. However, it would have major conflicts with Myanmar's domestic interests, particularly with groups that have vested interests to protect. By introducing democratic decision making, Myanmar has been becoming more prone to the status quo. In addition, as state owned enterprises still have a large share in the Myanmar economy, it is more difficult for the Myanmar government to undertake liberalization measures that might harm the state owned enterprises. Such pains of structural adjustment need to be mitigated by facilitation and redistribution policies, instead of rendering ongoing economic reforms ineffectual.

Another major challenge in implementing the AEC Blueprint is the limitation in capacity in terms of infrastructure, institutions, human resources, technology, and finance. Without adequate infrastructure, such as roads, ports, airports, power plants, and industrial estates, it is difficult for Myanmar to make the best use of its comparative advantages such as abundant and less expensive labor, natural resources, and the strategic location as the connecting node between China, India, and Thailand. The hurdle to implement the AEC Blueprint is much higher for Myanmar than Singapore for example, not only because the scope of necessary reforms are wider but also because of the lower capacity of available institutions and human resources. The limited institutional capacity also results in the lack of reliable information, including official statistics, and this causes difficulties in designing effective policy measures to cope with the rapidly-changing environment toward the establishment of the AEC and beyond.

However, as the due reward for its own efforts in undertaking such remarkable political and economic reforms, Myanmar now has tremendous opportunities to take advantage of external resources in the form of official financial, technical assistance and foreign investments to help fill in its gaps. In order to fully leverage such external resources, Myanmar needs to have a strategic vision to generate win-win situations on a variety of fronts with various development partners. Of crucial importance for this purpose is the steady implementation of the AEC commitments. Myanmar is endowed with abundant low cost labor and a strategic location, a combination that is very attractive to potential foreign investors. However, these factors alone are not enough to persuade them to actually invest in Myanmar. These endowments need to be accompanied by adequate infrastructure, including physical infrastructure such as roads, ports, airports, power plants, and water, and institutional infrastructure such as efficient customs, a capable and reliable financial system, and a credible protection for investors.

Efficient logistic services providers and prudent financial institutions are also indispensable for Myanmar to participate in regional production networks. The steady implementation of the AEC commitments is expected to equip Myanmar with these preconditions, and can be the source of generating a win-win situation between Myanmar and foreign countries.

In summary, new opportunities are wide open in front of Myanmar, particularly as a result of its own efforts for political and economic reforms most of which have been observed as consistent with the visions of the AEC. The challenges that Myanmar faces could be overcome by learning lessons from the development experiences of the neighboring countries and by taking advantage of external resources, as development partners and the private sectors are interested to invest. For this to happen, Myanmar needs to keep implementing the ongoing political and economic reforms as well as the AEC commitments.

4. Re-emergence of Myanmar: From a Missing Link to a Connecting Node

Despite being a member of ASEAN since 1997, Myanmar economy has been substantively insulated from the regional and global economy, with the significant exception of China, mainly because of economic sanctions imposed by the United States and European countries. The high degree of uncertainty under the military government has kept even other AMS from enhancing their engagement with Myanmar economy.

Myanmar's re-emergence into the global and regional economies has been taking place in the changing external environment as discussed above. During the decades of

Myanmar's isolation, neighboring countries in developing Asia have achieved remarkable economic growth. Developing Asia is now strongly connected to the global economy through the regional production networks, which have expanded the frontiers to Myanmar's neighboring countries such as Thailand, China, and India. In fact, Myanmar has long been the significant missing link in the regional production networks. Paradoxically, this is the breakthrough. Although the regional production networks have not expanded to Myanmar, they have already reached to the neighboring countries such as Thailand, China and India. By enhancing the connectivity with these neighboring countries, Myanmar can join the well-developed regional production networks and enjoy the benefits from being a part of them. This is a short-cut for Myanmar to re-emerge into the global economy. In addition, Myanmar is expected to become the node connecting three of the world most vibrant economies, namely, China, India and ASEAN.

The recent political and economic reforms in Myanmar, indeed, have been completely changing the landscape surrounding Myanmar. Japan's decision to write-off outstanding debts amounting to JPY 300 billion in early 2012 was the first major response from the international community, which induced unprecedented interests from Japanese companies in Myanmar. In response to the successful by-election in April 2012, the United States and European countries started to lift economic sanctions on a step-by-step basis. In addition, with the effective support of Japan, the Paris Club agreed to provide a debt relief of USD 6 billion to Myanmar, paving a way for the World Bank and the ADB to resume fresh aids to Myanmar⁸.

⁸ The Paris Club agreed to cancel half of the arrears Myanmar owed them in two stages, rescheduling the rest over 15 years, with seven years' grace. As Myanmar's arrears owed to the World Bank and ADB were cleared with the support of Japan, they resumed the assistance to Myanmar by offering USD 440 million credit and a USD512 million loan respectively.

Thailand began in earnest with a comprehensive development project in Dawei, which is known as a part of the Mekong-India Economic Corridor (MIEC)⁹ (See Box 1-1). This project is expected to enhance the connectivity between the Greater Mekong Subregion and India, by providing an alternative and short-cut route connecting the two vibrant economies. Moreover, Thailand started to provide official assistance to upgrade the road infrastructure between Kawkaleik and Mawlamyine, a critical section to physically connect Myanmar and Thailand, and beyond. The re-emergence of Myanmar provided Thailand new and feasible opportunities to expand its economic activities to Myanmar, India, and beyond.

As a part of the re-activation of its “Look East Policy”, India has been reengaging with Myanmar. Indian Prime Minister Manmohan Singh visited Myanmar in May 2012 for the first time in a quarter century, and agreed with President Thein Sein to enhance bilateral economic ties. In the resulting Memorandum of Understanding, India and Myanmar agreed to double bilateral trade by 2015, and for this purpose India agreed to provide USD 500 million credit, with a focus on connectivity related projects such as repair and upgrading of the bridges on Tamu – Kalewa friendship road along the ASEAN Highway No.1, the Air Services Agreement between India and Myanmar, border area development projects, and so on. For India, the connectivity with Myanmar is expected to contribute in the economic development of the Northeast Region, a relatively isolated part of the country¹⁰.

⁹ On 23 July 2012, President Thein Sein and Thai Prime Minister Yingluck Shinawatra signed a memorandum of understanding (MoU) on the cooperation for the Dawei development project, which had been implemented based on an MoU between Myanmar Port Authority and a Thai private developer, Italian-Thai Development, Plc. MIEC is an extended version of the Southern Economic Corridor under the Greater Mekong Subregion program lead by the ADB. For details on MIEC and the Dawei development project, see ERIA (2010) and Kimura, *et al.* (2011), for example. MIEC is also recognized as one of the key projects in the Master Plan on ASEAN Connectivity (ASEAN, 2010).

¹⁰ For more on the views from India, refer Pulipaka (2013), Kimura, *et al.* (2011), for example.

The relationship with China has evolved differently. Before the democratization under the Thein Sein administration, China was acting as a guardian for the then military government. During the absence of other development partners, China initiated a number of development projects, such as the deep sea port and a special economic zone in Kyaukphyu, oil and gas pipelines connecting Kyaukphyu and Yunnan province of China, and hydropower plants in the border areas, based on its strategic interests to open an alternative route to the Indian Ocean and to help meet the rapidly growing demand for energy. The resulting over-dependence on China has been reviewed since the opening up of Myanmar, and the bilateral tie is currently at a crossroad¹¹. The suspension of Myitsone Dam project, declared on 30 September 2011, is regarded as an epoch making event. Nonetheless, China is and will be one of the most important neighbors for Myanmar to design a long term vision for its economic development in the emerging context.

All these developments were triggered by the dramatic political and economic reforms in Myanmar since the inauguration of the Thein Sein administration and will surely help Myanmar to implement the initiatives under the AEC Blueprint and enhance its connectivity with neighboring countries and the global economy. MCDV needs to be designed to make the best use of these opportunities.

First of all, Myanmar needs to develop domestic economic corridors with effective connection to the international economic corridors which has already reached to the neighboring countries such as China, Thailand, and India. Figure 5 highlights the strategic location of Myanmar as the regional connecting node. Myanmar can open two main routes connecting ASEAN and India, the sea route, as the west link of the

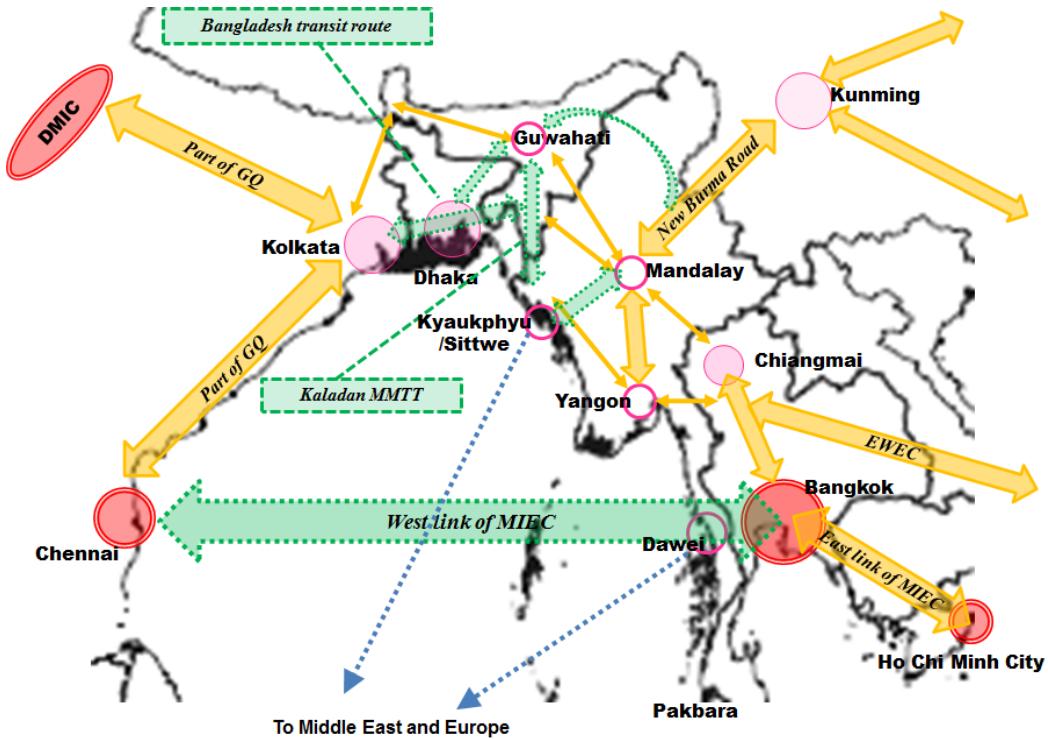
¹¹ See Kudo (2012), for the history and the current status of the bilateral relationship between China and Myanmar.

Mekong-India Economic Corridor (MIEC), and the land routes, with various optional routes, along the trilateral highway between Thailand, Myanmar, and India.

The west link of MIEC, from Bangkok to Chennai via Dawei, is designed to enhance the connectivity between Bangkok and Chennai where large agglomerations of manufacturing industry have been formed by inviting a large amount of FDI most notably in automotive and electronics sectors. The enhanced connectivity between Bangkok and Chennai is expected to enable those manufacturing companies to improve their competitiveness by reviewing and restructuring their production networks, including further fragmentation of some parts of production processes. Reflecting the promising benefits, ASEAN Leaders agreed to promote the completion of MIEC in the Master Plan on ASEAN Connectivity (ASEAN, 2010).

However, the MIEC is not sufficient to meet a number of challenges the region faces. In order to effectively expand regional production networks, which is of crucial importance to pursue both deepening economic integration and narrowing development gaps at the same time, it is necessary to improve physical infrastructure for land transportation. There still remains large area with less than USD 500 per capita income along the north bank of the Andaman Sea, consisting of Myanmar and Northeast India. These economies are characterized by agriculture and other natural resource industry, with no significant manufacturing activity. For these regions, enhanced connectivity with neighboring cities and countries are highly important to widen the access to the large market and to invite new industries, fragmented production processes, based on their location advantages.

Figure 1-8: Myanmar as an Emerging Connecting Node



Source: Kimura, et al. (2011).

Second, in order to effectively join into the regional production networks, Myanmar needs to substantially reduce services link costs, which are the costs to link remotely located production blocks (ERIA, 2010). The lower the services link costs, the more opportunities for foreign investors to consider Myanmar as the destination for the second unbundling. Most of the necessary measures, such as trade liberalization and facilitation, investment liberalization and facilitation, services liberalization, infrastructure development and facilitation measures in the transport sector, are already included in the AEC Blueprint. Although Myanmar has been facing difficulties in implementing the AEC Blueprint, it can now expect bigger than ever assistance from the international community.

Finally, but not least, it is important for Myanmar to strategically identify cities to

nurture industrial agglomerations. Despite the strong political motivation for balanced and inclusive economic growth, available financial and human resources are still limited to spread all around the country. Experiences of other developing Asian countries tell us the importance of creating a critical mass in the early stage of economic development. According to Kudo and Kumagai (2012), Yangon and Mandalay are expected to play a key role to drive the whole economy. As their simulation analyses revealed, this two-polar strategy is expected to guide Myanmar to pursue both high economic growth and balanced and inclusive economic development.

As discussed above, the ongoing political and economic reforms in Myanmar initiated by President U Thein Sein have brought new reality, new opportunities, and new challenges to Myanmar. We need to envisage our development vision based on these factors.

Box. 1-1. Dawei revisited. Reaffirmation of the importance of the project in the era of reforms in Myanmar

Dawei project and ASEAN-India connectivity have been noted as a promising area for development. ERIA (2009) proposed the Mekong-India Economic Corridor (MIEC) and analyzed the possible impact of the corridor development (Figure B1-1). The Comprehensive Asia Development Plan (ERIA, 2010) compared the economic impacts of the North-South Economic Corridor, the East-West Economic Corridor and the MIEC developments and concluded that the MIEC offers the largest potential contribution to regional economic growth. The missing links between Dawei and the Maesamee pass (Phu Nam Ron) was designated as a part of a prioritized project for ASEAN Connectivity (ASEAN 2010). The Comprehensive Asia Development Plan Phase II project (Kimura and Umezaki, 2011) highlighted several potential links in ASEAN-India Connectivity such as the MIEC and the Trilateral Highways. All studies showed that Dawei and Myanmar were the weakest links in the corridors, which offer high potentiality. There has, however, been a long delay in the implementation of proposed projects, including the Dawei deep sea project, the Dawei Special Economic Zone (SEZ) project and road construction connecting to Thailand.

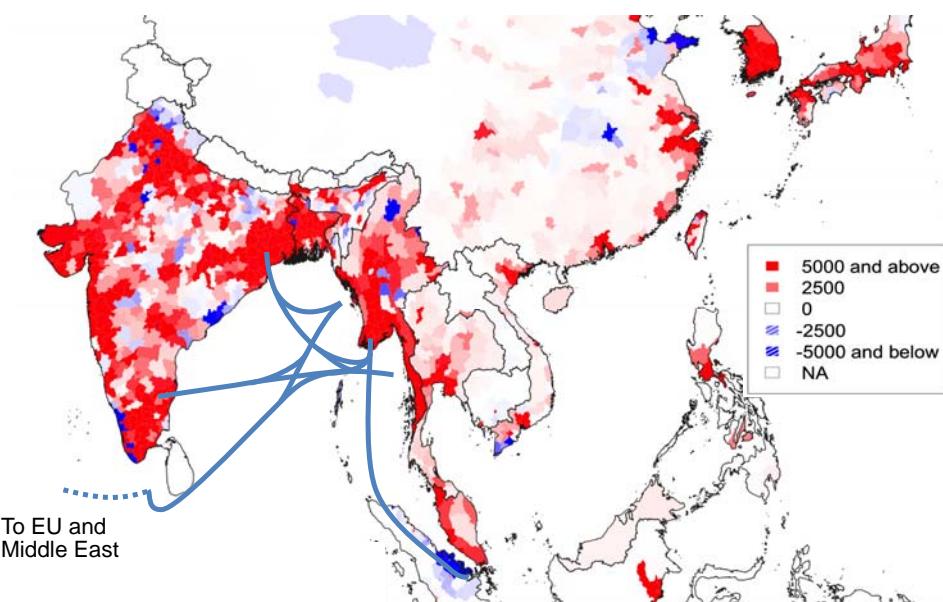
Figure B1-1. Mekong-India Economic Corridor and Dawei



Source: ERIA.

Under the new circumstances created by ongoing changes in Myanmar, Isono and Kumagai (2013) undated their analysis on the impact of Dawei project, using the Geographical Simulation Model (GSM), and re-affirm the importance of the project (Figure B1-2).

**Figure B1-2. Economic impacts of “reforming Myanmar and Yangon development”, “domestic connectivity enhancement”, and “Dawei development”
(Impact Density, USD per square kilometer, 2030)**



Source: IDE/ERIA-GSM 6.

The simulation analysis clearly shows the different characteristics of the three major projects,

i.e., the Yangon development, domestic connectivity enhancement, and the Dawei development, in two ways. The first difference is the development period. Some of the Yangon development can be implemented by 2015 while the total completion of the domestic corridors and the Dawei development needs longer period. The second difference is the beneficiary. The Yangon development and reforming Myanmar will definitely benefit Myanmar, but the main beneficiary is Yangon area. Domestic connectivity enhancement contributes to further economic growth of the country as well as inclusive development in Myanmar and also avoids excessive agglomeration and congestion in Yangon area. The Dawei Project contributes in promoting inclusive development in Myanmar and high economic growth of the region as a whole. In sum, Myanmar and East Asia can achieve high economic growth and narrow development gaps by combination of the factors of Yangon development, reforming Myanmar, domestic corridors and the Dawei project.

In particular, there is a strong policy implication that the Dawei project is vital to further development of the Mekong region, notwithstanding the current reforms in Myanmar. There needs to be international or regional cooperation in helping Myanmar and the Dawei project, because the economic impacts of the Dawei project will be positively felt in East Asia. There also needs to be the highest level of border facilitation between Dawei and Kanchanaburi, so that trucks belonging to Thai logistics companies are able to come directly to the port at Dawei.

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CHAPTER 2

Agriculture Development

On 19 June, 2012, President U Thein Sein declared that the government had entered into the second phase of its reform strategy focusing on economic development (NLM dated 20 June, 2012). In the same speech, he announced four economic policies: (1) Sustaining agriculture development towards industrialization and all-round development; (2) Balanced and proportionate development among states and regions; (3) Inclusive growth for entire population, and (4) Quality of statistics and statistical system.

It is natural and reasonable that the government prioritizes agriculture as a source of broad-based growth and poverty reduction because agriculture in Myanmar accounts for 36 percent of GDP, employs a majority of the workforce, and generates 25 to 30 percent of export earnings in these days.

1. Role of Agriculture in the Economic Development

While Myanmar's economic reform realizes the huge potential of the agriculture sector to achieve growth and poverty reduction, First Five Year National Development Plan 2011/12 – 2015/16 aims to improve the economic structure by reducing the share of agriculture in GDP from 36.4 percent to 28.1 percent. Meanwhile, the shares of industry and service are targeted to increase from 26.0 percent and 36.1 percent to 37.6 percent and 35.8 percent respectively.

Although the relative share of agriculture in GDP has decreased over the time, the country will remain an agriculture-oriented economy for some while. As shown in Table 2-1, the share of agriculture in GDP was as high as 57 percent each in 1990 and 2000, and then declined to 36 percent in 2010. Given inoperative structural change in 1990-2000 and non-accessibility to reliable statistics, a rapid decline of the role of agriculture sector in 2000-2010 remains questionable.

Table 2-1: Economic Structure of CLMV (% of GDP)

Country	Agriculture			Industry			Services		
	Value Added			Value Added			Value Added		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Cambodia	56.5	37.9	36.0	11.3	23.0	23.3	32.2	39.1	40.7
Lao PDR	61.2	48.5	30.3	14.5	19.1	27.7	24.3	32.4	42.0
Myanmar	57.3	57.2	36.4	10.5	9.7	26.0	32.2	33.1	37.6
Vietnam	38.7	24.5	20.6	22.7	36.7	41.1	38.6	38.7	38.3

Source: ADB, Key Indicators for Asia and the Pacific 2012.

An over estimation of GDP growth rates between FY1999 and FY2010¹² as well as overambitious industrial development plan starting from FY2001 misleads to believe in a speedy decline of the share of agriculture within the first decade of the 2000s. According to official GDP figure, the economy recorded a twelve-year consecutive double-digit growth rate for that period. During the overestimated period, industry had grown much more rapidly, at about 20 percent per annum. As a consequence, the share of agriculture in GDP substantially declined in the ten-year period, while that of industry increased.

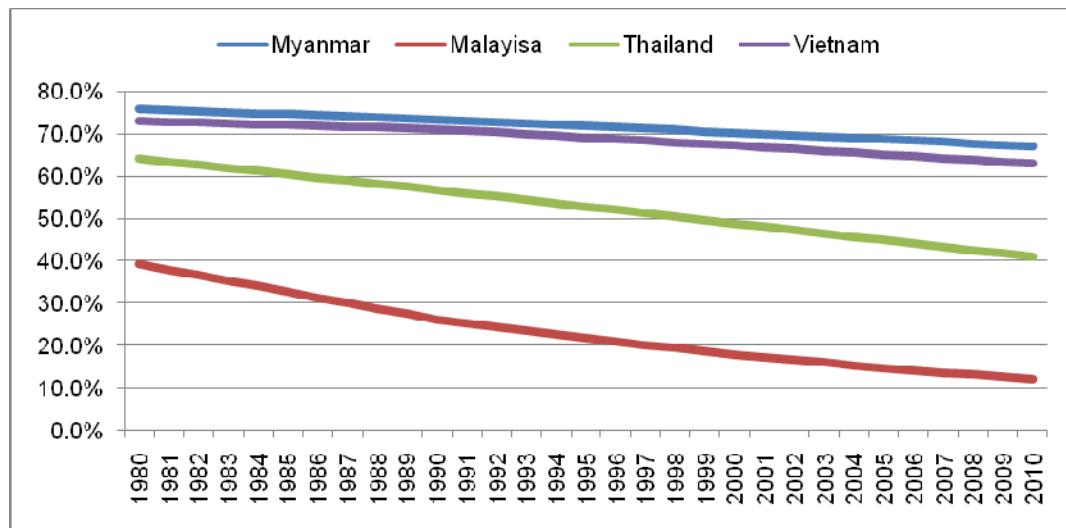
Another indicator to contradict relative decline of agriculture sector in the economy is the labour force. If the importance of agriculture in the economy decreased at a fast

¹² The fiscal year starts in April and ends in March in Myanmar.

pace, employment share of agriculture should also decrease relatively and significantly. Yet, agriculture still employs a majority of workforce in Myanmar. Figure 2-1 shows the share of agricultural population (hereinafter refers as AP)¹³ in total population for selected ASEAN countries. AP share for Myanmar is more than 67 percent while agriculture sector contributed just 36 percent to the GDP in 2010.

Based on the experiences of neighboring countries, the AP share declines as GDP per capita increases and Myanmar will not be an exception. However, the decline in the AP share is slower than that of agricultural GDP share. For instance, the share of primary industry in GDP for Vietnam is declined from 50 percent in 1980 to 21 percent in 2010. On the other hand, the AP share for Vietnam was 73.3 percent in 1980 and still 63.2 percent in 2010. Thus, in the case of Myanmar, agriculture is expected continues to be a main employment source for short- and medium-term.

Figure 2-1: Share of Agricultural Population in Total Population



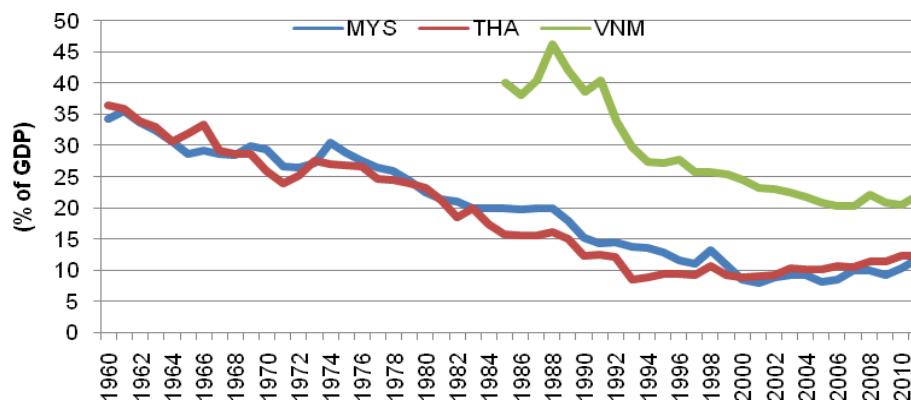
Source: Data from FAO Stat, <http://faostat.fao.org/>

¹³ FAO defines “agricultural population” as “all persons depending for their livelihood on agriculture, hunting, fishing and forestry. It comprises all persons economically active in agriculture as well as their non-working dependents.”

Figure 2-2 shows Agricultural GDP (hereinafter refers as AGDP) share for selected ASEAN countries. For Thailand and Malaysia, the AGDP share declined from around 35 percent in 1960 to around 10 percent in the 2000s. For Vietnam, the GDP share was over 40 percent in the late 1980s and declined to around 20 percent in the first decade of the 2000s. From these experiences of neighboring countries, Myanmar's AGDP share is also expected to decline in the long-run.

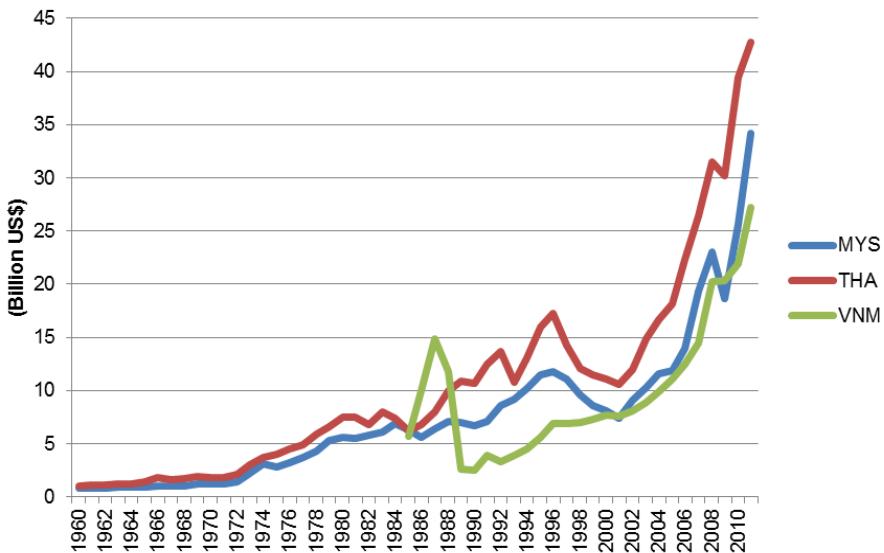
However, one important observation is that while AGDP share of these countries has declined, total value of production has been increasing. Moreover, in the first decade of the 2000s, the declining trend of the AGDP share in these countries has been curtailed and has become stable. Figure 2-3 shows the agriculture value added in Thailand (THA), Malaysia (MYS) and Vietnam (VNM). Although the AGDP share has dramatically declined until around year 2000, the absolute value of agricultural value added has an increasing trend. The pace of accelerating agriculture value added took place in the first decade of the 2000s because of increasing prices of primary goods supported by the ever-increasing world population and the economic development of populous emerging countries such as China.

Figure 2-2: Agricultural GDP Share



Source: World Development Indicators

Figure 2-3: Value Added in Agriculture



Source: World Development Indicators

The cases of Thailand, Malaysia and Vietnam suggest that although the relative importance of agriculture is declining in emerging economies, the agriculture is not necessarily a sunset industry. However, along with affirmative structural transformation, agriculture will reduce the use of labour force and will transfer them to manufacturing and service sectors, as done in the industrialized economies. As for Myanmar, industrialization process and structural change are still at the initial stage, and agriculture will remain as the important sector contributing to the economy by means of production, export and job creation.

Moreover, agriculture has special powers in reducing poverty. World Bank's cross-country estimates show that GDP growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture (World Bank 2008, p.6). Rural population represents about 70 percent of total population in Myanmar, and poverty incidence in rural areas was around twice as high as in urban areas at 29 percent and 15 percent respectively as of 2010 (NPED, SIDA, UNICEF and UNDP 2011). As a result, rural areas account for almost 85 percent of

total poverty in Myanmar. Agriculture and its related businesses are expected to contribute to poverty reduction.

The industrial sector of Myanmar is still dominated by agro-processing activities including rice milling and oil extraction. Comparative advantage will still lie in primary activities such as agriculture, livestock breeding, fisheries and agro-processing for the foreseeable future. Under such a situation, agricultural growth can induce strong growth in other sectors of the economy through multiplier effects (World Bank 2008, p.7). This is why, for many years to come, the growth strategy for most agriculture-based economies has to be anchored on getting agriculture moving (*ibid.*, p.7).

2. Agriculture Plus Plus

2.1 Characteristics and Direction of Agriculture Development in Myanmar

In pursuing the vision toward industrialization in Myanmar, agriculture has been providing broad based foundation for all-round development of the nation. However, agriculture sector itself is facing stagnation or slow pace of development and, contrary to the expectations, it may not be able to perform the role of an agent of change. First, structural transformation must be introduced to agriculture to act as growth engine. After the boost up, agriculture could stimulate Myanmar economy and become a major driver of growth in early stage of Myanmar's attempts towards industrialization. Reciprocal relation of agriculture and industry in backward and forward links could strengthen the growth of each sector. Despite the nation's attempt to shift to industrial development in later phases of growth, the role of agriculture will never be any less

important. In fact, it is important that in later phases of growth, agriculture sector must be able to gain sustainable growth and continue to serve as the foundation of nation's development in all aspects. It should also help in attaining a globally recognized Myanmar Brand for a food basket not only in the country but also in the regional and global markets.

Myanmar agriculture could be characterized as subsistence peasant farming or small-scale semi-commercial farming. Over fifty percent of agricultural population carries out farming as a livelihood activity. This must be changed to farming as a business where investment in agriculture will be acting as the driving force. Under this scenario, several groups of individual farmers will be linked with contract farming or forward sale contract. Commodity assembly will be carried out by establishing commodity exchange center or wholesale centers. Supply of farm inputs, delivery of certified crop varietal seeds with back up provided by seed industry, credit provision, introduction of forward sale contracts or any appropriate contract farming, collection of farm products in bulk and large volume basis of the homogenous products, establishment of proper storage and warehouses and processing facilities, processing with focus on standards and qualities, back up by trade financing (LC-based or pre-export financing), consumer-oriented or market-oriented production of final products and speedy and dependable supply of goods to buyers in local or global market outlets and all such supply chains will be conducted in an integrated business organization.

In such a highly commercial venture, it may not be possible to deal with all types of farmers and all diversified geographical sites. An export-oriented contracting zone should be selected in a favourable agro-ecological site. Private production blocks need to be developed first by the investors. Production from these blocks could contribute

pocket quota to their marketable need. Moreover, it will serve as platform for the purposes of technology adoption, seed production, and business incubation with local farmers to initiate contract farm culture. There have now emerged 61 Rice Specialized Companies and 22 Pulses Specialized Companies in various commercial agriculture townships of Yangon, Ayeyarwaddy, Bago West and Magway Regions.

Securing farm produces of specified standard from contracted farmers is primary concern for agribusiness. Production of quality produces with specified standard with minimum transaction costs in all supply chains could expect higher farm gate price. Again, higher milling ratio, minimum post-harvest loss, and low cost of getting credit (if it is jointly financed by agribusiness investor and entitled private banks) – all these factors could translate into higher effective crop price for farmers, and making farming profitable for them. Privately-owned agri-business investor could perform relevant commercial activities of all supply chains with farmers who own economically viable land holdings and could adopt the business culture. This business model may not be easy to adopt by small holders in poor agro-ecological conditions.

2.2 Improvement of Labor and Land Productivity

What strategy should be adopted for the growth of agriculture in Myanmar? Consider the following production function for agriculture:

$$Y = Af(A_L L, A_N N)$$

where Y is the output, A is the total factor productivity, A_L is the labour productivity and L is the labour input, A_N is the land productivity and N is the land input. In this case, the sources of the growth are A , A_L , L , A_N , and N .

Table 2-2 shows the agricultural productivity in selected ASEAN countries. In

case of Malaysia, labour productivity and agricultural GDP per economically active population in agriculture is exceptionally high at USD 11,370 per head. Those of Indonesia, Thailand and the Philippines are around USD 1,500, and those of Cambodia, Lao PDR and Vietnam are around USD 700-800. For Myanmar, the labour productivity is as low as at around USD 300.

Table 2-2: Agricultural Productivity in Selected ASEAN Members (2009)

Country	(A) Agricultural GDP (million USD)	(B) Total economically active population in agriculture ('000)	(C) Agricultural area ('000 Ha)	Labour productivity (A)/(B)	Land productivity (A)/(C)	Land per labour (C)/(B)
Cambodia	3,484	4,895	5,555	712	627	1.13
Indonesia	82,503	49,513	53,600	1,666	1,539	1.08
Malaysia	18,646	1,640	7,870	11,370	2,369	4.80
Myanmar	5,598	18,613	12,411	301	451	0.67
Thailand	30,234	19,494	19,795	1,551	1,527	1.02
Vietnam	20,321	29,302	10,272	694	1,978	0.35
Philippines	22,019	13,336	11,950	1,651	1,843	0.90
Lao PDR	1,929	2,311	2,346	835	822	1.02
Total/Average	184,734	139,104	123,799	1,328	1,492	0.89

Source: FAO Stat and ADB.

As for the land productivity, there are two groups of countries. The first group is Malaysia, Indonesia, Thailand, Vietnam, the Philippines and the land productivity for these countries are around USD 1500 - 2,500 per ha. The second group comprises Cambodia, Myanmar, and Lao PDR, and the land productivity for these countries is less than USD 1,000 per ha. Among them, that of Myanmar is exceptionally low at USD 451 per ha.

As for the land per labour, there are no large differences among ASEAN countries except for Malaysia, the highest land per labour (4.80 ha/labour) and Vietnam, the lowest (0.35 ha/labour). For Myanmar, land per labour is second lowest (0.67

ha/labour).

The discussion in the first section suggests that Myanmar cannot rely on the growth of labor inputs (L), because more and more workforce would be absorbed by other sectors, manufacturing in particular. So, the country has four other sources of growth to tap.

(1) Expansion of agricultural land (N)

Expansion of agricultural land is naturally one option. Myanmar's per capita agricultural land is 0.261 ha. This is at par with Thailand (0.288 ha) and Malaysia (0.282 ha), and among the highest in populated ASEAN countries (Table 2-3). On the other hand, agricultural land (net area sown) is only 18 percent of total land area (Figure 2-4). The ratio is smaller by more than 30 percent when compared to Philippines, Thailand, Vietnam and Cambodia and by more than 20 percent compared to Indonesia and Malaysia.

The successive governments tried to reclaim new agricultural land, and the military government successfully increased the net sown area for the last two decades. Still, “cultivable waste other than fallows” remains about 8 percent of entire land. There is a possibility to further reclaim cultivable wasteland in Myanmar.

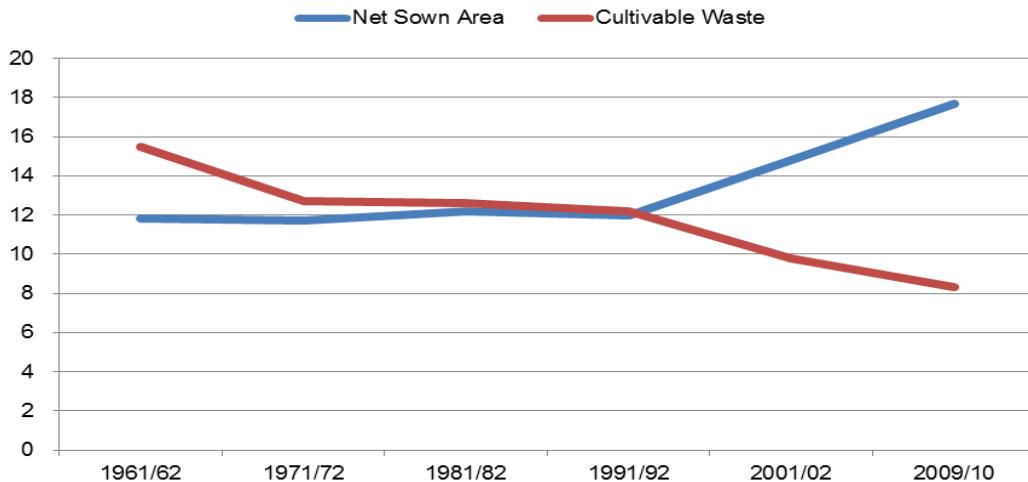
However, the frontier for reclaimable agricultural land has been disappearing in Myanmar, and expansion of agricultural land is becoming technically more difficult and financially more costly. The military government implemented large-scale deep-water reclamation projects for paddy cultivation in the Ayeyarwaddy Delta in the early 2000s, but the efforts mostly failed. Moreover, the environmental and social impacts of reclamation of agricultural land should also be taken into account in such plans. Inevitably, we need to look at the improvement of productivity.

Table 2-3: Agricultural Area, Area and Population of Selected ASEAN Members (2009)

Country	Agricultural area ('000 Ha)	Area ('000 Ha)	Population ('000)	Agricultural land as the percentage of total land area (%)	Average Agricultural land per head (Ha)
Myanmar	12,441	67,659	47,601	18.4	0.261
Malaysia	7,870	33,080	27,949	23.8	0.282
Thailand	19,795	51,312	68,706	38.6	0.288
Vietnam	10,272	33,105	86,901	31.0	0.118
Indonesia	53,600	190,457	237,414	28.1	0.226
Philippines	11,950	30,000	91,703	39.8	0.130
Cambodia	5,555	18,104	13,978	30.7	0.397
Lao PDR	2,346	23,680	6,112	9.9	0.384

Source: FAO Stat

Figure 2-4: Land use in Myanmar



Source: Agricultural Statistics.

(2) Enhancing labour and land productivity (A_L, A_N)

There are three kinds of productivity, namely labour productivity (A_L), land productivity (A_N), and total factor productivity (A). Land and labour productivity are firstly discussed. As shown in Table 2-2, the agricultural labour productivity in Myanmar is USD 301 per head, the lowest in the region. It is less than half of Vietnam, and less than one fifth of Thailand. As for the land productivity, that in Myanmar is

USD 451/ha, also the lowest among ASEAN countries.

To investigate production volume, rather than value, the most important crop in Myanmar, paddy, should be focused. Table 2-4 shows the land productivity, based on the production and area of paddy in 2010. The paddy yield of Myanmar is 4.12 ton/ha. This is about the average of East Asian countries, which is not very low but there is room for improvement.

Table 2-4: Paddy Production and Area (2010)

Country	(A) Production (ton)	(B) Area (ha)	A/B
Republic of Korea	6,136,300	892,074	6.88
China	197,212,010	30,117,262	6.55
Japan	10,600,000	1,628,000	6.51
Vietnam	39,988,900	7,513,700	5.32
Indonesia	66,469,400	13,253,500	5.02
Myanmar	33,204,500	8,051,700	4.12
Malaysia	2,548,000	673,745	3.78
Philippines	15,771,700	4,354,160	3.62
Lao PDR	3,070,640	855,114	3.59
Cambodia	8,245,320	2,776,510	2.97
Thailand	31,597,200	10,990,100	2.88

Source: FAO Stat.

However, there is a skeptical view toward the statistics for Myanmar in Table 2-4. If the United States Department of Agriculture (USDA)'s data for Myanmar is taken, Vietnam's average yield of paddy is nearly twice as high as that of Myanmar in 2008, although two sets of data show big discrepancies in paddy yield for Myanmar (Kubo, 2013). Again accurate data is required to analyze the agricultural productivity.

The widening yield gap between two countries might be attributable to technological change rather than the changes in their rice price policies. In fact, the rice farmers in Myanmar are equipped with less-elaborate irrigation facilities and lower-performing HYVs compared with their Vietnamese counterparts (Kubo, 2013).

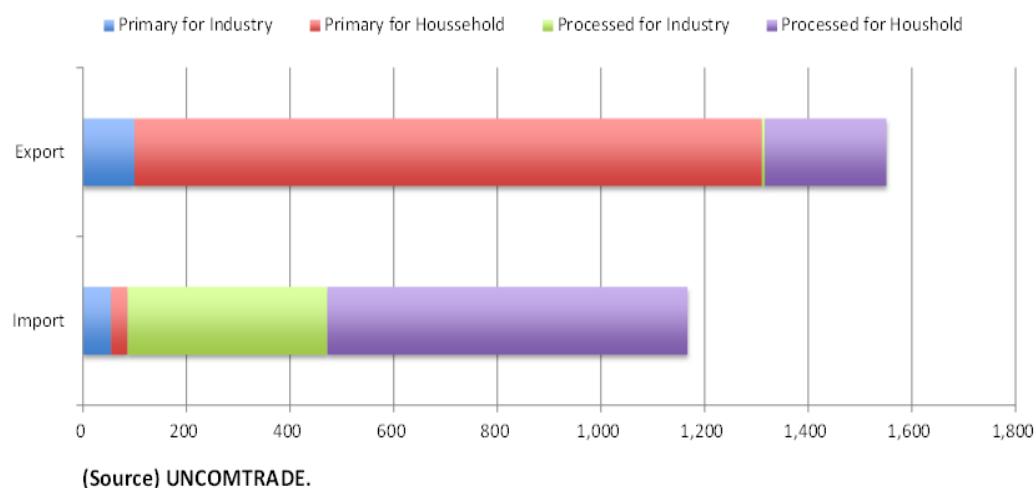
It seems obvious that Myanmar needs to enhance both its land and labour

productivity for agricultural development. The typical way of enhancing land productivity is irrigation and proper use of fertilizer. Myanmar government needs to make comprehensive plan of the betterment of irrigation and the way to disseminate fertilizer among farmers. The typical way of enhancing labour productivity is mechanization. Mechanization of agriculture also needs a comprehensive plan.

(3) Enhancing total factor productivity (A)

There are two ways to enhance total factor productivity. One is to shift to higher quality products and higher degree of processing. Myanmar exports low-quality agricultural produce (Figure 2-5). For example, Thai white rice price is nearly twice as high as that of Myanmar rice in the international markets. Myanmar is also an importer of food products, processed ones in particular. Myanmar exports low-quality and primary agricultural products, and import processed food. Quality seeds, farm management, improvement in post-harvest system, and processing and marketing are necessary to provide high-quality agricultural products.

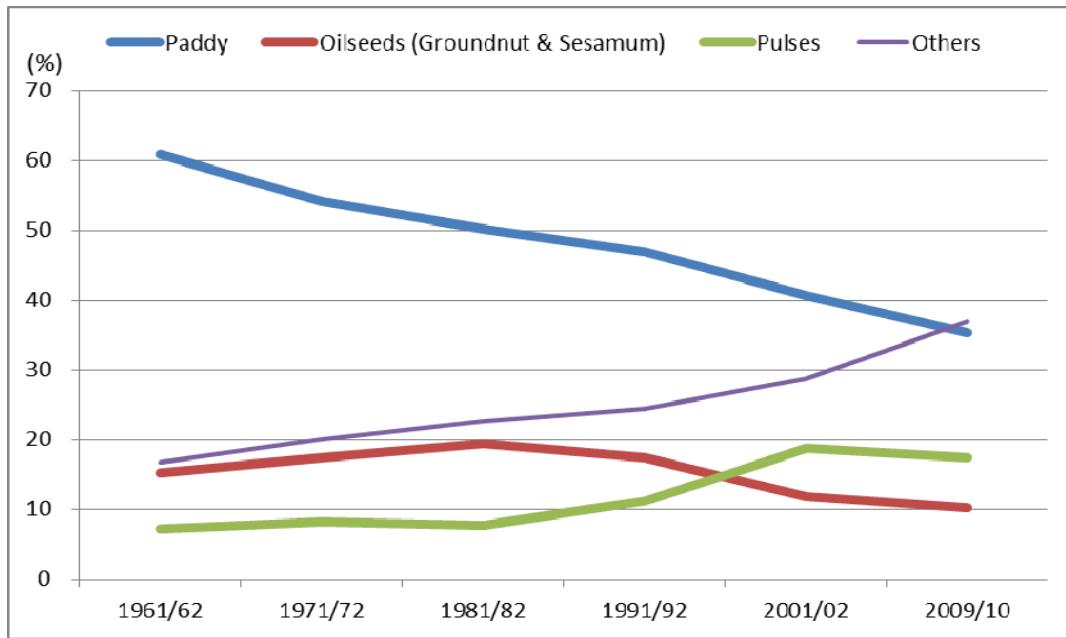
Figure 2-5: Myanmar's Export/import of Food (2010) (million USD)



Source: UNCOMTRADE.

The other way is to diversify the crops up on market demand. The share of paddy in sown acreage had continuously declined since the 1960s (Figure 2-6). Myanmar's agriculture is no longer rice-dominated and is now more diversified. The share of pulses in sown acreage increased in the 1990s due to growing export demand, mainly to India, but stagnated in the first decade of the 2000s. The share of oilseeds (groundnut and sesame) in sown acreage had declined in the last two decades due to replacement by imported palm oil from Malaysia and Indonesia. Others such as rubber, sugarcane, cotton, maize, fruit and vegetables had continuously increased since the 1960s. Livestock and fisheries have also huge potential. Given that paddy production remains self-sufficient, Myanmar's agriculture has more room to diversify into higher value added crops and food according to market demands.

Figure 2-6: Sown Acreage by Crop in Myanmar



Source: Agricultural Statistics

(4) Measures to enhancing productivity

In order to enhance productivity (labour productivity, land productivity and total factor productivity), the following measures are needed.

Rural financing and micro-credit system

At present, Myanmar Agriculture Development Bank (MADB) has been operating as the only formal sector credit institution for agriculture. In 2010/11, budget allotted for the bank short-term loan (seasonal crop loans) was kyats 190,679.89 million and development oriented loan was amounted to kyats 6,506 million. The MADB is considered as more of a lending programme than performing the real function of a bank. It could be called specialized non-bank government department created by law to be able to provide credit to farmers. Demand for credit in rural areas is estimated to be ranging from USD 340 million to USD 470 million (UNDP Myanmar 2010). Government should allow commercial banks in the private sector for broad-based provision of financial services to rural areas. The financial sector reform measures of the government should lay the ground for promoting agricultural credit and rural micro-finance schemes to be able to provide broad ranges of financial services such as –deposits, loans, payment services, money transfer and insurance products to different strata of farmers, landless agricultural households and off-farm households. To improve the viability and competitiveness of thrift and rural banks, the government should provide incentives in such exemplary way that the reserve requirement ratio of their deposits is lower by 2 percentage points than that of the commercial banks. Moreover they should be exempted from paying taxes and fees for a period of 5 years from commencement date. It should encourage banks to lend to small borrowers not on the basis of the collateral but on the basis of borrowers' cash flows. Micro-finance institutions, since they are allowed to operate now, should adopt appropriate variants of

the Grameen Bank technology so that they can penetrate high risk small borrowers at very low cost.

In combining extension services with credit, “micro-credit plus” services widely known as BASIX (www.basixindia.com) in India are pro-poor and worthy of note. The “plus” components are technical services and support services provided through various programmes in a financially sustainable manner. The programme aims to improve productivity through cost reduction. BASIX also provides index-based weather insurance to farmers. Small-scale farmers prefer cost saving and risk reducing environments over yield enhancing interventions. However it is not a quick fix solution and it may take seven years for BASIX to reach effective scale.

Foreign direct investment

Investment is essential for agriculture sector development and sustainability. For either local or foreign investor, there is risk capital at an early or high-risk stage. Care should be exercised not to distort the investment decision by political influences or job seeking behavior. Investment gap usually occurs when private and public funds are unavailable in an early stage. It is important to build better understanding of host country sector and investors by working together in pre-feasibility stage. Commodities or Manufacturing Associations at the national level have better understanding of the investment opportunities and their conditions in the country and the government should consult with those civil societies for the assessment of FDI. In most agro-based industries, securing farm products is the primary concern of the investors. Investment return becomes secondary issue. In this aspect, contract farming culture and necessary standards should be practically understood for pros and cons by the local entrepreneurs and responsible government officials. If properly guided, responsible foreign investment could create opportunities for local firms to upgrade technologically and

managerially through joint ventures or by integrating into suppliers networks.

Development of support industry: raising seeding, fertilizer and farm machineries

In crop production cycle, farmers customarily use seeds from a small portion of his harvested crops kept for consumption purpose. Actually it is the grain which could not fully serve as certified seeds. Farmers may wish to use seeds for planting crop but access to certified seeds is difficult for most of them. One of the technical constraints for yield stagnation was due to insufficient seed supply. According to one report of former Myanmar Agriculture Services (MAS), the requirement of certified seeds for the whole country rice production was more than 600,000 MT and only 2 percent of this need could be distributed to farmers. In the Delta area, rice varieties have been impure and even if farmers themselves selected and collected right variety of seeds from their fields, successive planting of this seed over three seasons will lead to deterioration in quality and seed vigour. Replenishment with new certified seeds is definitely needed. The government should encourage private seed companies by enforcement and regulation of the Seeds Law. Public-Private Partnership (PPP) approach should be adopted to carry out seed multiplication by private seed companies. They should link up with seed growers to produce genetically pure seeds that have been grown and maintained by Agricultural Research Department and public seeds farms. Proper seeds flow will occur when private rice traders and millers procure quality seeds from farmers. The end results will be high paddy yield for farmers and high milling outturn for millers and all stakeholders will gain benefit. While concerted efforts are doing for rice seed sector development, it is also important to develop other major crops such as edible oil crops and pulses of seed industry in order to produce high quality as well as high yielding variety which can be increased crop yield.

The two organizations of public research institute and private seed company could enter into a partnership that envisions an exchange of certain genetic materials provided by the former to the latter company so as to develop and multiply seeds of new variety. The Intellectual Property Right (IP) for the resulting varieties would remain with the public sector, but the seed company would benefit from seed sales and pay royalties to the public research institute. The government must ensure to get the proper function of seeds industry marketing. A tripartite model of partnership among government research department, private seed company and farmers (seed growers) should be also set up and implemented by recruiting farmers for local, low-cost, high-productivity seed multiplication. If farmers could not follow the standard seeds multiplication tasks, a “business incubation process” should be introduced by bringing in the assistance of international funding and assistance program known as Agricultural Technology Fund (ATF). Before attaining full business partnership with competent commercial seed companies, farmers (seed producers) could join in Agribusiness Incubator through ATF program. It will offer farmers to have capacity and access in areas of drawing business plan, provision of technical knowledge, seed science backstopping, potential sources of funding, and link to the national research system. Similar to seeds production business, other functions of agribusiness incubation programme could develop and commercialize new products, technologies or services, technology transfer and international networking and collaboration in all aspects of agribusiness activities including livestock and fisheries.

Strengthening extension services and expanding technology transfer process

The existing Extension Services and R & D systems encounter widespread problems of limited funding, insufficient technology, inadequately trained staff, weak links to research and low level of farmers' participation. The system was considered

too top-down, supply driven and too centralized in its efforts towards technology transfer. Although large-scale commercial producers could still obtain extension services, small and marginal farmers received limited coverage of extension services of INGOs, particularly in remote areas.

In Myanmar there are about 13,628 village tracts and 4.4 million farm households. At present, the extension service accommodates about 4,496 village extension workers to make direct contact with the farmers. So it can be assumed that the village extension workers are spread thinly over the farm households with an approximate ratio of 1 extension worker to 978 farm households.

In general, extension education activities are carried out in terms of what the extension service thinks the farmers need rather than what the farmers think they need. So participation and acceptance of the farmers in the program penetration is very low. In other words, educational activities are carried out based on top-down approach. As a result, technologies formulated are not consistent with actual needs of the farmers. In most cases, empirical survey found that extension workers place emphasis on physical production target rather than income improvement of farmers.

Technology adoption process often takes place involving several different actors such as farmers, firms, farmer's organizations, researchers, extension workers, civil societies, financial institutions, and public organizations. These actors do not innovate in isolation, rather they innovate the technology dissemination process through interacting with other actors and the socio-economic environment. Research, education and extension in Myanmar are not usually sufficient to bring knowledge, technologies and services to farmers and entrepreneurs to get them to innovate and adopt. Technology adaptation and adoption under the whole process of innovation systems require a much more interactive, dynamic and ultimately flexible process in

which the diverse actors deal with varied conditions and complementary activities that go beyond the traditional domains of R & D and extension (World Bank, 2012).

Agricultural Technology Fund (ATF) has financed projects developed by farmer organizations. Project proposals are to be based on the business plans and need to use standardized log -frames. An important aspect of the ATF model is that farmers own the project. They contract extension providers to complete a specific number of activities in agriculture, livestock and fisheries. Farmers groups are required to make a financial contribution in cash plus any in-kind contributions. The cash contribution ranges between 15 and 30 percent of the total costs for extension projects. Farmers must form legal entities to sign contracts and receive government support. To meet these requirements, participants must be willing to collaborate, handle considerable legal paper work and have the capacity to manage and implement their projects. The competitive ATF could enhance emergence of NGOs, farm inputs marketing firms, or individual extension service providers that could sign MOU with farmer organizations

This could encourage collaboration of research organization with grant recipients as well as it would improve the supply side of the market for agricultural innovation services. A single organization, be it private or public, may not be able to assemble the necessary resources, capacities, and knowledge to generate and diffuse innovation. The relevant government agencies also should form the partnership with private sector and PPP approach should be adopted as a mean of diverting private sector's capacity for technology diffusion. Guiding principles for PPPs involve the well-defined objectives, potential mutual benefits, additionalities, transparency and sharing of risks and responsibilities.

2.3 Further Efforts to Increase Value Added

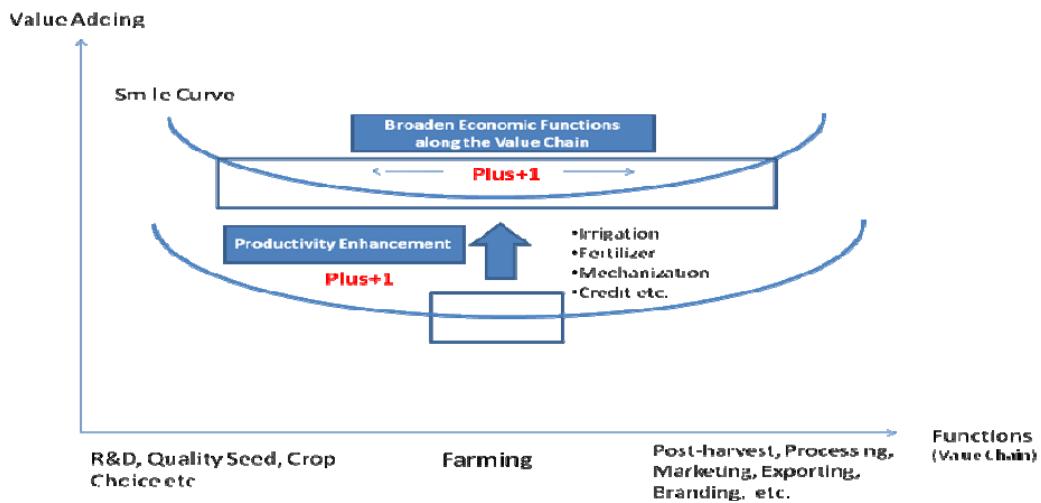
(1) Mark I and Mark II for increased value added

Summing up above discussion, there are two ways to create more values from agriculture, that is, enhancement of land and labour productivity and broadening economic function along the value chain. The strategy is to be named as “Agriculture Plus Plus” after Malaysia’s “Manufacturing Plus Plus,” the concept of which was coined in the Second Industrial Master Plan (IMP2) for 1996-2005 (MITI 1995).

The main thrust of Malaysia’s “Manufacturing Plus Plus” has been its focus on attracting manufacturing facilities of higher value-added products, and moving along the value chain of production towards higher value-added activities, through emphasizing R&D and after-production activities such as services, distribution and marketing.

Since any economic policy that is deemed appropriate at one time or for one country may not be appropriate at another time or for another country, Myanmar should modify Malaysia’s success scenario. While Malaysia’s “Manufacturing Plus Plus” can be a role model, an “Agricultural Plus Plus” strategy could be envisioned for Myanmar. Thus, this strategy aims to move along the value chain of production from farming to higher value-added activities such as R&D, post-harvest businesses including distribution and marketing (one plus); and also to shift the whole value chain to a higher level through productivity-driven growth (another plus) (Figure 2-7).

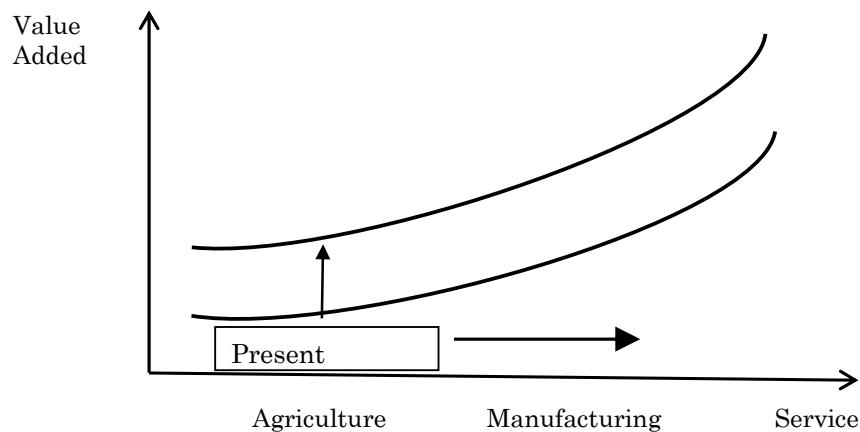
Figure 2-7: “Agriculture Plus Plus” (Mark I)



Source: ERIA

In terms of inter-industrial relations, “Agricultural Plus Plus” plans to connect the agricultural sector (primary sector) to the manufacturing (secondary sector) and to the service sector (tertiary sector), thus featuring the “6th industry” (1st industry times 2nd industry times 3rd industry) on the whole (Figure 2-). In this way, agriculture development will contribute to a more inclusive economic growth as a whole.

Figure 2-8: “Agricultural Plus Plus” (Mark II)



Source: ERIA.

Although agriculture is not a sector absorbing more labour force in the long run, it is definitely not a sun-set industry. There are some ways to increase the value added of agriculture not relying on the growth of labour and land inputs. The key is to enhance three productivity i.e. labour, land and total factor productivity. In fact, “Agriculture Plus Plus” strategy needs to elaborate broader concept to more concrete and comprehensive action plans. This is a challenge for both the Myanmar government and the private sector.

(2) Necessary factors for adding value

In order to carry out the Mark I and Mark II for adding value, the following changes are needed for farmers and officials of the public sector.

Stimulating behaviour changes of farmers-producers in positioning of agribusiness

Through long centuries of subsistence peasant farming, farmers in traditional societies of Myanmar are said to be more social-oriented than business-oriented. Voluntary labour contribution and exchanges are customary practices in rural areas in times of peak agricultural seasons. Change has gradually directed the farmers to semi-commercial farming. Under the centrally planned or command economy system, government paid lower than market prices or demanded forced-quota and farmers delivered inferior quality of farm products. Changing times and systems require abandoning old habits. Upon exposure to market economy and agribusiness transformation, farmers should be guided to be more business –oriented in production and delivery of their farm outputs as far as market demands are required. Under contractual farming arrangement, production and outputs delivery are required to meet the specified standard, delivery schedule and business terms of conditions. High

standards are needed in production of special products such as organic foods and contractual farmers need to be trained and adapted to high standards. In return, they get paid highly.

Due to prevailing sense of welfare mentality, farmers often failed to pay back loans, particularly to the government credit institutions. Cultivating trust value among farmers is important social intervention measure. The assistance of INGOs should be utilized in building up the social capital. It should be pointed out that the study team recommends changing behavior of the farmers but does not attempt to change their culture.

Stimulating behaviour changes of entrepreneurs in positioning expanded agribusiness

Generally, most Myanmar business people and entrepreneurs at township, regional and even in big cities like Yangon are used to running family business. Their capability and skills must be expanded and upgraded to run commercial enterprises in the scale of a company with business management practices. Increased entrepreneur skills will help them work with FDI or multinational companies. Yangon business people have the opportunities to attend Business schools but, for the regional and township levels entrepreneurs, mobile training programmes should be devised and implemented. Having improved access to markets of neighbouring countries and regional and global needs, they will be willing to take more calculated risk in setting up agribusiness and agro-industries. Information technologies should be applied on a wider scale for information dissemination.

Reforming civil services systems and attitude changes

Since agriculture development is set to be market-oriented and private sector-led direction, public civil institutions must have good capacity in evaluation and monitoring process, regulatory mechanism and market analysis, policy formulation,

forward-looking, forecasting, consultation and coordination tasks. Relevant planning and production units should build up technical capacity and intermediate technical level staffs who could turn data into information by conducting data analysis. Myanmar agriculture departments need to follow the virtuous cycle of information management as follow:

- Data are analysed to produce information
- Information leads to learning process.
- Learning produces knowledge.
- The application of knowledge leads to action (Decision making).

Most data and information should be in published forms to be easily accessible to the general public. Information dissemination has been done through brief statistical notes or few exclusive bulletin of the respective departments. Periodical assessment reports and regular production reports and bulletin should be made available at costs in published forms to the public.

Public sector improvement requires cultural and behavioural transformation. In recruiting official or professional staffs, systematic job description with clear and well-defined responsibility should be clearly notified. If an appointed staff could look forward to his prospective career path and development opportunities, he will be motivated in his work place.

For these functions, capacity building in public sector is desperately needed. In the past, Ministry of Agriculture had been recognized as having a higher number of foreign trained professional staff as compared to other agencies. The number of qualified research workers in R & D is now in severe shortage. Government departments at the Union level face less severe problem of staffs competency but at

Regional levels, there is an acute shortage of competent staff if the ambitious reform measures are to be implemented. Myanmar has now opened up for HRD upgrading opportunities. All government departments of agriculture, livestock and fisheries should liberalize their dispatching process of foreign scholars rather than adhering to restricted protocols. During the present shortage of skilled personnel, outsourcing of service provisions to private companies (improving service provision through “bringing in private sector efficiency”) should be considered. Budget allotment also should be reserved for this purpose.

Land use planning with consideration of soil condition, water resource and natural environment

This report strongly recommends to initiate the project of Agro-ecological Zone Mapping and Resources Maps by establishing the topographic based map (scale 1:50,000 to 1: 1,000,000), Dem-30 M RESOLUTION, Satellite Imagery (Landsat 7 ETM) and super imposing these with climatic data and socioeconomic data at township level. Further refinements will be continued in later project phases. This will be helpful for optimum resources allocation, decision making process, policy formulation, future projection, and investment projects.

Set up and operation of testing and surveillance for foods and food safety, farm-chemicals and drugs

Legal infrastructure in agriculture sector has been in place with some fundamental laws such as Pesticide law, bio-safety law, Plant pest quarantine law, fertilizer law, Environmental law, laws designed to prevent illegal trade of livestock and their products, to enforce diseases prevention and control measures and to contribute quarantine procedures in livestock and fisheries and to facilitate import and export procedures. These laws and regulations could not be effective without the set up and operation of testing laboratories and fully equipped surveillance mechanism and well

trained technicians. Fishery export has been promoted with the help of these testing laboratories. For the agriculture and livestock there will be several outlets in increasing number of border trade centers, adequate number of laboratories and surveillance mechanisms should be installed.

In order to fulfill the needs of local consumption and surplus for export, the indiscriminate use of modern agrochemicals are increased to control pests and plant disease. Therefore it is essential to analyze pesticide residue to protect the consumer safety and to facilitate the export markets complied with WTO-SPS agreements.

Myanmar often has difficulty to meet international residue standard for trade due to a lack of good Laboratory Practice certified laboratory. Therefore, to update the existing laboratory in Plant Protection Division at Yangon with quality calibrating laboratory facility as well as to establish new pesticide laboratory at upper Myanmar needs to be considered.

Strengthened roles of farmers' organizations, crop-specialized non-profit associations, and private business companies and promote PPP approaches

The study team believes the role of farmers' organization as one of development requirement. It could be solely oriented to business and commercial aspects focusing on specific commodities. The organization could facilitate dissemination of market information, providing technical assistance, create linkages by networking with other relevant organization within and abroad. They could assist each other for improved repayment scheme. As a body they could fulfill compliances with the production and delivery requirement while strengthening quality and other delivery requirement and also offer traceability of the products delivered. They can act as their voices, protecting their interests and lobbying for favourable policies. With a well -defined written constitution, there should be no reason to prevent or restrict the application for

formation of farmers' organizations.

Restructuring and strengthening the centers of higher learning, research and development institutions in agriculture, economics, engineering and social sciences

There is only one university of agriculture and one each for veterinary sciences and forestry in Myanmar. Teaching of fishery and marine sciences is affiliated to the University of Mawlamyine at the department level. The former three are located in Yezin, Pyinmana with adjoining universities. When the UNDP Assistance Program was implemented to strengthen the Institute of Agriculture (precursor of Yezin University), the project planners and the government authorities considered to unify three Yezin institutes in an integrated university center. Since the commercial activities of cropping, livestock raising, fish culture and forest trees planting share the same natural resources with an interdependent and interrelated production process, integration of all these commercial activities and conservation of natural resources should follow a holistic, interdisciplinary and mutually reinforcing way. With this view in mind, university graduates of respective professions and all future leaders in these fields should have a broad -based, integrated and synergetic way of thinking for the development issues of the agriculture sector. It would be beneficial if the three universities are unified under one umbrella - a center of excellence. The development strategy of this study team recommends to establish the Yezin University consisting of five constituent colleges of agriculture, forestry, and veterinary sciences, agricultural engineering, and liberal arts and sciences. Adoption of semester credit systems will allow prospectus students to select different combinations of professional choices. This will be preceded by a foundation and pre-requisite courses. The university will be turning out strong professionals such as horticulturists, animal husbandry specialists, farm engineers, rural sociologists, community development workers, agro-foresters,

extension workers, beside the normal university graduates. Fishery sciences and technology courses should be affiliated to Pathein University as well as to the existing one where there are strong marine learning resources.

The share of agriculture sector in Myanmar economy has been decreasing significantly during last decade but it remains playing an important role for employment creation, export promotion, food security, poverty reduction and inclusive growth. In order to accomplish its role in proper way, agriculture sector is to be improved efficiency in terms of labour productivity, land productivity and total factor productivity. Enhancement of these productivities calls for broader investments such as tremendous local outlays and FDI for mechanized farming together with advanced technologies for quality products. Therefore, “Agriculture Plus Plus” strategy is a key to transform traditional subsistent farming toward high value-added agriculture.

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CHAPTER 3

Globally Linked & Private Sector-led Industrial Development

1. History of industrial policy in Myanmar

Industrialization is an essential element in the development of a country as a whole. Among the Third World countries, newly independent after World War II, there was a desire for economic growth through industrialization: to transform their traditional agrarian economies into modern industrial ones. Economic development has often been equated with industrialization, and independent Myanmar shared the same aspiration for a modern industrial economy. Myanmar is rich in natural resources and has a highly literate population, which are apparently good signs for development prospects. Before World War II, Myanmar's economy was slightly larger than that of Thailand, with an export of \$195 million, while Thailand's exports were only \$76 million. Although Myanmar's economy was devastated by the war, most economic and development indicators show that it was not at all unrealistic in the 1950 to be optimistic about Myanmar's economic prospects, including its rapid industrialization.

Taking these historical facts and the natural resources endowments of Myanmar into consideration, the apparent explanation for stunted industrialization of Myanmar lies in the industrial policies that successive governments adopted since independence. Table 3-1 gives a brief chronology of the political economy of industrialization of Myanmar in the past. It is clear that Myanmar's governments had long clung to control-oriented, or at least interventionist policies, rather than utilizing market mechanisms in the past.

Table 3-1 : A Brief chronology of Myanmar's political economy of industrialization

Period	Political System	Economic System	Industrial Strategy	Result
1. 1886 -1948	Colonialism	Laissez-faire policy	Export-propelled “agriculturalization”	Foreign-dominated industrial sector Poor spread affect for nationwide industrial development
2. 1948 -1962	Parliamentary democracy	Moderate economic nationalism in the framework of market mechanisms	Raw material-oriented import substitution of industrialization	Moderate industrial performance Foreign-dominated industrial sector
3. 1962 -1974	Military rule (Burmese Way to Socialism)	Command economy, Radical nationalism, Burmanization & Strict isolation	Import substitution industrialization Self-reliance line	Burmanization of economy and industry Poor economic and industrial performance
4. 1974 -1988	BSPP rule (Burmese Way to Socialism)	Centralized planning Inward-looking policy with the exception of ODA acceptance	Import substitution industrialization Agro-based industries Inflow of ODA	Poor economic and industrial performance Import-dependent industries
5. 1988 -1997	Military rule (SLORC)	Transition toward market economy Open-door policy	Agriculture-based & export-oriented industrialization Inflows of foreign direct investment	Economic recovery Gradual increase in foreign and local private enterprises

6. 1997 -March 2011	Military rule (SPDC)	Market economy	Natural resources exploitation, offshore gas in particular No explicit industrial strategy	Stalled reforms Enhanced economic control Cronyism
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Source: Based on Mya Than and Joseph L.H. Tan, “Introduction: Optimism for Myanmar’s Economic Transition in the 1990s” in Mya Than and Joseph L.H. Tan, eds., *Myanmar Dilemmas and Options: The Challenge of Economic Transition in the 1990s* (Singapore: ASEAN Economic Research Unit, Institute of Southeast Asian Studies, 1990), Appendix I, pp. 14-15; and Maung maung Lwin, “Industrialization of Myanmar and Economic Dynamism of Pacific Asia,” *Kaigai-Jijo Kenkyu (Studies on Foreign Affairs)*, Vol. 24, No.1 (Kumamoto: Kaigai-Jijo Kenkyu-jo, Kumamoto Gakuen University, September 1996). Major changes and additions are by the ERIA.

During the socialist period in particular, an inward-looking growth strategy, nationalization (Burmanization), and import substitution had long been pursued. However, Myanmar's centrally planned economy, like other socialist countries, faced many obstacles as well as stagnant growth in not just the industrial sector but the economy as a whole. In the mid-1970s, the socialist government relaxed some of its strict policies and introduced reforms for State-owned Economic Enterprise (SEEs) along with the prescription of commercial guidelines to improve their efficiency. Although the economy picked up shortly after the reforms, it was not sustainable, mainly due to a shortage of imported material goods. After 1983, industrial production deteriorated again and other economic problems such as high inflation, rising living costs, and macroeconomic and monetary mismanagement including demonetization in 1987 worsened the situation, which eventually led to the collapse of the socialist regime in 1988.

Subsequently, the SLORC/SPDC officially gave up on the establishment of a socialist economic system and stated to promote a market-oriented economy. Two

pillar laws were promulgated: the Foreign Investment Law (FIL) in November 1988 and the State-owned Economic Enterprise Law (SEEs Law) in March 1989. The former resumed the intake of private foreign capital after a 25 year interval, and the latter authorized private enterprises to engage in all but 12 proscribed industries. In addition to these, various reform measures were taken to promote the active participation of the private sector in the national economy. These included the decentralization of control of economic activities, relaxation of price controls, deregulation of export and import restrictions, opening of border trade, reduction of government subsidies, announcement of full-fledged privatization of all SEEs, streamlining of taxes and duties, establishment of industrial zones, and improvement of infrastructure. Between 1988 and 1997, 27 new business-related laws, including the two above, were promulgated, and the military government apparently committed itself to the global trend toward a market-oriented economy.

However, people in Myanmar had weakness in confidence of the military government's commitment to transition to a genuine market economy, which would guarantee a level playing field for all the economic factors including the private sector. The trend in Myanmar's policy had turned increasingly inward and against market-mechanisms, particularly after the Asian currency crisis in mid-1997. The State Peace Development Council (SPDC), the reorganized body of the military government in 1997, had adopted an import substitution and self-reliant, or what may even be called survival policy by starting to intervene in many economic activities and strengthening state controls. Foreign companies also faced a challenging business environment under such a policy change.

The birth of new civilian government led by President U Thein Sein in March 2011 turned around the trend again. The new government launched the wide-ranging

reforms toward an open and market-oriented economy. However, here again, we should look back at Myanmar's industrial policy history. Every government since independence, whether civilian or military, democratic or socialist, has approached the problem of the private sector with great concern and trepidation. Whenever the accommodation and integration of the energy of private enterprise into the national economy was contemplated, the socialist philosophy, anti-capitalist attitude, control-prone disposition, and xenophobia based on the bitter colonial experiences provided obstacles, resulting in vague and incomplete redefinition of the role of the private sector and foreign firms.

The transition to an open and market-oriented economy since 2011 is a historical exception. But, history still cautions against confidence in government policy toward an open market-oriented economy. It would be necessary for the Myanmar government to commit itself again to such ideas as open markets, free competition, transparency, accountability, consistency, a level playing field, freedom of information, and rule of law, which are the foundations for a free and fair market-oriented economy. Without the government's commitment to those ideas, the private sector including foreign investors has weakness in confidence regarding public policies, and, as a result, full-fledged investment would never be forthcoming to develop the country into an industrialized modern nation.

2. Dynamic Export-oriented Industrial Development

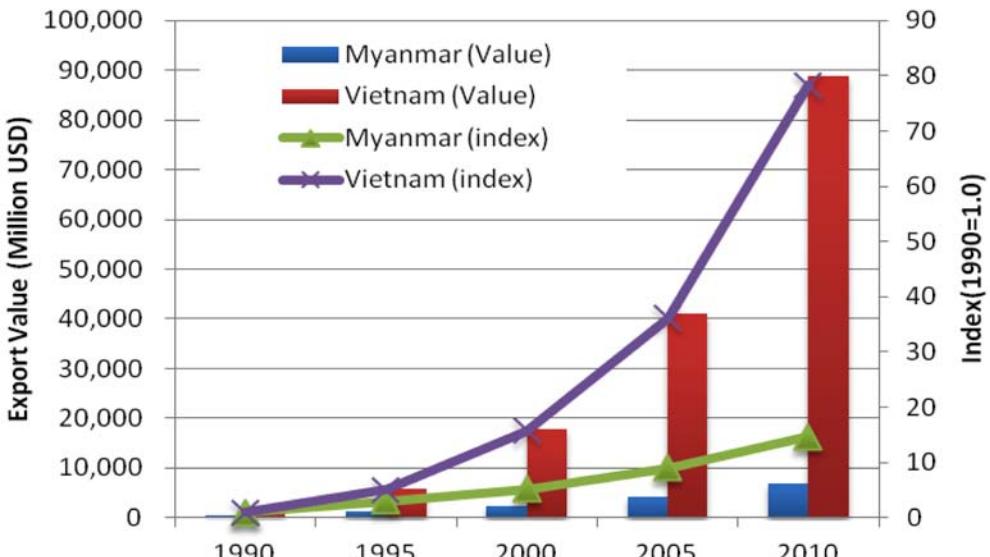
2.1. Exports of Myanmar and Vietnam¹⁴

Soon after the military assumed power in 1988, the Myanmar government launched a series of open-door policies. It allowed private firms to engage in external trade, and legitimized border trade with its neighboring countries. As a consequence, Myanmar's foreign trade increased rapidly after its stabilization in early 1990s. Its export value grew fifteen times within the period of 1990-2010.

Although Myanmar's exports achieved dramatic increase, it was still less than ten percent of Vietnam's exports in 2010 (Figure 3-1). In fact, Vietnam's export value in 1990 was only 2.5 times more than Myanmar but it rose up by 13 times in 2010. Even though the two countries were more or less at the same level of development when they initiated their open-door policies at the end of 1980s, development gaps, including export performance, have significantly widened in the intervening two decades. What are root causes of this big gap in export performance between the two countries?

¹⁴ This part is mainly drawn from Kudo and Kumagai (2013) *Export-Oriented Growth Strategy for Myanmar: Joining Production Networks in East Asia*, Policy Review on Myanmar Economy, No.9, Bangkok Research Center (BRC), JETRO, available at <http://www.ide.go.jp/English/Publish/Download/Brc/PolicyReview/09.html>.

Figure 3-1. Export of Myanmar and Vietnam



Source: UN ComTrade

2.2. Diversification of exports

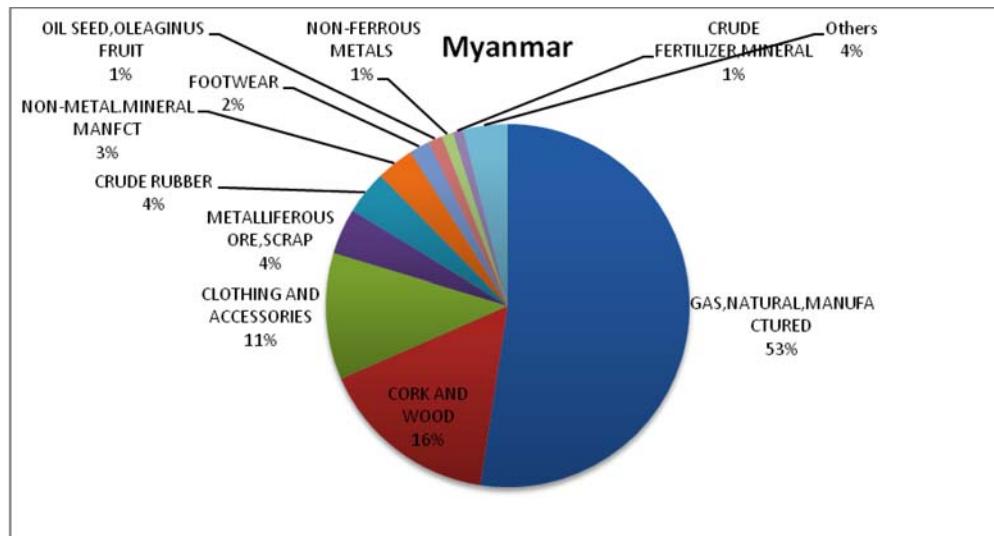
One important factor for export-oriented industrialization is the capacity of export diversification. Figure 3-2 shows the shares of the top ten exports for Myanmar and Vietnam in 2010.¹⁵ Myanmar's major export item accounting for more than half of total export is natural gas, which has been exploited from off-shore blocks in Martaban Bay and transported to Thailand by pipeline since around 2000. Another off-shore natural gas field in Rakhine State, called as Shwe gas field, is under development, and gas will be exported to Yunnan Province of China by pipeline starting in 2013. Myanmar's natural gas exports increased from USD 108.6 million in 2000 to USD 2,595.4 million in 2010. Undoubtedly, the share of natural gas in Myanmar's total exports will further increase in future. When natural gas export is excluded,

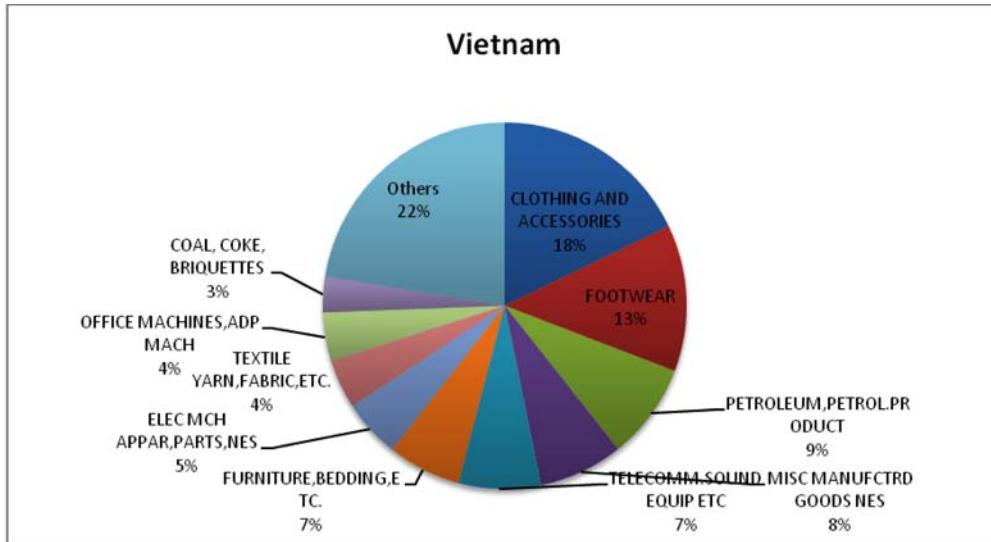
¹⁵ The Standard International Trade Classification (SITC) 2 digit code is applied. The export values for both Myanmar and Vietnam are the aggregated values of imports of all the reporting countries of UN ComTrade.

Myanmar's total exports grew by only 6.2 percent per year on an average between 2000 to 2010. The second largest export item was wood and wood products (16%), followed by clothing and accessories (11%). Thus, only three commodities, accounting for 80 percent of exports, dominated Myanmar's total exports. Evidently, Myanmar's exports depended heavily on handful of export items and called for an urgent need for diversifying exports.

On the contrary, Vietnam's exports have been more diversified. Clothing and accessories accounted for 18 percent of total exports in 2010, followed by footwear (13%), petroleum (9%), miscellaneous manufactured goods (8%), and telecommunication and sound equipment (7%). The top ten goods accounted for 78 percent of Vietnam's total exports. More importantly, the share of extracted resources in Vietnam's exports, particularly petroleum, has declined from 33.4 percent in 1990 to 19.7 percent in 2000 and further to 6.0 percent in 2010.

Figure 3-2: Shares of Top 10 Export Items of Myanmar and Vietnam (2010)





Source: UN ComTrade.

2.3. Export of Manufactured Goods: Apparel and Electric and Electronic Products

While Myanmar's exports are still dominated by primary goods with the exception of apparel (clothing and accessories), Vietnam has successfully diversified its exports with various kinds of manufactured goods. Figure 3-3 shows the share of manufactured goods in export of Myanmar and Vietnam¹⁶. The export shares of manufactured goods of the two countries were almost same at about 12-13 percent in 1990 and 55-58 percent in 2000. Since then, Vietnam gradually increased its export share of manufactured goods and reached up to 71 percent in 2010, while that of Myanmar drastically declined to less than 20 percent by 2005.

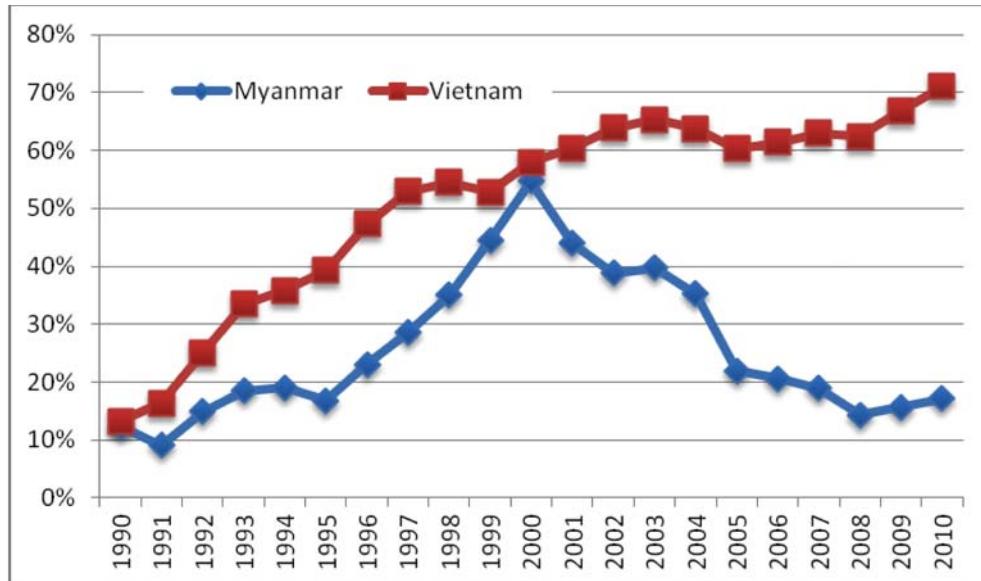
Clothing and accessories have been the only significant manufactured goods in Myanmar's export. The export share of manufactured goods substantially increased in the last half of 1990s, mainly due to garment exports to the United States (US) and the European Union (EU). However, the US's import ban that began in 2003 and the

¹⁶ The aggregated exports of SITC 5-8 goods are defined as manufactured exports.

EU's unwillingness to source made-in Myanmar goods due to human rights issues severely damaged Myanmar's apparel industry and exports. Myanmar's apparel exports declined from USD 0.80 billion in 2000 to USD 0.56 billion in 2010. In contrast, Vietnam continuously expanded its apparel exports, from USD 1.65 billion in 2000 to USD 11.31 billion in 2010, amounting 20 times of Myanmar's apparel exports.

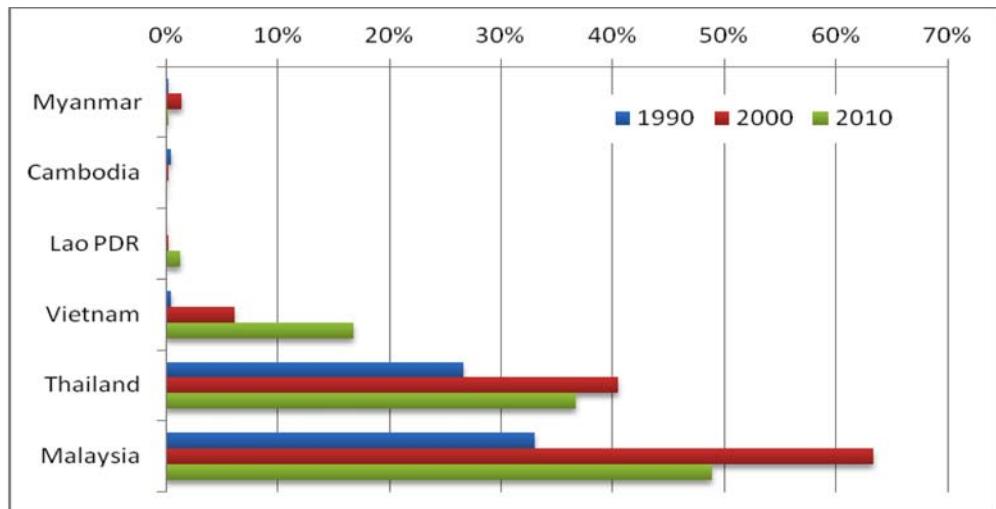
Another important category of export item leading toward industrialization is electric and electronic (E&E) products. Historically, E&E products are the main export goods for most of the East Asian countries. Especially after signing of the Plaza Accord on exchange rates in 1985, E&E multi-national enterprises (MNEs) in Japan and Asian Newly Industrialized Economies (NIEs) shifted their production bases to ASEAN countries, and production networks were developed and expanded in the region. The dominance of E&E exports is sign of a particular country's participation in the regional production networks. Figure 3-4 shows the E&E' shares of exports for selected ASEAN countries. Thailand and Malaysia seem to be 'graduating' from much dependence on massive E&E exports, and instead, Vietnam is increasing its E&E exports. Myanmar, Cambodia and Lao PDR seem not yet able to join the E&E production networks in East Asia.

Figure 3-3. Share of Manufactured Goods in Exports (1990-2010)



Source: UN ComTrade.

Figure 3-4: Share of Electric and Electronic Products in Exports



Source: UN ComTrade.

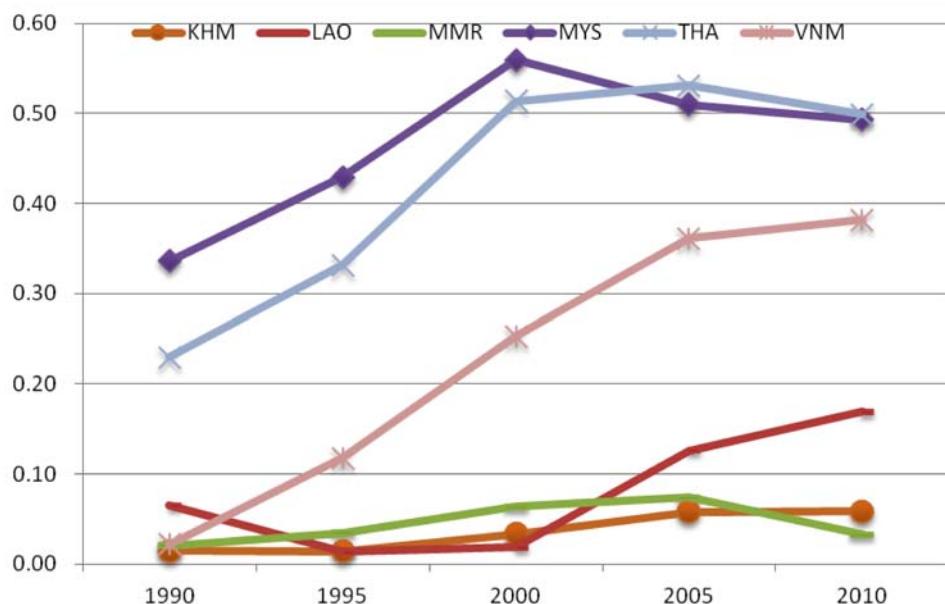
2.4. Joining production and distribution networks in East Asia

As described in Kimura and Obashi (2011), participation in production networks is an essential part of the novel development strategy in East Asian countries. They

suggested that “These economies aggressively utilize MNEs in an open setting and accept almost all sorts of such firms, which enables them to participate in international production networks and form industrial agglomerations. After this stage, local firms, entrepreneurs, and engineers increase their participation through their penetration into MNEs’ production networks.”

Figure 3-5 shows the intra-regional GL index for selected ASEAN countries, as mentioned above. Malaysia and Thailand, two of the advanced ASEAN countries have higher GL indexes, while Cambodia, Lao PDR and Myanmar as the latecomer ASEAN countries have very low GL indexes. In the case of Vietnam, its GL index increased from 0.02 in 1990 to 0.38 in 2010, showing that Vietnam has been participating in production networks in East Asia during the last two decades.

Figure 3-5: Intra-regional Grubel-Lloyd Index for Selected ASEAN Countries



Source: Calculated by ERIA.

Box 3-1. Grubel-Lloyd index as a measure of production networks

Here, the Harmonized System (HS) 2-digit level weighted Grubel-Lloyd (GL) index is regarded as a “proxy” of the degree of the participation to East Asian production networks. The GL index is a measure of intra-industry trade of a particular product, defined as

$$GL = 1 - \frac{|X_t - M_t|}{X_t + M_t}$$

It takes 0 if the trade for a particular product is one-direction, i.e., no intra-industry trade. It takes 1 if the trade for a particular product is reciprocal and balanced, i.e., the trade is completely intra-industry. The GL index for HS 2-digit level is worked out first and it is weighted by the export share of each goods and trade partners, but the trade partners in this case are selected only ASEAN+3 countries. Figure 3-5 shows the results.

It is debatable whether a higher GL index can be interpreted as a sign of tighter integration into the production networks or not. If two countries reciprocally export the parts and components of a particular industry, there is assumingly a production network between them. If one country exports the parts and components of a particular industry, while the other country exports the final goods of the same industry, it is supposed that there is a production network between them.

But if two countries reciprocally export the final goods of a particular industry, can it still be assumed there is a production network between them? If this was a case then on examining the EU, the answer might be no. For example, if Germany exports BMW to France and France exports Peugeot to Germany, this is a case of intra-industry trade, but not a production network. If this was a case for East Asia, the answer is likely to be yes, as in East Asia the reciprocal exports of the final goods tend to be intra-firm trade. For instance, Toyota exports pickup trucks from Thailand to other ASEAN countries, while it exports minivans from Indonesia to other ASEAN countries, under the Innovative International Multi-purpose Vehicles (IMV) project. This is a case of intra-industry trade, and also a case of a production network.

2.5. Necessary actions

Along with increasing trend of Myanmar’s export, both the export items and destinations needs to be diversified. In doing so, the first step is to show its ability to host export-oriented industries. The apparel industry seems to serve as a litmus test for

this. After that, being a part of production and distribution networks for E&E industry in East Asia will be a key for Myanmar to proceed to the next stage of industrialization. Myanmar should also tap into intra-regional markets such as China, India and Thailand in addition to traditional export markets such as US and EU. Proper utilization of regional free trade agreements and further enhancement of connectivity with these countries is also an important pathway for the export-oriented growth strategy for Myanmar.

3. FDI driven strategy

3.1 Benefits of FDI

(1) It is difficult to accelerate economic growth without FDI

In order to attain high economic growth for developing countries, FDI is usually a necessary driver. It can be argued that FDI might not be necessary if people are satisfied with continuing to produce rice, vegetables and cloths and constructing houses in traditional ways. However, if they wish to produce electric products like TV sets and air conditioners, motor cycles and auto mobiles, and metal and plastic parts and components in modern ways based on imported foreign technologies, then importing capital goods like machineries is necessary.

Importation of such capital goods calls for foreign currency hence the developing country has to earn foreign currency by exporting more than the value of its imports. Since the price of primary products exported by such developing countries is lower than the price of imported machineries, accumulating foreign currencies through trade surplus is not easy. In addition, technology transfer from more developed countries is

also necessary to operate these imported machineries. As a result, developing countries seldom produce manufacturing goods through modern technology using their own resources without taking recourse to FDI.

Regional governments in China once tried to produce automobiles in small factories in accordance with the principle of “self-regeneration” or “self-reliance” during the era of “Great Leap Forward” and resulted in a total failure. Since the beginning of the era of “reform and openness,” however, these factories were restructured and state-owned enterprises started operation in a joint-venture with foreign companies in the 1980s (Higashi, 2007, P. 117). In India, no foreign company or even domestic private sector was allowed to enter into major industrial sectors before 1991, according to the Industrial Policy Resolution in 1959 (Kato, 2009, P. 152). It was only in 2001 when foreign companies were allowed to have 100 percent ownership (Nikaido, P.179). As a matter of fact, the annual rate of economic growth during the decade to 1990/91 was 3.0 percent while it was 4.1 percent in 1991/92 to 2002/03 and 6 percent in 2003/04 to 2006/07 (Oda, 2009, P.4), although the causality between the liberalization and economic growth has to be carefully examined. These facts suggest how difficult it is to accelerate economic growth without FDI.

(2) Positive effects of FDI

FDI brings many positive effects. First, job creation is the most important outcome. As low labor cost is one of the biggest advantages for developing countries in attracting FDI, international investors mainly focus on labor-intensive sectors. For example, the Washington Post on June 18, 2008, reported that “nearly 20,000 workers went on strike at a Nike factory run by a Taiwanese contractor in Vietnam.” The message here is not to point out the strike but the number of workers hired in one factory. If several such companies gather in an industrial estate, FDIs can create hundreds and thousands of

jobs.

Technology transfer can be expected in receiving FDI. For example, in the case of an investment of a foreign company producing TVs, the company sets up the factory layout and assembly lines, machines and equipment and brings product designs, parts and components, and production techniques. Then the company supervises and trains local workers to assemble the product through on-the-job training (Kagami, 1998, P.3). Through such processes, technology is transferred to the host country and the quality of products can be expected to be upgraded.

These technologies and knowledge are then expected to be transferred to local companies through labour mobility as well as technological collaborations between multi-national companies (MNCs) and local companies, as long as the local labor force is highly educated (Todo, *et al*, 2009, PP.626-637). In such a situation, the host countries have to utilize the opportunities as the FDI companies also have choices to relocate to other countries if offered better investment climates. As a matter of fact, many ASEAN countries have given higher incentives to FDI companies which can transfer high technologies.

In addition to job creation and technology transfer, financial power can also be expected. For example, the amount of investment by apparatus industries which require enormous automated equipments for providing a specific scale of production and service, such as refinery and electricity generators, often exceeds a billion US dollars. Although such apparatus industries are extreme cases, some big projects often need the financial power of foreign capital.

Last but not least, participation in international production networks in East Asia itself is necessary in the era of globalization. MNCs are major players in the international production networks and attracting such MNCs' investment itself can

result in creating the employment, getting technology transfer and increasing financial power. As a matter of fact, the developing countries in East Asia have utilized the MNCs and enabled themselves to participate in the international production networks and to form industrial agglomerations (Kimura and Obashi 2011, P. 320).

3.2 Is FDI a fear for developing countries?

(1) Results of nationalistic FDI policy in Thailand, Malaysia and Indonesia

For a long time companies in developing countries have looked upon FDI with fear and suspicion. The reasons are; if there is a local company manufacturing a specific product and the quality and price are the same as the product manufactured by foreign companies, the local people will prefer the one produced by the local company. In many cases, however, foreign companies produce such a product with more reasonable prices and/or better quality. If foreign companies invest and produce similar or identical products of local firms, it will severely damage the competitiveness of the local companies forcing them to close down or to merge with FDI companies.

In this regard, Thailand, Malaysia and Indonesia had regulated the shares held by FDI before the second half of the 1980s. Out of these three countries, Thailand's case will be exemplified. In Thailand, the announcement of the national executive council No. 281, known as "Alien Business Law" in 1972, regulated FDI by classifying industrial sectors into three groups. Group A, which comprised sectors like rice farming, accounting and legal services and salt-farming etc., prohibited foreign participation and existing foreign investors were forced to be localized until the sector achieved local majority. Group B comprised sectors like farming, forestry, fishery, livestock, newspaper publishing, rice milling, wood curving, manufacturing of pharmaceuticals, were also closed to foreign participation. However, existing FDI

projects were able to continue to operate with foreign majority ownership. Group C, comprised service sectors not being included in Groups A and B, manufacturing sectors of embroidering and knitting products, matches, animal foods, vegetable oil, glass containers etc. required the foreign business operator to obtain permission from the related department. It is believed that this law was not intended to prevent FDI that could upgrade manufacturing sectors. Instead, it was intended to regulate the participation of refugees from Indochina to more traditional industrial sectors (Enomoto 2004, PP. 124-133 and PP. 155-158). Results of similar cases in Malaysia and Indonesia are shown in the figures below.

In Malaysia, New Economic Policy (NEP), the long-term socio-economic program, tried to reduce the socio-economic disparity between indigenous and non-indigenous citizens. According to Table 3-2, the group that gets the short end of the stick is the foreign-owned group. Since the second half of 1977, the rule on the FDI regulation stipulated that:

- Domestic-market-oriented projects must be majority-owned by Malaysian capital
- Majority foreign ownership is possible for export-oriented projects and 100 percent foreign ownership is possible, or it is determined that there are appropriate reasons for majority foreign ownership
- Projects that extract or process primarily non renewable national resources are required to have 70 percent or more than 70 percent of capital owned by Malaysians and 30 percent or more than 30 percent should be *Bumiputra*-owned capital (Horii, 1990)

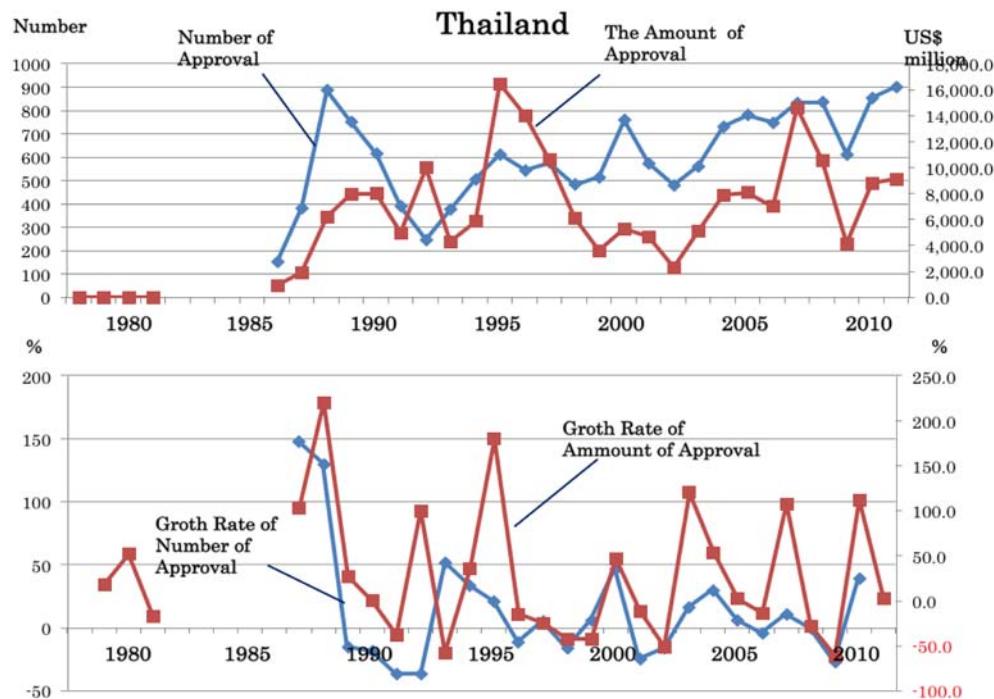
Table 3-2: Situation in 1971 and the target regarding the capital composition

	1970	1990 (Target)
Indigenous Citizens-owned	1.9%	30.0%
Non-indigenous Citizens-owned	37.4%	40.1%
Foreign-owned	60.7%	29.8%

Source: Created by the ERIA in accordance with Horii (1990,P.5).

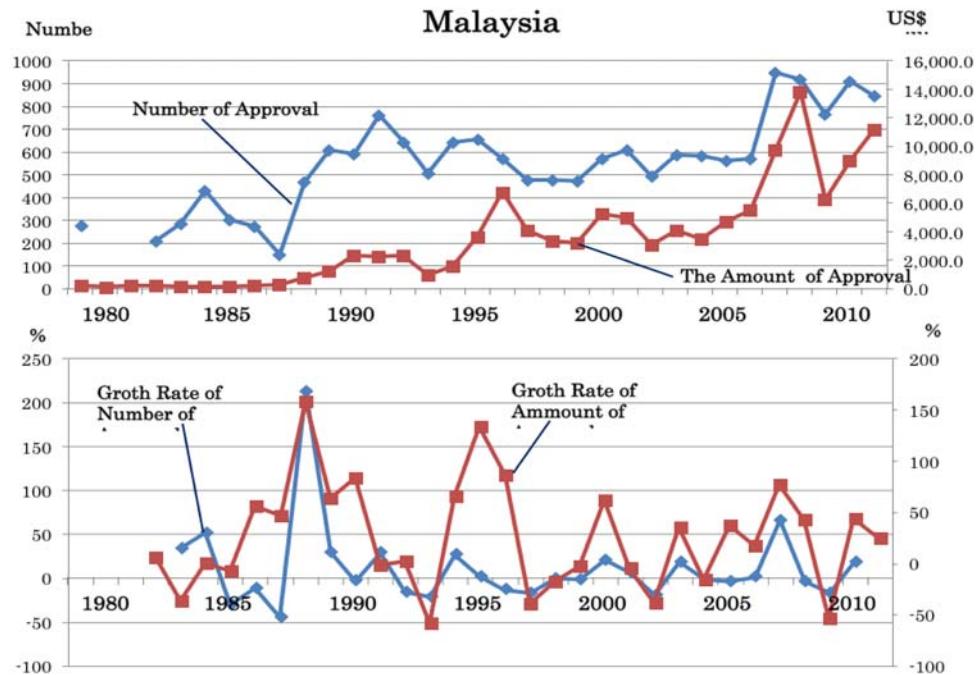
Indonesia also once regulated FDI companies to transfer sufficient shares to local partners until the local partners' shares reached 51 percent or more.

Figure 3-6: Approved FDI and Growth in Thailand



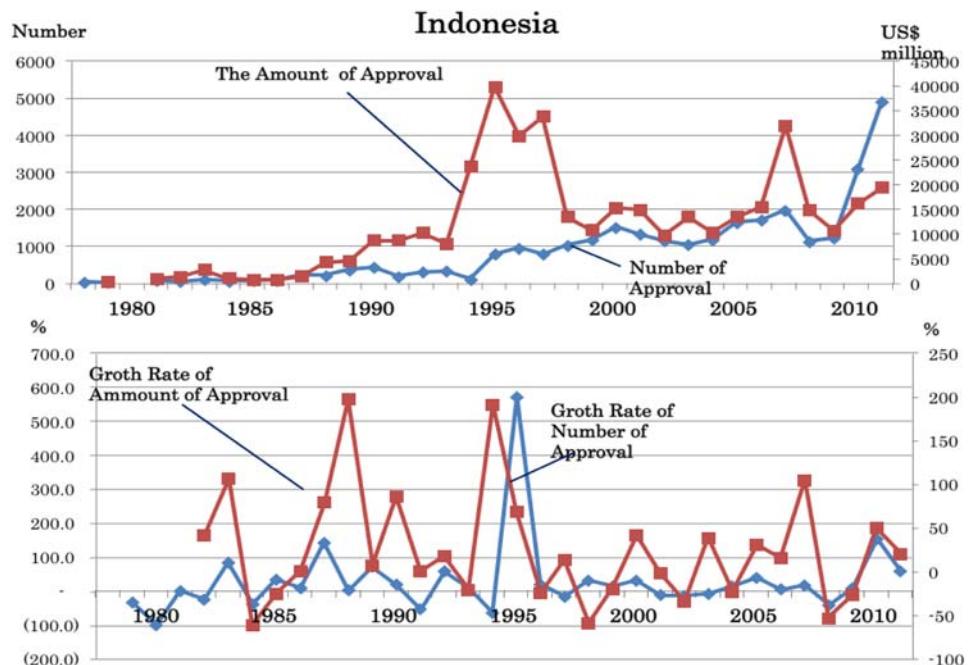
Source: Created by the ERIA after compiling the data of JETRO (various years).

Figure 3-7: Approved FDI and Growth in Malaysia



Source: Created by the ERIA after compiling the data of JETRO (various years).

Figure 3-8: Approved FDI and Growth in Indonesia



Source: Created by the ERIA after compiling the data of JETRO (various years).

According to the guidelines for the FDI in 1985, it was stipulated that at least 20 percent of the company be owned by domestic investors at the time of establishment and the share had to be increased to 51 percent within ten years.

It is clear that the performance of Thailand, Malaysia and Indonesia in receiving FDI was stagnant before 1985. The economic growth during the time with such nationalistic policies were stagnant; the growth rate of Thailand (1972-1986) was 6.5 percent, Malaysia (1973-1986) was 6.0 percent and Indonesia (1974-1986) was 6.4 percent while the growth rates from the starting year of deregulation to the year before the occurrence of the Asian Currency Crisis, 1996, were 9.4 percent, 9.0 percent and 9.4 percent, respectively. It should be recognized, however, that the economic growths can be affected by other factors also.

(2) Good economic performances after the deregulation policies

Reflecting the stagnant economic performances in the first half of the 1980s, these three countries changed the FDI policy direction. In other words, they deregulated their nationalistic FDI policies to favorable ones for foreign investors.

In 1983, the government of Thailand approved foreign ownership of 100 percent, with the condition that the company must export all of its production. However, it was in 1986 that the Thai government started full-fledged deregulation where foreign investors would be able to own 100 percent of capital if 80 percent of production was exported. And, in the first two years, it was possible if 50 percent of the products are exported. In 1986, Malaysia and Indonesia also started to lift restrictions on FDI on a step-by-step basis. As shown in Figure 3-6, FDI began to rise and this trend continued from 1986 to 1988 in Thailand. The FDI boom was supported by Japanese and Taiwanese investment in export-oriented electric and electronics sectors (JETRO, 1989: 134-137). The trend of FDI decreased from 1991 to 1994, but increased again before

the economic crisis. In Malaysia (Figure 3-7), the rising trend during the second half of 1980s reflected in the number of approvals, was caused by the deregulation policies as well as the appreciations of Japanese yen and other currencies of Asian NIEs (JETRO, 1988, P.143). In Indonesia (Figure 3-8), the effect of the drastic deregulation policy in 1994 was a temporary increase in both the number and the value of approved foreign investment projects in 1995 and 1996. On the other hand, the initiation of the deregulation in 1986 also yielded a rising trend.

After Asian economic crisis, the number of FDI approvals got a stable increase in the 2000s while the growth rates were in fluctuations. In Thailand, the amount of investment per one project has become smaller; the SME investors which produce parts and components have increased. In Malaysia, both the amount and the number of the approvals showed remarkable progress before the world economic crisis in 2009. In Indonesia, significant increase is observed after 2010. The economic growth rates of Thailand, Malaysia and Indonesia for the period between 2000 and 2008 were 4.9 percent, 5.1 percent and 5.2 percent, respectively.

(3) Selectiveness: significant difference between Thailand and Malaysia

Among the ASEAN countries, Thailand and Malaysia have been the most successful in attracting FDI. There is a big difference in FDI policy, however, between Thailand and Malaysia; Malaysia has been selective in receiving FDI while Thailand fundamentally accepted any investors.

Malaysia had adopted the most beneficial policies for foreign companies since 1986; FDI companies were allowed to hold 100 percent of the capital if the company exports more than 50 percent of the products. In 1991, however, Malaysia raised the ceiling from 50 percent to 80 percent. Malaysia also stopped to grant tax incentives to the “pioneer status” holders, imposed 11 percent corporate income tax and FDI

companies could not extend the pioneer status for five more years (in 1986, the FDI companies could enjoy 10 years tax exemption with extension of the five years pioneer status). The pioneer status is a kind of privileged status for an investor who fulfills specific conditions. According to the Malaysian government, it was to increase the expenditure for infrastructure and human resource development (JETRO 1992, P. 205). On the other hand, Malaysia decided to give the pioneer status with 10 years incentive period to the FDI companies which invested in high technology sector like semiconductor wafer in 1996 (JETRO 1996, P. 194). In the fiscal year of 1997, the Malaysia government decided to give corporate tax exemptions and deduction to Research & Development (R&D) and Information Technology (IT) projects which invested into Multi-media Super Corridor (MSC, JETRO 1997, p.195). These selective policies could not be sustained after the Asian Currency Crisis. The government decided to allow foreign manufacturing companies, which would invest from July 31, 1998 to December 31, 2000, to hold 100 percent capital without conditions of the export share (JETRO 1999, p.194). Thailand, on the other hand, rarely regulated the FDI policies and also gave incentives to investors in specific industries and in specific regions.

The difference was clearer between the two countries regarding policies on automobiles. The Malaysian government established Proton (national automobile company) in 1983 (Torii, 2005, p.7). After starting the production in 1985, the Malaysia government kept the competitors, including the FDI companies, out of the domestic market by adopting several kinds of policies to protect the production by Proton; the government imposed 40 percent tariff on imports of complete knock-down kits while the government exempted Proton from paying the import tariff. In addition, the government provided favorable condition to the national-branded cars, Proton, by

financing the government officials to buy Proton and by reducing road tax for the cars in the same sizes of Proton (Anazawa 2004, PP. 113-114).

In contrast, Ministry of Industry in Thailand liberalized the entry of foreign automobile assemblers in November 1993. Board of Investment (BOI), Thailand also decided to revive the incentives for automobile assemblers in 1994 which were earlier eliminated (JETRO 1995, P.203). In addition, Thai government decided to give incentives to various supporting industries between 1993 and 1999 irrespective of the provinces (2). This point was important in the situation when the investors could get no more incentives in the metropolitan area.

Although there would be many differences between selective and generous FDI policies, at least in the case of the automobile industry, the advantage of the latter has become clearer as we see the development of an automobile industrial cluster in Greater Bangkok and management crises of Proton.

Table 3-3: Various Supporting Industries Prioritized in Thailand

Supporting Industries	Period	Supporting Industries	Period
1) Molding and die-casting	1993-1999	12) Connector	1994-1999
2) Jig	1993-1999	13) Nickel-Cadmium (NI-CD) rechargeable battery	1994-1999
3) Forging (Hammering)	1993-1999	14) Engineering plastic parts & components	1994-1999
4) Foundry	1993-1999	15) Machine producer	1997-1999
5) Machine tool	1994-1999	16) Anti-lock brake system (ABS) components	1997-1999
6) Cutting tool	1994-1999	17) Electronic-controlled fuel injection system	1997-1999
7) Grinding tool	1994-1999	18) Foundation for catalytic converter	1997-1999
8) Powdered metallurgy	1994-1999	19) Industrial measurement machine	1997-1999
9) Surface preparation	1994-1999		
10) Heat treatment	1994-1999		
11) Machining Center	1994-1999		

Source: JETRO (1995), JETRO (1997) and JETRO (1998).

(4) Lessons from Thailand, Malaysia and Indonesia

According to the experiences of the three ASEAN countries, it is clear that the trends for the number and value of approved foreign investment projects in Malaysia, Thailand and Indonesia were stagnant before 1986, as the governments continued their nationalistic policy regulation of FDI. On the other hand, after 1986, when these countries started to adopt deregulation policies, the number and value of approved foreign investment projects started to show a rising trend, at least after two years. Evidently, protective FDI policies do not result in attracting FDI and this is a good lesson for Myanmar. On the contrary, nationalistic policies can limit the opportunities of technical transfer, employment creation and complements of capital resulting in losing opportunities of economic growth driven by the FDI. Myanmar should not think that FDI is a fear. From the differences between Thailand and Malaysia, it is better not to conduct industrial policies like “national car policy.” Surely Malaysia conducted interesting tax incentive policies. We should not forget, however, that Malaysia changes policy toward reregulation after deregulation. In this meaning, the government of Myanmar should not offer great deals in incentive policies at the initial stage. It is recommended to conduct simpler tax incentive policies.

3.3 *Investment climates*

(1) Needs to provide good investment climates

Investors’ impression is one of the most important things to attract FDI. The government should adopt policies in accordance with the viewpoints of investors. For the investors, the gap between the investment climate in the host country and the home country is felt acutely, especially if the host country is a developing one. In order to

minimize the gap, developing countries establish industrial estates (industrial parks or industrial zones) or special economic zones (SEZs) and make efforts to provide better investment climates inside the industrial estates or SEZs¹⁷.

For basic requirements of industrial estates, the operating company has to provide fundamental infrastructure such as access road to the national road, (backup) electricity, water supply, waste water treatment and telecommunication facilities. Unfortunately, most of the industrial estates in Yangon and its suburban area are unable to provide such fundamental infrastructure. These industrial estates have to be equipped with adequate infrastructure. In addition, the operating company has to assist interested investors with the procedures for obtaining investment approval and other matters. For foreign investors, who are usually not able to read, write and speak local languages well, this kind of service is important (Ishida, 2011a, P.5).

One stop service (OSS) is also required for attracting FDI companies. In 1988, the Malaysia government empowered the Malaysian Industrial Development Authority (MIDA) as the coordination center for investments. With this functional empowerment, the MIDA harmonized the processes for application and approval such as request regarding the industrial coordination act, working permission for foreign staffs, requests for tax incentives, permission for buying and importing machines and reduced the time spent for all the procedures to less than two months (JETRO 1989, P141). In order to introduce the OSS, good coordination among the different government organizations and strong initiative by the investment related ministries are required. In addition, the OSS should be branched at regional levels. A survey on investment climate in the CLMV countries conducted by ERIA in 2008 found that the OSS in Myanmar was regarded as less efficient than those in Cambodia, Lao PDR and

¹⁷ “Industrial estate” or SEZ” will be referred simply as “industrial estate” hereinafter.

Vietnam (Ishida, 2010a, P.14). The companies in Yangon had to visit Naypyidaw for making an application for import-export procedure.

During the transition to democracy, labor issues can occur frequently. In Indonesia, there was approved only one trade union during the era of Suharto administration. After the era of Suharto, the forming of trade union was liberalized. Newly established trade unions were likely to instruct the intra-company trade unions to negotiate with companies, sometimes violently. If the wages were raised through negotiations, the national trade union could get some portions of the rise (Ishida 2002, P. 93). The labor issue is still one of the major obstacles to improve investment climates in Indonesia. The labor issues are problematic as labor forces go on a strike illegally and often damage the assets of the company. In case of a strike, the trade union has to inform the companies and the labor related ministries several days in advance. In Cambodia, an officer assigned to each SEZ by the Ministry of Labor is in charge of arbitration between the labor and the companies and the arbitration is evaluated by a managing director. In Vietnam, if machineries or equipment are damaged because of illegal strikes, the trade union has to compensate for the damage limited to three months wage (Ishida, 2011b).

In developing countries, corruption among government officials is also a problem. Very often, private companies have to pay additional charges without any receipt. Such red-tape culture is harmful in attracting FDI. According to the survey results on investment climate conducted by an ERIA research team in 2008, the corruption situations in Yangon and in Mandalay were not well-evaluated (Ishida, 2010a, PP.12-13).

(2) Important investment climate elements

Regarding investment climate elements prioritized by companies, a research team

for an ERIA research project on possibilities of upgrading industrial structure in the CLMV countries in 2009 asked companies in Thailand, Malaysia and Indonesia about the priority in making decisions for relocating the factories or some modules of manufacturing process (Ishida 2010b, PP. 430-434). The samples were selected among automotive and electric & electronics industry in Thailand, electric & electronics industry in Malaysia, and electric & electronics industry and garment & textile industry in Indonesia.

As for the electronics industry, the survey concludes that the wage and education level of workers, access to ports and markets, and political stability are the most important elements in attracting direct investment in the electronics industry. In terms of the automotive industry, the size of the domestic market, access to ports and markets, education and wage level of workers, and incentives like tax holiday are especially important. Regarding the garment & textile industry, energy price, land price for owning or leasing, incentives like tax holiday, wages, political stability and quality of supplier are most important.

Among these elements, access to port and market, wage and education level of workers, political stability and incentives like tax holiday are commonly important elements among the sectors. On the other hand, difference between the electric & electronics and automotive industries regarding the domestic market size is due to the fact that majority of the former sector are export-oriented while the latter prioritizes the merit in the domestic market. Garment sector gives higher priority to the land price because the larger one-storey factory needs wider land area. Respondents gave top priority to energy price due to electricity shortage in Indonesia.

(3) Needs for Improving Investment Climates in Myanmar

The research team for the ERIA research project in 2009 also asked the companies in CLMV countries, including Myanmar, about the needs and demands for soft and hard infrastructure or investment climates by using open-ended question (Ishida 2010b, PP. 458-465).

As for Myanmar, the needs and demands for improving infrastructure are higher than in other members of CLMV. The needs for improving electricity supply due to frequent black-outs were especially higher. According to the results of the same survey, most of the respondents answered that black-outs occur several times in a day and companies in Yangon have to use their own generators for four or five hours a day (ibid, PP. 456-457). It was reported that the situation has improved after some portions of natural gas were supplied for the electricity generation by gas turbines. It should not be forgotten that the demand for electricity continued to increase in Indonesia even during the economic crisis. In terms of telecommunication, the needs for improving the quality and speed of internet, interruption of telecommunication cables, telecommunication price in general, including that of fixed cable, cost of mobile phones and internet price are higher although the priorities of respondents are not so high when compared with electricity. The need for improving logistics such as improving transport infrastructure in general, easing traffic jam in the city areas, increased toll rate of bridges and roads and of fuel price are also enumerated by many respondent companies.

The demands for improving institutional process are not as many as those compared with Cambodia and Lao PDR, but the priority given to them by the companies is not low either. Complaints on the tax system, process for getting licenses, process for documentation and export and import process are also enumerated. As for labor issues,

many companies faced difficulty in procuring skilled labor and there is also need for vocational training.

(4) Lessons for Myanmar on investment climates

There are many aspects of investment climate that require improvement in Myanmar. First, existing industrial estates need to improve fundamental infrastructure such as backup electricity, water supply, waste water treatment and telecommunication facilities. Second, the economic infrastructure, especially, electricity and telecommunication should be improved. The frequency of black-outs is more and the prices of mobile phones and international phone call are higher than CLV countries. Third, the private industrial estates need to employ staff capable of speaking in English and major foreign languages in order to attract FDIs. They are expected to support foreign staffs of FDI companies for different procedures. Fourth, laws on labor issues have to be developed, and understanding of the laws has to be disseminated in order that workers do not go on illegal strikes. Fifth, corruption and unnecessary transition costs must be tackled by law enforcement agencies. Sixth, easy access to ports, airports and union highways are to be considered for development of industrial estates. Seventh, in order to provide high level of workers to FDI companies, the quality of education from elementary school to high school and vocational training should be of a higher level and must support the FDI companies to conduct intra-company training. Eighth, appropriate level of tax holidays has to be given. However, frequent change in tax incentive policies should be avoided, especially to tighten the regulation. Last but not least, better infrastructure such as electricity, telecommunication and transport facilities are important factor to induce investors abroad.

3.4 FDI-related policies

(1) Tax incentives

Tax incentive is one of fundamental policies to attract FDI. As shown in Table 3-2, corporate income tax is imposed on a company's profit or income, when cost is reduced from revenue. For example, suppose that a company has revenue of USD 30 million and costs of USD 20 million; then the profit becomes USD 10 million. Given that the corporate tax rate is 30 percent, then the tax payment is USD 3 million. The value of this payment assumes that the company has not been granted tax incentives. If the company had received a tax exemption, it would not have to pay the tax, in this case USD 3 million, for a specific period. For the first or second year of operations, companies usually cannot easily generate a profit because the initial costs, such as building a factory, introducing machinery and other set-up costs, are burdens on the company. On the other hand, tax reduction means that the tax rate is reduced to a specific level. For example, if the tax rate is reduced by half to 15 percent, the tax payment in the above scenario decreases to USD 1.5 million. Tax deduction means that a specific cost can be deducted from the tax payment. For example, if the government gives incentives to a company that buys new machinery and all the cost can be deducted, then the cost (USD 1 million) for the machinery is reduced from the tax payment (USD 3 million), thus the tax payment decreases to USD 2 million.

In implementing tax incentive policies, the important thing is to make the objectives clear. In reviewing the tax incentive policies in the East Asian countries, the objectives are enumerated as follows:

- Export-orientation
- Development in rural areas
- Development of specific industries
- Job creation

- Human resource development
- Promotion for reinvestment

Table 3-4: Ways of incentives for corporate income tax

Basic Assumption	Ways of Incentives
Profit (Income) = Revenue (Sales) – Cost ex. Revenue: USD 30 mill. Cost: USD 20 mill. Tax Rate :30% >>> Profit = USD10 mill. >>> Tax Payment = USD3 mill.	1) Tax Exemption do not have to pay USD3 mill. 2) Tax Reduction ex. Tax is reduced by half (15%), then Tax payment decreases to USD1.5 mill. 3) Tax Deduction ex. Cost of buying machinery = USD1 mill. Tax payment = USD3 mill. – USD1 mill. = USD2 mill.

Source: Author

As for tax-incentive policies for “export-orientation” the Malaysian government has made use of tax deduction policies since it started deregulation in 1986. For example, companies could deduct 10 percent of value-added of export products, 5 percent price of locally produced input for export products, as well as the full cost of advertising, market surveys, sample distribution and preparation for tender in foreign countries (JETRO, 1991, P.393).

Regarding policies for “development in rural areas,” the government of Thailand tried to reduce the gap in gross regional products (GRP) between Bangkok and its suburban area and the northeast region, where one third of the whole population lives. More concretely, the government of Thailand continued to give incentives to FDI companies who invest in rural areas by adopting an investment zone system as of September 1, 1987 (Table 3-5). On September 26, 1988, the government of Thailand changed the policy; combined the provinces of Zone 2 in the zone system of 1987 into Zone1. And 10 provinces were selected for the new Zone 2 (Table 3-6, JETRO 1989: 315). In April, 1993, the tax exemption period for Zone 3 was extended from five years to eight years and import tax for machinery became exempted for 5 years in Zone

3 (JETRO, 1995, P.203). The invest zone system as of 2012 is shown in Table 3-7 while the system ends in 2013. Among the third zone, Rayong province was successful in receiving a lot of FDI and Rayong province was subsequently changed to Zone 2. As inland provinces, Lamphun and Nakhon Ratchasima (Korat) have shown successful performances in receiving FDI projects. The provinces, however, which received zero or a few FDI projects, are many in Zone 3.

Table 3-5: Investment Zone System in Thailand in 1987

	Tax Exemption	Import tax for Machineries	Provinces
Zone 1	No exemption	No exemption	Bangkok, SamutPrakan
Zone 2	3 – 5 years	50% exemption	NakhonPathom, Nonthaburi, PathumThani, SamutSakorn
Zone 3	4 – 8 years	100% exemption	Other 67 provinces except LaemChabang and Map Ta Phut

Source: JETRO (1989, P.312).

Table 3-6: Revised Investment Zone System in Thailand in 1989

	Conditions	Tax Exemption	Provinces
Zone 1	Without conditions ¹⁾	No	Bangkok, SamutPrakan, NakhonPathom, Nonthaburi, PathumThani, SamutSakorn
	With conditions	Max 3 years	
Zone 2	Without conditions	3 years	SamutSongkhla, Rachaburi, Kanchanaburi, Suphanburi, Angtong, Ayuthaya, Saraburi, NakhonNayok, Chacheongsao, Chonburi
	With conditions ²⁾	Max 5 years	
Zone 3	4 – 8 years	4 – 8 years	Other 57 provinces except LaemChabang and Map Ta Phut

Notes: 1) Export out of production is 80% or more, or the factory is located in an industrial estate.

2) The factory is located in an industrial estate.

Source: JETRO (1989: 312).

Table 3-7: Current Investment Zone System in Thailand as of 2012

	Conditions	Tax Exemption	Import Tax Incentives	Provinces
Zone 1	Outside of IE	No	50% reduction of machinery import tax	Bangkok, SamutPrakan, NakhonPathom, Nonthaburi, PathumThani, SamutSakorn
	Inside of IE	3 years exemption	Import tax of raw	

	Outside of IE	3 years exemption	materials for export products is exempted for 1 year	SamutSongkhla, Rachaburi, Kanchanaburi, Suphanburi, Angtong, Ayuthaya, Saraburi, NakhonNayok, ChonburiChacheongsao, Rayon, Phuket
Zone 2	Inside of IE	5 years exemption		
		8 years exemption + 5 years reduction (50%)	100% reduction of machinery import tax	
Zone 3	4 – 8 years	200% deduction from cost of transportation, electricity & water	Import tax of raw materials for export products is exempted for 1 year	Other 59 provinces

Notes: 1) IE is an abbreviation of an industrial estate.

2) In case of project which is larger than Bt. 10 million (not including operation and land cost), tax exemption period can be reduced for one year if the company gets the approval of ISO9000 or its equivalent international standard in two years from the date of establishment.

Source: Website of JETRO.

The government of Malaysia decided to grant ten years of pioneer status to factories of semi-conductor wafers in 1996. The government also decided to grant a five-year corporate income tax exemption to companies in the intermediate goods industry and to grant a ten-year exemption if the company exports the intermediate goods in 1997 as above. In addition, the government of Malaysia gives incentives to foreign investment projects involved in environmental protection and infrastructure development. In terms of “job creation,” the government of Malaysia extended the tax exemption period for a company with pioneer status from five years to ten years if employing 500 or more permanent workers which was one of the conditions for the pioneer status (JETRO, 1987, P.132). To encourage companies to engage in “human resource development,” the Malaysian government allowed companies that conduct vocational training for its workers or constructed a building for vocational training to deduct the expenditure for the training and building construction (JETRO, 1991, PP.393-394). Regarding “promotion for reinvestment,” the government of Malaysia allowed companies to deduct the cost for expansion.

(2) Policies on negative list

A negative list is a list of sectors that is either prohibited for foreign investment or which is open to investment under specific conditions. This sub-section shows what kinds of sectors are regulated by summarizing the types of the sectors of other ASEAN countries:

- Threat to national defense
- Threat to national security
- Harmful to public health
- Media
- Can corrupt public moral
- Harmful to culture and tradition
- Can deplete natural resources
- Harmful to environment
- Need to protect domestic SME

As examples of “threat to national defense,” producing, selling, repairing, storing and distributing military weapons such as guns and ammunition are either prohibited, or require the permission of the related organization, or the foreign share is limited to a specific percentage. Regarding “national security,” investment in the business of producing, processing, selling and using pistols, explosives, other firearms illegal drugs is prohibited or need permission. As for “harmful to public health,” foreign investments in medicines, vaccines, bio-medicines, cosmetics, chemicals and pesticides and dangerous toys are prohibited or needs a special permission. “Media” is regulated in many countries. For example, printing newspapers and broadcasting by way of TV and radio are prohibited or are on the conditional investment domains.

The sectors that are regulated because they “can corrupt public moral” or are “harmful to culture and tradition” are similar, but with country specific differences. The examples of sectors closed or regulated are casino/gambling, sauna, steam

bathhouses, massage clinics, restaurants, karaoke parlors, nightclubs. On the other hand, in Thailand, manufacturing and founding of Buddha statues and begging bowls for monks and buying and selling of antiques, manufacturing of Thai traditional music instruments and plates and utensils that belong to Thai culture and arts are also closed to or regulated for foreign investors.

As sectors that “can deplete natural resources” or are “harmful to environment,” capturing of fish species as stated in convention on international trade in endangered species of wild fauna and flora, the use (removal) of coral/atoll from nature for construction material and souvenir/jewelry, forestry exploitation business are prohibited. Some countries prohibit foreign investors in agriculture and fruit plantation, livestock, forestry and wood processing, fishery inside the ocean area and economic waters of the country.

Regarding the sectors which “need to protect domestic SME”, the sectors vary from one country to another. It includes rice milling, fish farming, forestation, manufacturing venire, chip boards and hard boards, construction, accounting and judicial services in Thailand. The government of Cambodia contained such sectors in a list of “investment activities not eligible for incentives.” For instance, production of food products and beverages, production of products for textile industries, production of furniture and fixtures with investment capital less than USD 500,000 are included in the list.

FDI regulation varies by country. The government of Indonesia regulates the sectors with Indonesian Standard Industrial Classification (ISIC). So, it is transparent, but the number of sectors are many, which suggests that the sectors are collected from the requests of all government departments. In this context, the list should be narrowed down. In addition, the original principles should be emphasized more than the listed sectors. The listed sectors are selected in accordance with principles, but whether it is

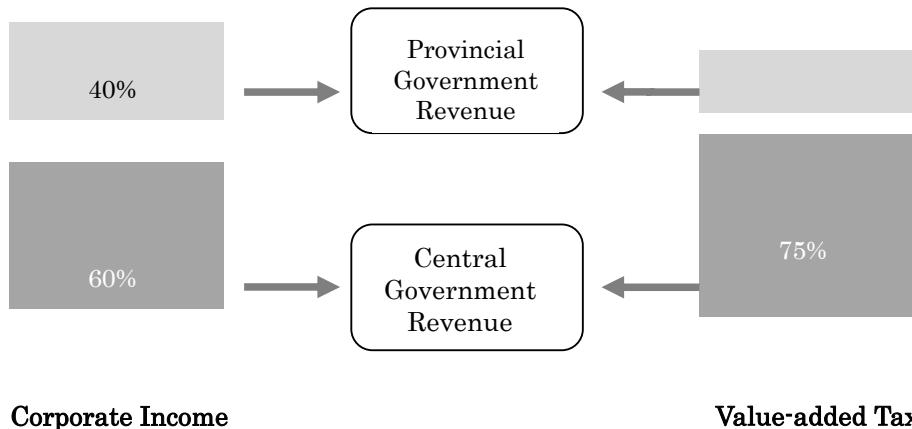
reasonable or not is another case.

In contrast, the negative list of Vietnam is composed of principles. In case of Vietnam, transparency can be damaged in the screening process. In order to implement the regulation fairly, a neutral committee which the investors can access, should be provided.

(3) Centralized or decentralized?

It is controversial whether FDI should be controlled by the central government or partly by regional governments. Actually, the ways to control are different, depending on country specific. In Vietnam, Laos and China, there is some extent of decentralization with regional governments having the decisive power for specific amount of investment. On the other hand, all corporate income tax revenue is entered as the revenue of the central government in Thailand and Indonesia, while some parts are allocated to the regional government in China. As shown in Figure 3-9, 40 percent of corporate income tax and 25 percent of value-added tax are allocated to the budget of regional government. Thus, regional governments clearly have incentives to attract foreign investors. For the regional government, revenues can increase with an increase in FDI and consequent corporate income tax. And, in order to attract additional foreign investors, the regional government has to take care of existing foreign investment projects so as to earn a good reputation among existing investors in their region.

Figure 3-9: Allocation of Corporate Income Tax and Value-added Tax in China



Source: Ishida (2013, P. 230).

It is beneficial if the regional governments recognize the importance of FDI and take part in the decision making regarding policies to attract FDI. However, it should be remembered that one province in China can be larger than a country in ASEAN. The upper limit that regional government can approve in Laos is less than USD 3 million or 5 million.

In addition, if the central government transfers a part of its authority to regional governments, the regional government officials have to be highly disciplined and need to also participate in designing the regional master plan. Hence, the participation of regional government officials is a challenge in the mid-term interval (five–ten years). In case of Myanmar, at first, some authoritative power should be transferred from the central government to major regional governments like Yangon and Mandalay in five years and some other authority should be transferred to other regional governments in ten years. Although before this transition, regional government officials can participate in the authorization process to approve FDI as a mean of training.

(4) Lessons on FDI-related policies

As for tax incentive policies, the government of Malaysia made efforts for attracting the FDI for various purposes. However, a return to regulations when Malaysia became selective, sent negative message to FDI companies. Therefore, the frequency of policy changes toward re-regulation should be minimized and the incentive policies at the initial stage should not offer great deals and should be simplified.

A negative list is needed to prohibit or regulate those sectors which may be a threat to national defense and national security and media. It is also needed to protect domestic SME. But it should not adhere to the political requests from domestic business group and regulate too much. The sectors that the Myanmar government should protect are those that are harmful to public health and environment. The central government of Myanmar should also examine whether, how and when to decentralize decision making for FDI-related policies. OSS is also one of related issues at regional level. If a decentralized system is adopted, it is recommended to spread it over five years for Yangon and Mandalay and ten years for other Regions/States. There are other prerequisites such as personnel exchange. In addition, good relation and cooperation between the central government and the regional governments should be sustained after the transition.

4. Economic Corridors Development: Enhancing Connectivity

4.1 Economic Corridor Approach and Integrated Corridor Concept

(1) Transport network and rationality of economic corridors

An economic corridor is a geographic area where commercial activities are concentrated, and in Myanmar, the objective is to facilitate all round development to

ensure balanced and proportionate growth among regions and states. It is proposed to alleviate poverty by integrating people into the mainstream economy. In addition, some economic corridors in Myanmar also serve as new dimension to regional cooperation and enhancing connectivity with neighboring countries.

The economic corridor concept has been applied between countries with common borders, such as the Mekong Economic Corridor, to promote development and integration. It has also been applied within a single country, such as China in the North-South and East Sash corridors, to attract investment and commodity flows, thereby promoting economic development. Economic corridors of Myanmar will be connected between the most advantaged regions and the most disadvantaged regions as well as in between regions surrounded by richer neighboring countries or larger hubs. They will be located in the ways that gains are likely to be best spread to ensure a balanced inclusive growth. They will initially aim to support the modes of transport toward efficient trade hubs.

(2) Definition and vision of economic corridors

An “economic corridor” is defined as an area for targeted policy, development initiatives and infrastructure projects aimed at creating and empowering an integrated and competitive economic base that is sustainable. The vision of Mekong-India Economic Corridor¹⁸, one of the benchmark economic corridors, is to create a strong economic base that provides employment, reduces poverty and promotes human resources development through provision of world class infrastructure and facilitation of trade between Mekong region and India. Similarly, the vision of Delhi-Mumbai

¹⁸ Study of Mekong –India Economic Corridor Development was conducted by ERIA in 2009 for the linkage of India, Myanmar, Thailand, Cambodia and Vietnam

Industrial Corridor¹⁹ is to create strong economic base in this band with globally competitive environment and state-of-the-art infrastructure to activate local commerce, enhance foreign investments and attain sustainable development.

The corridor also provides cohesiveness and connectivity between special economic zones, free-trade zones and other similar economic development areas. The economic corridor will connect hubs, nodes, and supporting infrastructure and enablers to drive economic and social development across the region.

Hubs are large urban agglomerations with high population density and are centres of economic activity in the region. They are the major demand centres and act as anchors for foreign and domestic investment which interact with surrounding areas to spread prosperity from the core to periphery. For example:

- Bangkok, Phnom Penh and Ho Chi Minh are hubs for the Mekong India Economic Corridor.
- Mumbai and Delhi are hubs for the Mumbai-Delhi Industrial Corridor.

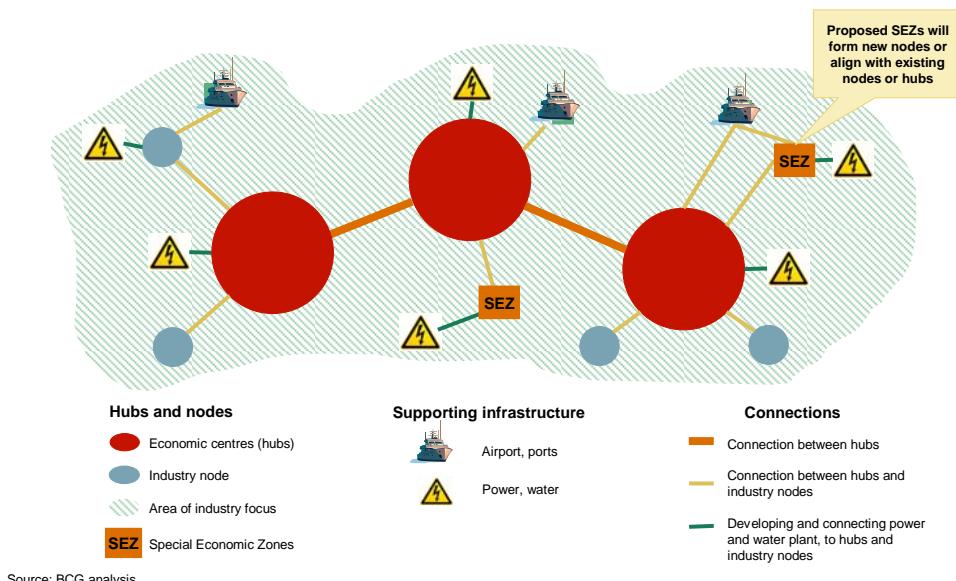
Connecting hubs are necessary to serve as the backbone of the corridor. This connection increases trade movement and human resource, enhancing activity to grow the economic pie.

Hubs also have spill over benefits in two ways. Firstly, the accelerated growth at hubs provides additional income to the government in terms of taxes as well as reducing government spending due to increased private sector participation. This additional income can therefore be diverted towards the social development agenda in less developed areas. Secondly, by improving connectivity and reducing logistics costs between growth poles and lagging regions, the lagging regions are provided with

¹⁹ Delhi-Mumbai Industrial Corridor is a mega infra-structure project of USD 90 billion with the financial and technical aids from Japan, covering an overall length of 1483 km between the political capital and the business capital of India, i.e. Delhi and Mumbai.

increased access to economic opportunities; partly from economic activity being encouraged to locate further from the hub's center, and partly from the ability to travel to the hubs for employment opportunities. World Bank studies indicate that the distance that economic activity spreads outward from a growth center is directly linked to the quality of infrastructure connecting the growth center to the surrounding regions.

Figure 3-10: Connections and Entities within the Corridor



Nodes are secondary clusters of economic activity to hubs with high potential to become future growth drivers. They generate positive externalities thus also benefiting regions outside of nodes. They are usually industry specific, having location advantage or availability of incentives (e.g. Special Economic Zones) and are generally in proximity to hubs and supporting infrastructure (e.g. ports). For example:

- Kanchanaburi, Ayutthaya and Battambang are nodes for the Mekong India Economic Corridor.
- Meerut-Muzaffarnagar area and Dighi are nodes for the Mumbai-Delhi Industrial Corridor.

Industry nodes are connected to hubs to enlarge the industry clusters and generate

employment outside the hubs. Improvement in supporting or enabling infrastructures increases industry competitiveness through cheaper production cost and better access to a larger market. These infrastructures include airports, seaports, water supply, and electricity supply.

Box 3-2. Six guiding principles were adopted to provide a platform to define IEDC

Corridor to connect at least two hubs

Connecting at least two hubs helps ensure a path through lagging or rural areas in order to generate a larger spill over effect. By connecting these hubs, the distances between them are effectively shortened, thereby reducing logistics costs and shortening travel time, and allowing for amalgamation effects and spurring economic activity along the path. These transport linkages also attract and support the formation of new nodes and hubs.

Corridor to link hubs with rural areas

Corridor development also addresses the social development agenda for the less developed areas. Linking developed and less developed areas allow for spill over effects to the lagging areas by improving access to higher economic opportunities in the hubs.

Corridor to connect hubs overland (or bridge)

Land connection is prioritised over water connection at this stage of corridor development as this would have higher impact and for ease of implementation. Overland connections help maximise spill over effects along the connecting pathways. While there is nothing preventing Indonesia from defining corridors as waterways, however the infrastructure development between two hubs connected over water would be limited to the hub itself through port development or expansion. This limits the development to essentially a zone-based approach rather than the strong focus on connectivity and spill over benefits to the region between the hubs that is usually associated with an overland corridor. Nevertheless, given that Indonesia is an archipelago with waterways playing a critical role, the infrastructure development for each corridor in the future would not be limited to overland connectivity but also considers sufficient sea and air transport modes as well. Therefore the development of ports in Indonesia is critical. The corridor master plans for both Eastern Sumatra-North Western Java and Northern Java analyze the potential need for port development and expansion, acknowledging the importance of sea-based transport for Indonesia. Thus, overland corridors do not de-emphasize the development of ports or the importance of sea ways while still allowing for the additional spill over benefits to the regions of the corridor in between the hubs. Furthermore, benchmarks of corridors around the region support the preference for overland

corridors due to the clear benefits. Mumbai-Delhi and the Greater Mekong Sub-region corridors are such examples. Even in Malaysia, where the country is divided by a seaway, the corridors have been defined as overland corridors in each of peninsular and east Malaysia instead of seaway corridors connecting the two regions.

Corridor to connect to mega hubs where feasible

Mega hubs are the largest growth poles in the concerning regions and connecting to them help maximise the economic and socio-economic benefits of the corridor. A deliberate link to Jakarta was therefore made to provide the corridor with a connection to Indonesia's mega-hub, thereby gaining access to its resources, markets and economic activities. Empirically, economic development has been driven by major economic hubs. Jakarta is the major economic hub for Indonesia with, by far, the largest population and GDP. Linking to Jakarta would have positive impacts on the corridor through:

- Providing access to a large market
- Increasing access to rural participation in the overall economy of the corridor
- Improving productivity through agglomeration affects
- Generating spill over benefits from industries moving out of hubs
- Providing better access to the broader domestic and international economy

Corridor to avoid lengthy and highly heterogeneous regions

Lengthy, dense or heterogeneous corridors can dilute the effect of corridors by limiting the spill over benefits. Corridors must strike the delicate balance between trying to achieve maximum impact by including as many hubs, population and area coverage as possible, yet at the same time avoiding diluting the spill over and amalgamation benefits from having too large a corridor. Based on empirical evidence in the Mekong region including Mekong India Economic Corridor (1,131 km) and the Greater Mekong Sub-region corridor (1,400 km) from Kunming, Delhi-Mumbai Industrial Corridor (1,483 km), some longer corridors in Bangkok (~2000 km), the IEDCs are defined without exceeding the maximum length on benchmark corridors in the region.

Corridors to link hubs to key industry nodes and supporting infrastructure

Connection between hubs and nodes and supporting infrastructure would shorten distances between hubs and nodes thereby lowering logistic costs, allowing for more efficient movement of products and services, increasing access to markets and providing better enabling infrastructure for the development of identified industries.

Figure 3-11: Guiding Principles based on Benchmark Economic Corridors

	ECER and NCER (Malaysia)	Iskandar Malaysia	Delhi–Mumbai Industrial Corridor (DMIC)	Shenzhen – Hong Kong
1 Corridor to connect at least two hubs	~4 regional hubs connected through each corridor	Focus on Johor; enhancing connection w/ Spore secondary obj.	Delhi, Mumbai and other regional hubs connected	Shenzhen and Hong Kong connected
2 Corridor to link hubs with rural areas	Corridors pass many rural areas and also focus on agri dev't	Focus on existing towns/city but will spillover to surrounding rural	Corridor, that links hubs, passes through plenty of rural areas	Focus on linking two hubs with some rural areas in between
3 Corridor to connect hubs over land (or bridge)	Focus exclusively on overland developments	Focus exclusively on overland developments	Focus exclusively on overland developments	Focus exclusively on overland developments
4 Corridor to connect to mega hubs where feasible	Not linked to KL; however, long dist. may have prevented this	Focus on Johor; enhancing connection w/ Spore secondary obj.	Delhi and Mumbai are the two focal mega hubs connected	Connecting to Hong Kong is one main objective
5 Avoid lengthy and highly heterogeneous corridors	Focus on specific regions with no obvious heterogeneity	Very location-focused dev't with no obvious cultural divide	No obvious heterogeneity but distance as long as 1483 km	Very location-focused dev't with no obvious cultural divide
6 Corridor to link hubs with key industry nodes and supporting infrastructure	One of the corridor's main visions/objectives	One of the corridor's main visions/objectives	The corridor's number-one most important objective	Focus on leveraging off each other's infra and resources

Source: Corridors' and Authorities' websites; Literature search; BCG analysis

For Indonesia, Corridor development supplements existing development plans to ensure that infrastructure investment matches the economic development stimulated through the spatial zones and special economic zones (SEZ). It also ensures that SEZs and development regions identified by the government are not developed in isolation but connected to the larger economic ecosystem of the corridor. Corridors are a proven tool for development and have shown their success in the region (Malaysia, India and the Greater Mekong Subregion). Given the high growth Indonesia has experienced in the recent past, and the growth projected for the future, the infrastructure focus offered by corridors is essential to facilitate growing industries. They also help to ensure that growth is balanced and not restricted to hubs of zones, but rather leveraging these growth poles to benefit all of Indonesia. Corridor development not only includes hub development but also addresses the social development agenda for the

less developed areas that are between the hubs. Such integrated development not only ensures connectivity between hubs but also allows the regions to benefit from the amalgamation effects by reducing the distance and cost between hubs. This amalgamation benefit potentially accelerates growth in both hubs beyond what they would have achieved in isolation.

Based on the guiding principles, a four-step methodology was employed to nominate IEDCs:

Step 1: Define hubs: Provincial capitals defined as hubs as these are predominantly the economic, political and population centers of each province. This first step of using provincial capitals as hubs ensures that all provinces of Indonesia are considered in the identification and prioritization of IEDCs.

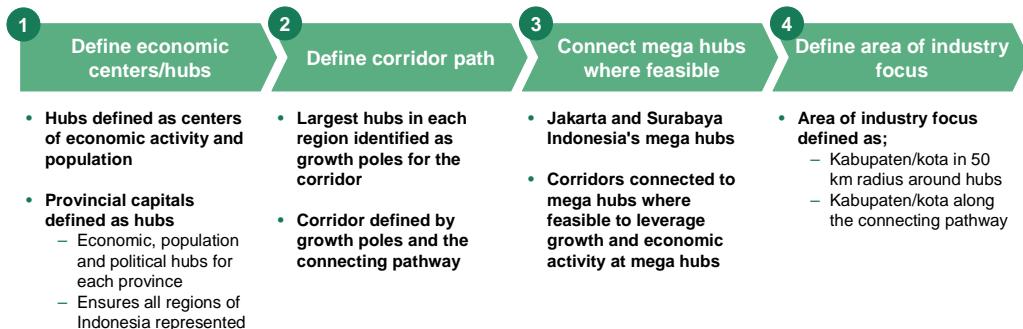
Step 2: Define corridor path: Path defined by connecting 2-3 biggest hubs (by GDP and population) on each island/ island group allowing hubs to act as growth poles for corridor. The biggest hub is identified in all regions of Indonesia to ensure no region is neglected.

Step 3: Connect mega hubs where feasible: Two mega hubs in Indonesia based on GDP and population (Jakarta and Surabaya) are connected to Sumatra, Java, Bali and NTT.

Step 4: Define area of industry focus: Areas defined by all Kabupaten/ Kota that lie, in full or in part, within 50 km of hub²⁰ or along the path connecting hubs in a corridor.

²⁰ 50 km distance based on World bank study of economic activity vs. distance to centre in Indonesia

Figure 3-12: Four Steps to Define IEDCs



Source: ERIA.

(3) Development features of economic corridors

Economic corridors particularly aim to contribute directly to the pressing concerns of employment and income generation, especially in less developed areas, by expanding the scope for market-driven production and trading activities; expand options for resource mobilization, such as direct investment and project finance, for sub regional initiatives, in particular from the domestic private sector as well as from abroad.

The guiding principles for MCDV include development of agriculture and all round development; a balanced and proportionate growth among regions and states; inclusive growth for entire population; and emergence of reliable statistics and improvement of the statistical system. The MCDV emphasizes the importance of logistics services for promoting and facilitating trade.

(4) Importance of transport linkages in corridor development

An economic corridor is a region in which the Government provides a well-planned zoning system, a comprehensive and effective network of transport and utilities, and quality education and health services. Within this region, businesses are able to

operate at low cost and under well designed incentives, thereby encouraging foreign and domestic private sector investments. By concentrating the construction of essential infrastructure within certain regions, the economic corridor approach takes advantage of the substantial economies of scale and scope associated with large service sector infrastructure. This reduces the cost for state owned enterprises, private sector and other providers of essential infrastructure, raising their returns and generating job opportunities. Building on these objectives, effective sequential and spatial planning will help to expand economic activities such as agriculture, tourism and manufacturing.

(5) Rationales for emphasis on four economic corridors

The four economic corridors are chosen because they are the main routes/paths which connect hubs and nodes of the country. All corridors have country to country connection which means that all corridors start and end with border to border or border to seaport (mercantile route). These corridors also have development features and transportation and logistics features which can have a potential contribution to Myanmar's economy and its international connectivity with neighbouring countries.

4.2 Myanmar economic corridors

As the study creates four possible economic corridors in Myanmar, this section covers economic geography and features of four Economic Corridors plus one potential corridor. It focuses description of hubs such as geographic formation, location advantages, demographic, labor composition in district level and possible hubs and economic activities, economic structure, major products and importance of economic corridors to business and industry, and infrastructure such as communication and electricity. Possible hubs are selected along respective corridors. Growth nodes along

and linked to economic corridors are also observed.

(1) North South Economic Corridor (Kawthaung, Myeik, Dawei, Mawlamyine, Thaton, Yangon, Mandalay, Myitkyina, Kanpaitree)

North-South Economic Corridor is the path of Kaw Thaung, Myeik, Dawei, Yangon, Bago, Taungoo, Nay Pyi Taw, Meiktila, Mandalay, Myitkyina and there will be two growth poles and five hubs on this corridor, as follows.

Table 3-8: Identified Hubs along North-South Corridor

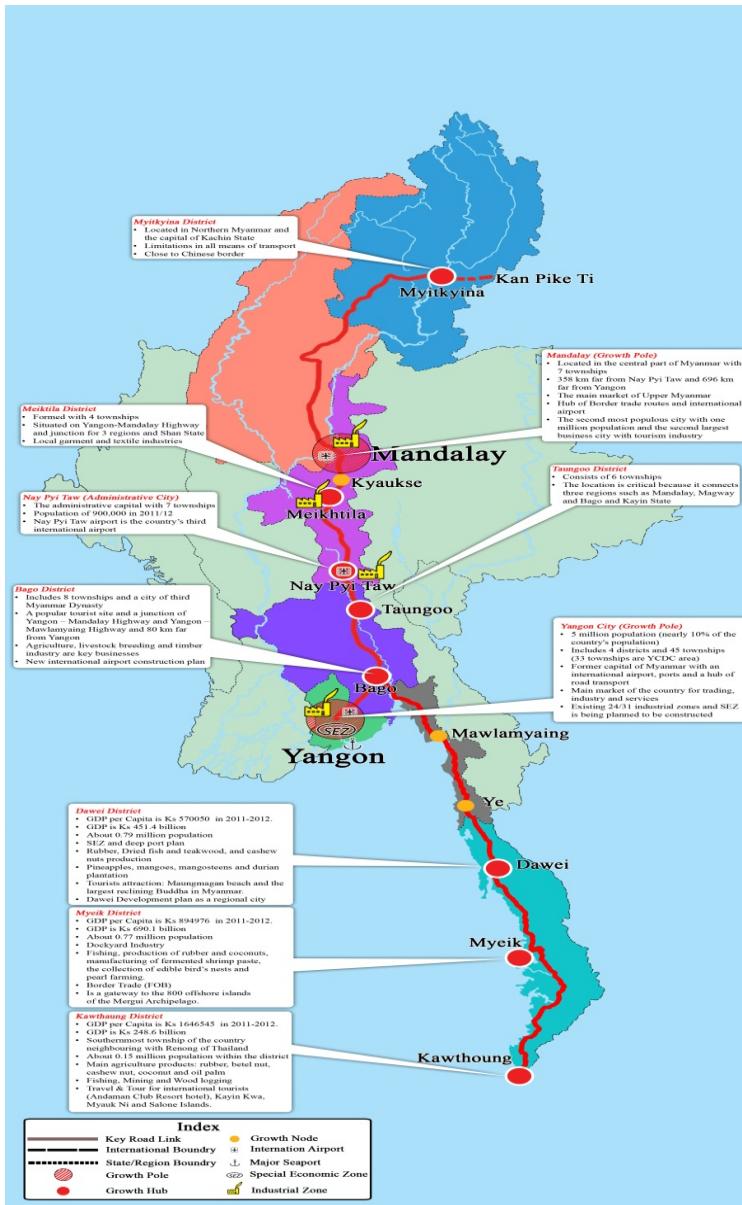
No	Name	State/Region	Brief on hubs
1	Kawthaung District	Taninthayi Region	<ul style="list-style-type: none"> • GDP per Capita is the highest due to border trade. • Southernmost township of the country neighbouring with Renong of Thailand • About 0.15 million population within the district • Main agriculture products: rubber, betel nut, cashew nut, coconut and oil palm • Fishing, Mining and Wood logging • Travel & Tour for international tourists (Andaman Club Resort hotel), KayinKwa, Myauk Ni and Salone Islands.
2	Myeik District	Taninthayi Region	<ul style="list-style-type: none"> • About 0.78 million population • Dockyard Industry • Fishing, production of rubber and coconuts, manufacturing of fermented shrimp paste, the collection of edible bird's nests and pearl farming. • Border Trade (FOB) • Is a gateway to the 800 offshore islands of the Mergui Archipelago.

3	Dawei District	Taninthayi Region	<ul style="list-style-type: none"> • Capital of Taninthayi Region • About 0.80 million population • SEZ and deep port plan • Rubber, Dried fish and teakwood, and cashew nuts production • Pineapples, mangoes, mangosteens and durian plantation • Tourists attraction: Maungmagan beach and the largest reclining Buddha in Myanmar. • Dawei Development plan as a regional city
4	Yangon Region (Growth Pole)	Yangon Region	<ul style="list-style-type: none"> • 7 million population (more than 10% of the country's population) • Includes 4 districts and 45 townships (33 townships are YCDC area) • Former capital of Myanmar with an international airport, ports and a hub of road transport • Main market of the country for trading, industry and services • Existing 24/31 industrial zones and SEZ is being planned to be constructed
5	Bago District	Bago Region	<ul style="list-style-type: none"> • Includes 8 townships and a city of third Myanmar Dynasty • A popular tourist site and a junction of Yangon – Mandalay Highway and Yangon – Mawlamyaing Highway and 80 km far from Yangon • Agriculture, livestock breeding and timber industry are key businesses • New international airport construction plan
6	Taungoo District	Bago Region	<ul style="list-style-type: none"> • Consists of 6 townships • The location is critical because it connects three regions such as Mandalay, Magway and Bago and Kayin State

7	Nay Pyi Taw	Nay Pyi Taw Council	<ul style="list-style-type: none"> The administrative capital with 7 townships About 1.2 million population in 2011 Nay Pyi Taw airport is the country's third international airport
8	Meiktila District	Mandalay Region	<ul style="list-style-type: none"> Formed with 4 townships Situated on Yangon-Mandalay Highway and junction for 3 regions and Shan State Local garment and textile industries
9	Mandalay City (5 township) (Growth Pole)	Mandalay Region	<ul style="list-style-type: none"> Located in the central part of Myanmar with 5 townships Over 1 million population in 2011 358 km far from Nay Pyi Taw and 696 km far from Yangon The main market of Upper Myanmar Hub of Border trade routes and international airport The second most populous city with one million population and the second largest business city with tourism industry
10	Myitkyina District	Kachin State	<ul style="list-style-type: none"> Located in Northern Myanmar and the capital of Kachin State Limitations in all means of transport Close to Chinese border

Source: ERIA

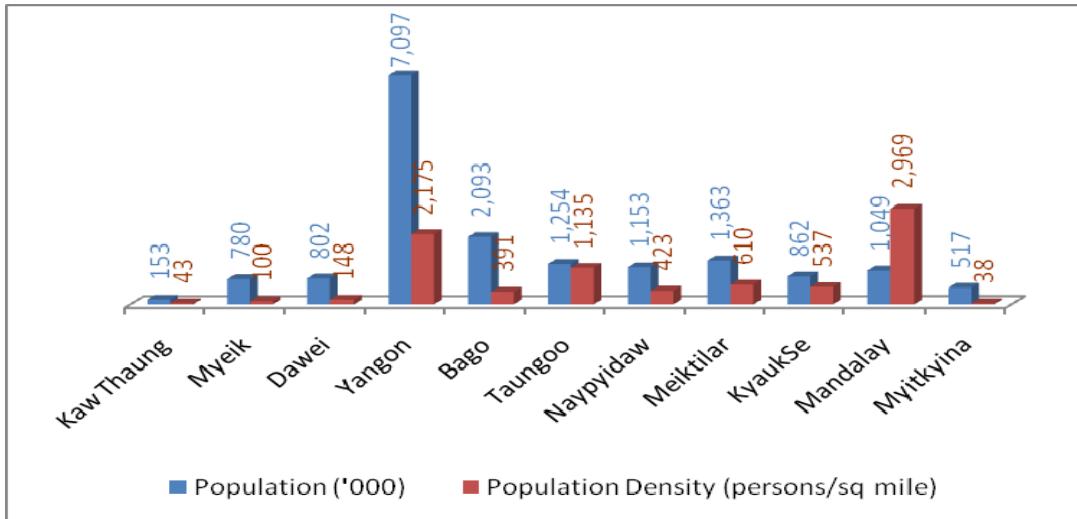
Figure 3-13: Hubs and nodes along North-South Economic Corridor



Source: ERIA

Growth nodes: In this corridor only Kyauk Se District can be seen as a prospective Growth Node. Kyauk Se is 62 kms from Mandalay, and successful agriculture and large scale industries are located here. There are more incidences of nodes connected to other corridors.

Figure 3-14: Population and Population Density (as at 1 Oct 2011)

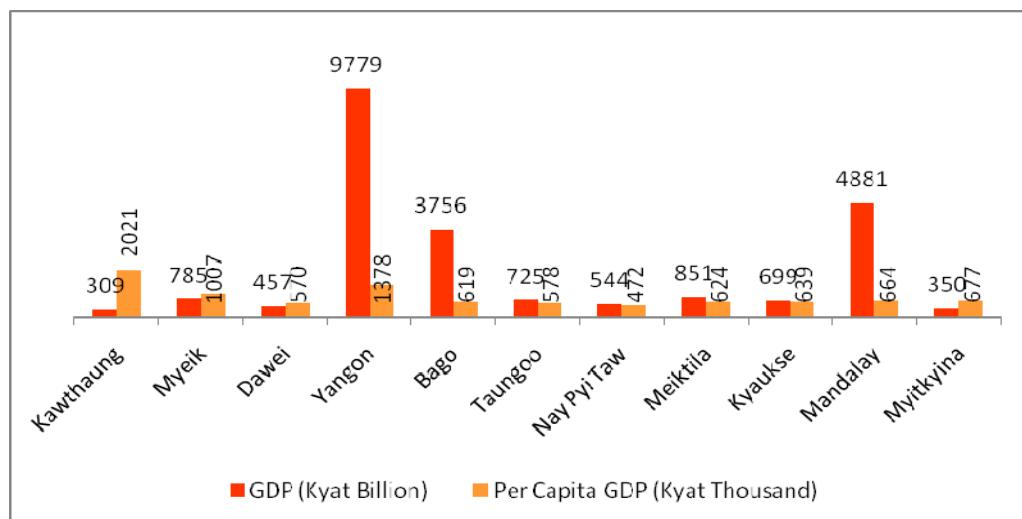


Source: Courtesy of Population Department

Note: Region level for Yangon, City level for Mandalay and District Level for others

Demography: Demographic status of Growth Pole and Hub along the Corridor in 2011 can be seen in the figure 3-14. Yangon and Mandalay- two growth poles have the largest population and highest density.

Figure 3-15: GDP (Kyat billion) and per capita GDP (kyat) by hubs in 2011/12



Source: Courtesy of Planning Department

Note: Region level for Yangon, City level for Mandalay District Level for others

Economic structure: Contribution of Yangon Region to GDP and also per capita GDP is the highest among other hubs. According to estimates, annual average GDP growth rate in the First Five-Year National Development Plan period will be 8.4 percent in Yangon Region; and per capita income is expected to grow from Kyat 1.4 million in 2011/12 to Kyat 2.1million (+66.7%). For Mandalay District, the annual GDP growth rate is 7.3 percent and per capita GDP is Kyat 0.7 million. Following the annual growth rate of 12.2 percent, it will reach Kyat 1.0 million in 2015/16.

Industries and business: On this corridor, only the Yangon City Development area has been offered to develop Thilawa Special Economic Zone, while other hubs along the corridors are still in an Industrial Zone status.

The implementation of Thilawa Special Economic Zone (SEZ) has begun since 2011 on a 2411 ha (5787-acre) land in Thanlyin and Kyauktan Townships in Yangon Region. For this SEZ, Japanese Consortium and Myanmar Consortium will form a Myanmar-Japan Joint Venture Company in the first quarter of 2013 to begin operations, though the implementation can proceed only after announcement of the Union Government to set the boundary of Thilawa SEZ, and after signing of the Memorandum of Cooperation (MOC). Investment of USD 1.25 billion may flow into Thilawa SEZ Project in 2015, as estimated by Nippon Koei Co.

Dawei SEZ is 154 sq. km wide. The Ministry of Transport and Italian Thai Development Co., Ltd (ITD) has signed MOU for Dawei Special Economic Zone in 12th May 2008 in Nay Pyi Taw. The first MOU for Dawei SEZ related with Dawei Deep Sea Port, Industries, cross-border road construction and railway construction has been signed in 19th May 2008 in Singapore. The implementation for Dawei SEZ plan has been agreed at 21st ASEAN Conference in Phnom Penh in Cambodia in 19th November

2012. A 132 kilometers long road construction from deep port to Myanmar-Thailand border is planning to be finished in 2015. It will allow 100 percent foreign investment and tax holidays would be permitted to 8 years. Land usage will be allowed to extend another 25 years in addition to first 50 years for developers and investors. Although the SEZ is USD 8 billion project, it is delayed due to financial constraint. Both Myanmar and Thai governments are encouraging for third party investment.

(2) East West Economic Corridor (Tachileik, Kyaing Ton, Taunggyi, Pakokku)

The Corridor begins from Thailand and Laos heading towards India after crossing Myanmar from East to West. It passes Shan State, Mandalay Region, Magway Region and Chin State of Myanmar.

Identified hubs: Five economic hubs such as Tachileik, Kyaing Ton, Loilem, Taunggyi and Pakokku can be seen along the corridor as follows.

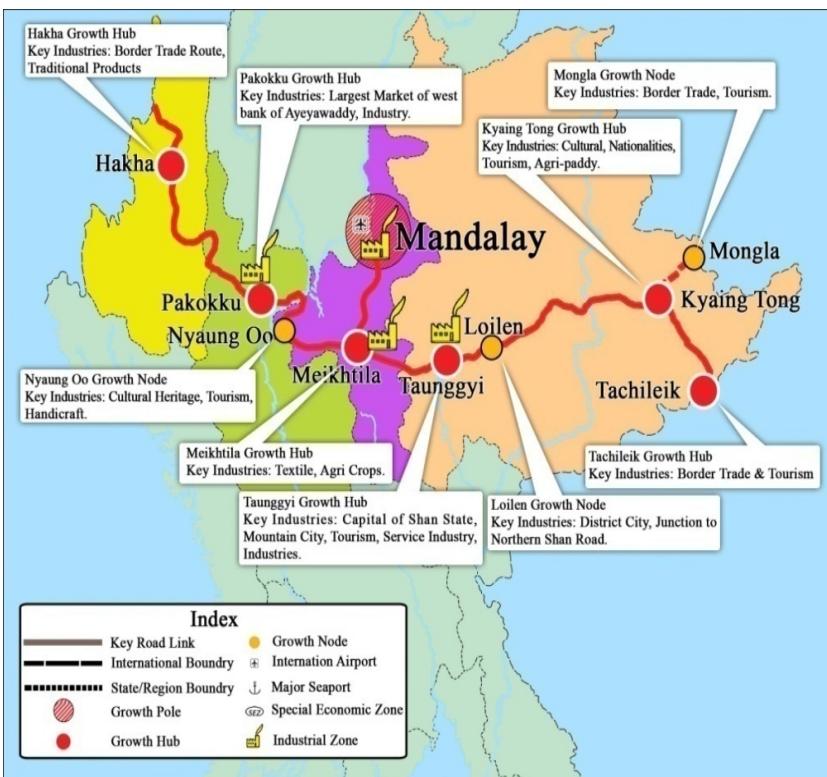
Table 3-9: Identified Hubs along East-West Corridor

No	Name of District	State/Region	Brief a hubs
1	Tachileik	Shan State	<ul style="list-style-type: none"> • Situated in Myanmar Thai border and close to Mae Sai, Thailand • Located in the Golden Triangle, attracts tourism business • Big market for Eastern Shan State and third largest border trade area
2	Kyaing Ton	Shan State	<ul style="list-style-type: none"> • Consists of 5 townships and former capital of Eastern Shan State • Border trade with China grows through Kyaing Ton-Mong La road
3	LoiLem	Shan State	<ul style="list-style-type: none"> • Composed of 7 townships • Located in the junction of Nam Sam – LoiLem, LoiLem – Ping Long, Taunggyi – LoiLem motor roads • 3 routes are available to reach Northern Shan State

4	Taunggyi	Shan State	<ul style="list-style-type: none"> • formed with 10 Townships • Capital of Shan State and largest market • connected to tourist sites such as Inlay Lake, Pindaya and Kalaw
5	Pakokku	Magway Region	<ul style="list-style-type: none"> • the largest city in the West bank of Ayeyarwaddy River • has 5 townships • the market for towns on the West bank of Ayeyarwaddy River and Chin State • Wholesale market for agricultural crops

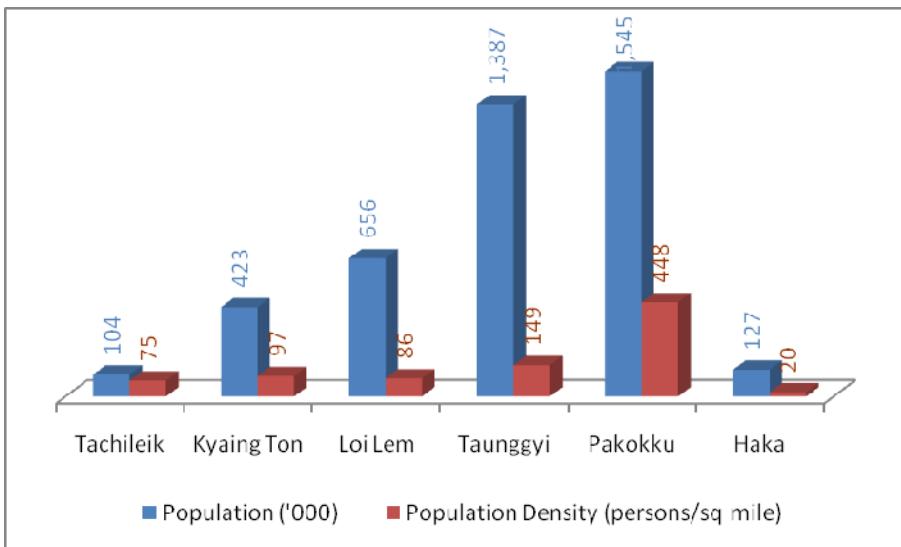
Source: ERIA.

Figure 3-16: Hubs along East West Corridors



Source: ERIA.

Figure 3-17: Population and Population Density (as at 1 Oct 2011)

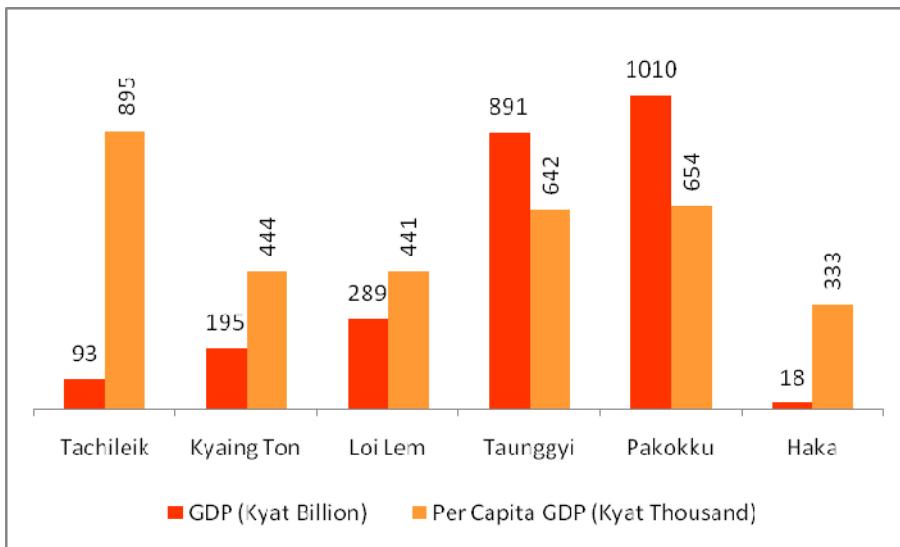


Source: Courtesy of Population Department

Note: District Level

Demography: Taunggyi and Meiktila are the most populous cities along this Corridor. Taunggyi has over 300,000 inhabitants and 1.4 million people live in the district. In Kyaing Ton District, population amounts to some 400,000, and in Tachileik District the number is just 100,000. However, Myanmar nationals who reside in Tachileik but working on the Thai side are estimated to be over 100,000. Population of Pakokku Township, at West of Ayeyarwaddy River amounts to some 90,000 and over 1.5 million live in Pakokku District.

Figure 3-18: GDP (Kyat billion) per capita GDP (Kyat) 2011/12



Source: Courtesy of Planning Department

Note: District Level

Economic structure: Along this Corridor, Tachileik's businesses have developed because of Myanmar-Thai border trade and Myanmar-China border trade. However, Thai imports can reach only to Eastern Shan State and trading with central Myanmar is not possible yet, due to transport difficulties. Agriculture flourishes in KyaingTon, and paddy supply is over 200 percent, resulting in exports to China. Per capita GDP of Tachileik is the highest among others.

Industries and business: Taunggyi is the main market in Southern Shan State. Ayethayar Industrial Zone, Meiktila Industrial Zone and Pakokku Industrial Zone are on this East-West Corridor. Mineral exploration can be seen in Eastern and Southern Shan States though only a few of them produce large enough volume commercially. Taunggyi's main businesses are services and trading.

Pakokku District is where agricultural production and trading flourish. Along the

Pakokku-Meiktila road, Kyaukpadaung is situated at a road junction, with a potential for success by establishing industrial zones, livestock breeding zones, agricultural zones, and economic zones, among others. Those who travel along Taunggyi-Meiktila road to Pakokku have to pass Kyaukpadaung and likewise, to reach KyaukPhyu from Pakokku via Magway, Ann, they also have to pass Kyaukpadaung.

(3) Northeast-southwest (right sash) corridor (Muse, Lashio, Pyinoolwin, Magway, KyaukPhyu)

This corridor starts from Myanmar-China border and passes Shan State, Mandalay Region, Magway Region and Rakhine State and reaches the Bay of Bengal. This corridor provides a sea route opportunity to landlocked Yunnan province in China crossing Myanmar.

Identified hubs: It includes 5 economic hubs which are Muse, Lashio, Pyinoolwin, Magway and KyaukPhyu. Mandalay and Meiktila are the same as North South corridor.

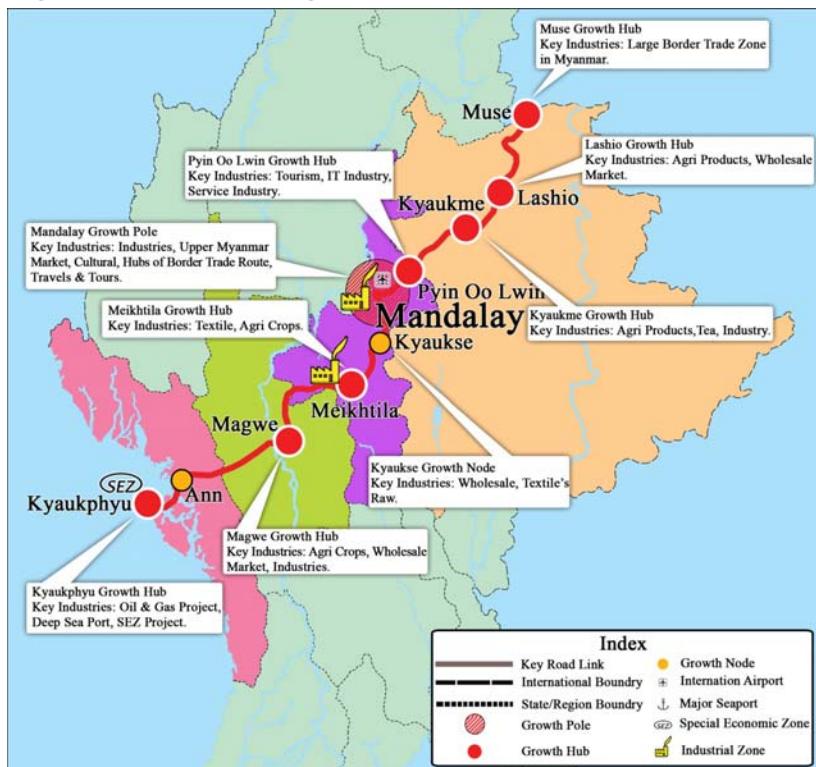
Table 3-10: Identified Hubs along East West Corridor

No	Name of District	State/Region	Brief on hubs
1	Muse	Shan State	<ul style="list-style-type: none"> • Neighbors Ruili city in China • An important area for border trade • The largest border trade zone centre (ie. 105th mile BTZ)
2	Lashio	Shan State	<ul style="list-style-type: none"> • Includes 4 townships • Market for commodities from Lower Myanmar and China • Located along the route of Myanmar-China border trade
3	PyinOoLwin	Mandalay	<ul style="list-style-type: none"> • ICT industry is progressing

		Region	<ul style="list-style-type: none"> Famous as it is a mountainous resort and tourism site
4	Magway	Magway Region	<ul style="list-style-type: none"> A region of oil and petroleum Myanmar's cooking oil production centre
5	KyaukPhyu	Rakhine State	<ul style="list-style-type: none"> Consists of 4 townships Ongoing developments such as Shwe offshore gas project, KyaukPhyu – Kunming oil and gas pipeline project, KyaukPhyu deep seaport project Selected for the location of SEZ

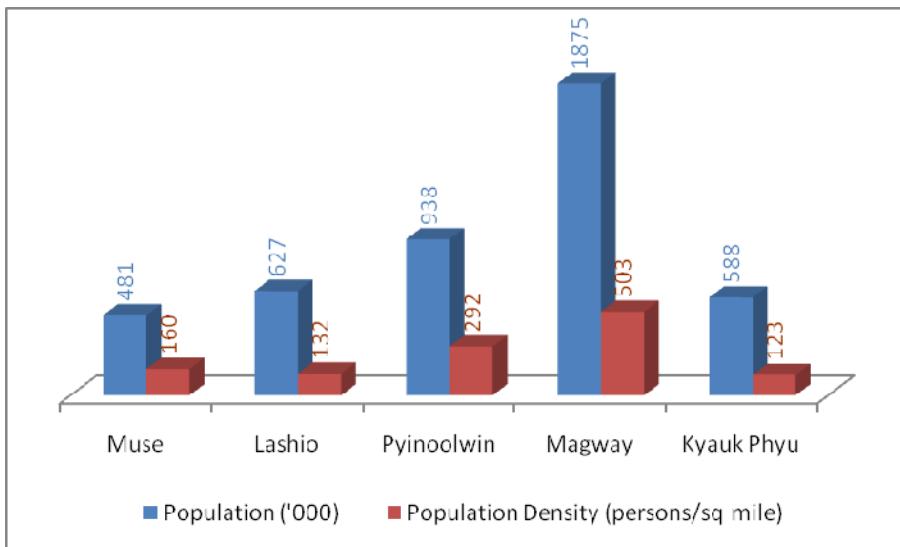
Source: ERIA

Figure 3-19: Hubs along Northeast Southwest Corridors



Source: ERIA.

Figure 3-20: Population Density and Demography (as at 1 Oct 2011)



Source: Courtesy of Population Department

Note: District Level

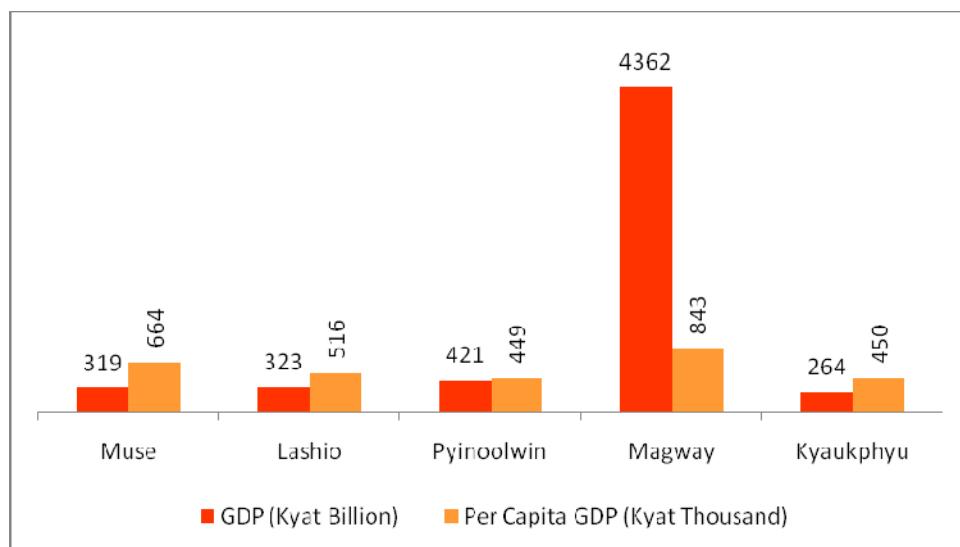
Demography: Along this corridor, Mandalay is the Metropolitan city with over 1 million populations. In Muse District, population is about 500,000, whereas there are about 1.9 million in Magway District and about 600,000 in Kyauk Phyu District. Magway District has the highest population density.

Economic Structure: Trading is the main business in Muse and Muse Border Trade Zone is the largest of all BTZs in Myanmar. As it is the border city, individual trading is common apart from regular trade. In Lashio District, apart from agriculture and livestock breeding, mining and other industries can be seen. In PyinOoLwin District, agriculture and livestock business, travel and tours and service industries are common. Magway District is Myanmar's cooking oil production centre as well as onshore petroleum field.

In Kyauk Phyu, the main livelihood is agriculture and private hand digging

petroleum industries are also seen. Salt industry and offshore fishery are well established. KyaukPhyu is accessible to the sea, and there is a plan to develop deep seaport nearby this town. Currently, a small deep seaport has already been constructed in Ma De Island (about 13 km far from and southeast of KyaukPhyu) where oil from the Middle East is offloaded, to be sent to China through pipelines.

Figure 3-21: GDP (Kyat Billion) per capita GDP (Kyat) 2011/12



Source: Courtesy of Planning Department

Note: Region level for Magway, and District Level for others

Industries and business: In Muse district there is an industrial ward where cigarette, soap, and fertilizer factories and other industries exist. In Lashio District, there are cement, sugar, small-size noodle, and food factories and metal production industry. Yadanarpon teleport is located in PyinOoLwin and parts for telecommunication and electronic products are produced. Since it is a mountainous resort city, travel industry is common.

Magway District is a place of petroleum extraction with petroleum wells close to

the towns of YaynanChaung and Chauk. Traditional blacksmiths are found here. Petroleum, sesame oil, peanut oil, rice, peanut and iron industries are major industries in Magway District.

There is upstream oil in KyaukPhyu district and in YaynanTaung there are private hand digging industries. In 2000 and 2004, agreements between Daewoo Company and Myanmar government have been signed to share the benefits on exploration of Rakhine offshore projects A1 and A3 which are known as Shwe Gas Project.

(4) Southeast–northwest (left sash)corridor (Myawaddy, Mawlamyaing, Monywa, Kalay, Tamu)

Myawaddy-Hpa-an-Mandalay-Monywa- Kalay and Tamu route is a tripartite route that links Thailand and India through Myanmar with a length of 1507 km. The corridor will have a branch from Myawaddy-Mawlamyine-Dawei that is the extension of GMS East-West Economic Corridor (EWEC) from Da Nang to Mawlamyine and connection of Southern Corridor (635 km) in this Left Sash Corridor.

The corridor starts from Thai border and crosses Myanmar from Southeast to Northwest and connects India. It links Thailand-Myanmar-India and crosses Kayin State, Mon State, Bago Region, Mandalay Region and Sagaing Region.

Identified hubs: The corridor includes Myawaddy, Hpa-An, Thaton, Monwa, Kalay, and Tamu as economic hubs.

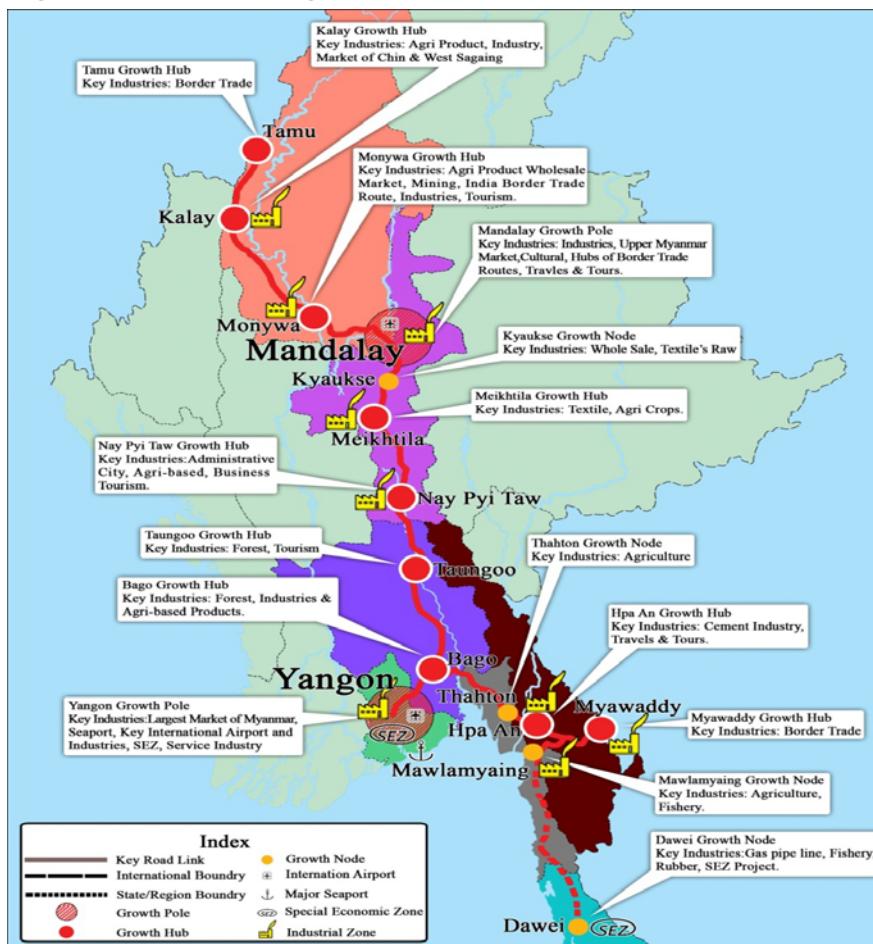
Table 3-11: Identified hubs along East West Corridor

No	Name of District	State/Region	Brief on hubs
1	Myawaddy	Kayin State	<ul style="list-style-type: none"> • Neighbours, Maesot of Thailand • The second largest border trading centre before border trade is declining.

2	Hpa-An	Kayin State	<ul style="list-style-type: none"> Serves as warehouse centre for goods to be imported and exported An ongoing industrial zone project
3	Thaton	Mon State	<ul style="list-style-type: none"> Located in Myanmar-Thailand border trading route The centre to connect Mon State and Taninthayi Region High traffic volume due to junction
4	Monywa	Sagaing Region	<ul style="list-style-type: none"> Formed with 8 townships An important city in facilitation of trade between India and Myanmar Has the largest copper mineral resource in Myanmar
5	Kalay	Sagaing Region	<ul style="list-style-type: none"> Entrance to Chin State and the northern part of Sagaing Region Located along India-Myanmar trading route
6	Tamu	Sagaing Region	<ul style="list-style-type: none"> Borders Moreh in Myanmar India border Intermediary trading is common

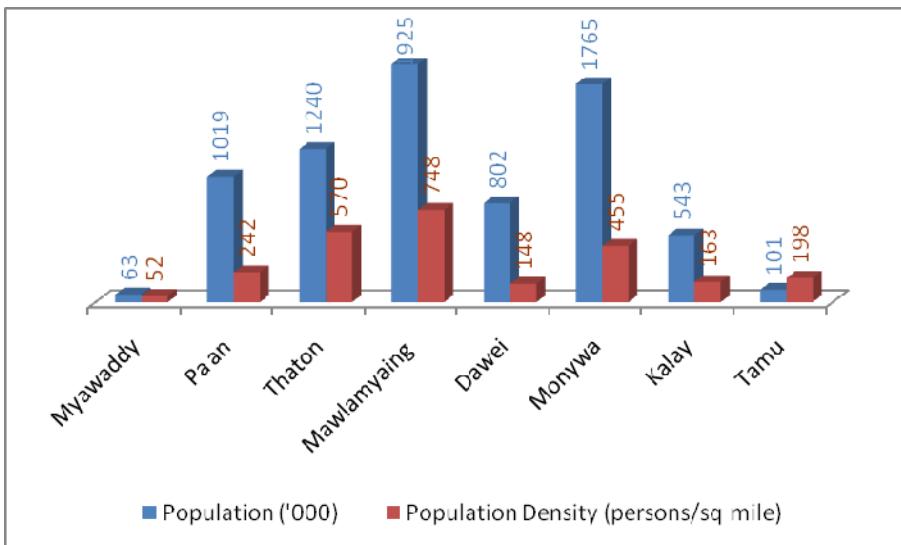
Source: ERIA

Figure 3-22: Hubs along Southeast Northwest Corridors



Source: ERIA.

Figure 3-23: Population Density and Demography (as at 1 Oct 2011)



Source: Courtesy of Population Department

Note: District Level

Demography: In this Left Sash Corridor, after excluding Bago-Mandalay route which connects North-South corridor, among the hubs, Mawlamyine and Monywa Districts have the highest population of more than 1.9 million and about 1.8 million respectively.

Economic structure: Trading is the main business in Myawaddy and Myawaddy border trading zone is the second largest trading zone in the country. Apart from regular border trading, individual trading²¹ is common. Due to unstable security condition after 2009/10 the Myawaddy border post was terminated and as a result there is a decline in border trade. Per capita GDP in Myawaddy District is highest followed by Monywa.

In Pa-an District due to little demand and lack of commodity exchange centre, farmers have lack of motivation to develop their agricultural products. Rubber

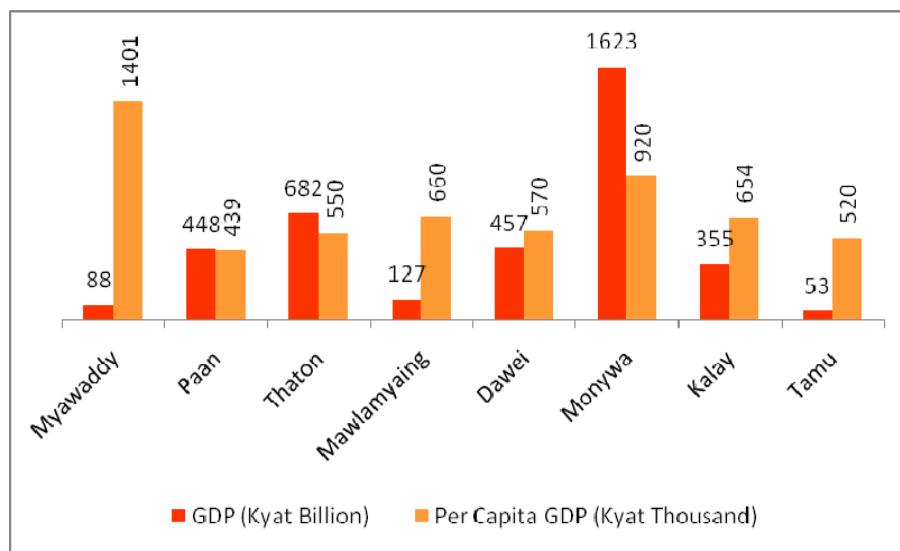
²¹ Individual Trading Card (ITC) is introduced in November 2012 to shift from unofficial trade to official trade.

plantation is the most common business in Thaton. Apart from that, there are gold and other mining industries in this district.

Agriculture is the main business in Monywa District and peanut is the main crop. Products from Monywa such as various crops, cotton and tobacco are sold in the commodity exchange centre.

The main business in Kalay District is agriculture and there are also wholesales businesses. Businesses in Tamu District are agriculture, livestock and trading, and there are also fishing farms and poultry farms as well.

Figure 3-24: GDP (Kyat Billion) per capita GDP (Kyat) 2011/12



Source: Courtesy of Planning Department

Note: District Level

Industries and business: There are 73 small sized industries in Myawaddy. Industries are very few in Pa-an District and there is a limitation of electricity supply and manpower. The reason is that the people who are able to work go to Thailand for jobs. In Myaingkalay near Hpa-An there are two 900 ton and 400 ton cement factories

of Myanmar Economic Corporation. Near Hpa-An, there is a pilot study to build a cement factory with a daily production of 1000 tons. There is also an industrial zone project on Hpa-An – Hlain Bwe route (11.2 km far from Hpa-An). As Kayin State and Mon State on the corridor have favourable soil and climate for rubber plantation, there are large-scale rubber plantation and production in these areas. However, insufficient investments together with low technologies could not support to produce higher value-added rubber products, and Myanmar could export rubber products as the industrial raw materials. Nevertheless, massive plantation and production are potential to develop rubber and related industries in these areas.

There are 16 state-owned factories including tyre, sugar and cement factories in Thaton. In Monywa industrial zone there are cooking oil, wheat, noodle, vermicelli factories. There is also an industrial zone in Kalay and but it has to rely on private electricity supply for production.

(5) Northern Economic Corridor (Ledo Road)

Northern Economic Corridor goes through Kachin State and Sagaing Region. Kachin State is the northernmost state of Myanmar. It is bordered by China to the north and east; Shan State to the south; and Sagaing Region and India to the west. It lies between north latitudes 23° 27' and 28° 25' and longitudes 96° 0' and 98° 44'. The area of Kachin State is 89,041 km² (34,379 sq miles). The capital city of the state is Myitkyina. The second largest town is Bhamaw.

Kachin State has the highest mountain peak in Southeast Asia, called Hkakabo Razi (5,889 metres (19,321 ft), forming the southern tip of the Himalayas, and a large area of wet land, Indawgyi Lake.

Northern Economic Corridor links China and India through Myanmar. It is an old road called Ledo or Stil Well Road used for military logistics in Second World War.

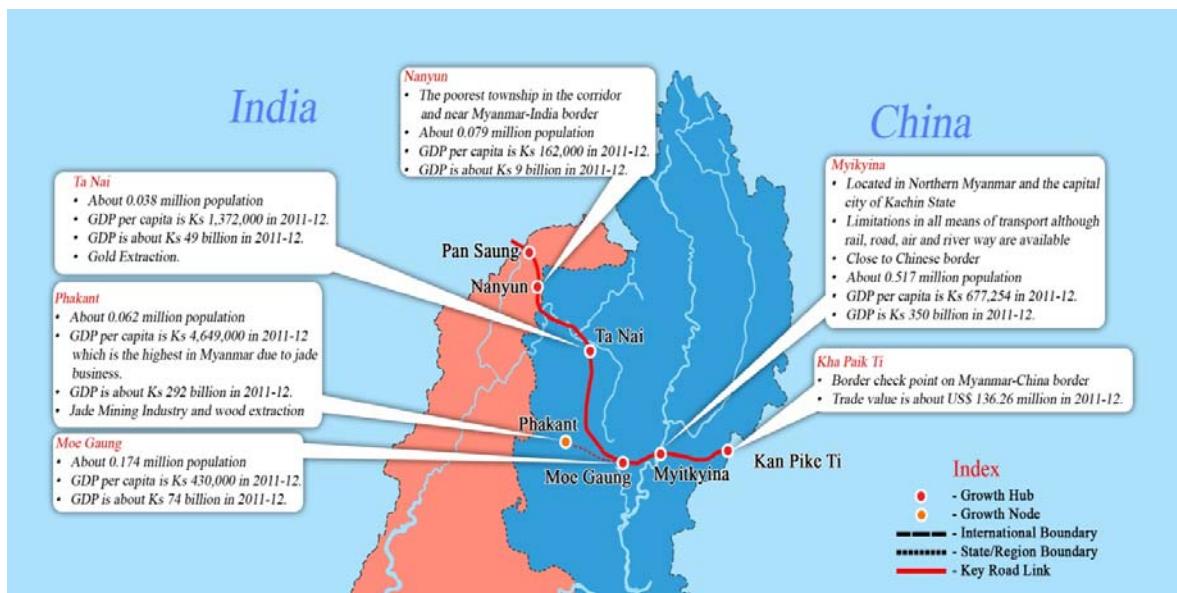
The following table shows the main townships locating on northern economic corridor.

Table 3-12: Identified Townships along Northern Economic Corridor

No	Name	State/Region	Brief on hubs
1	Kan Pike Ti	Border	<ul style="list-style-type: none"> • Border check point on Myanmar-China border • Border Trade value is about USD 136.26 million in 2011-12.
2	Myitkyina	Kachin State	<ul style="list-style-type: none"> • Located in Northern Myanmar and the capital city of Kachin State • Limitations in all means of transport although accessible by rail, road, air and water transport • Not far away from Chinese border • About 0.517 million population • GDP per capita is Ks 677,254 in 2011-12. • GDP is Ks 350 billion in 2011-12.
3	Mogaung	Kachin State	<ul style="list-style-type: none"> • About 0.174 million population • GDP per capita is Ks 430,000 in 2011-12. • GDP is about Ks 74 billion in 2011-12.
4	Hpakant	Kachin State	<ul style="list-style-type: none"> • About 0.062 million population • GDP per capita is Ks 4,649,000 in 2011-12 which is the highest in Myanmar due to jade business. • GDP is about Ks 292 billion in 2011-12. • Jade Mining Industry and wood extraction
5	Tanai	Kachin State	<ul style="list-style-type: none"> • About 0.038 million population • GDP per capita is Ks 1,372,000 in 2011-12. • GDP is about Ks 49 billion in 2011-12. • Gold Extraction.
6	Nanyun	Sagaing Region	<ul style="list-style-type: none"> • The least developed township in the corridor and near Myanmar-India border • About 0.079 million population • GDP per capita is Ks 162,000 in 2011-12. • GDP is about Ks 9 billion in 2011-12.

Source: ERIA

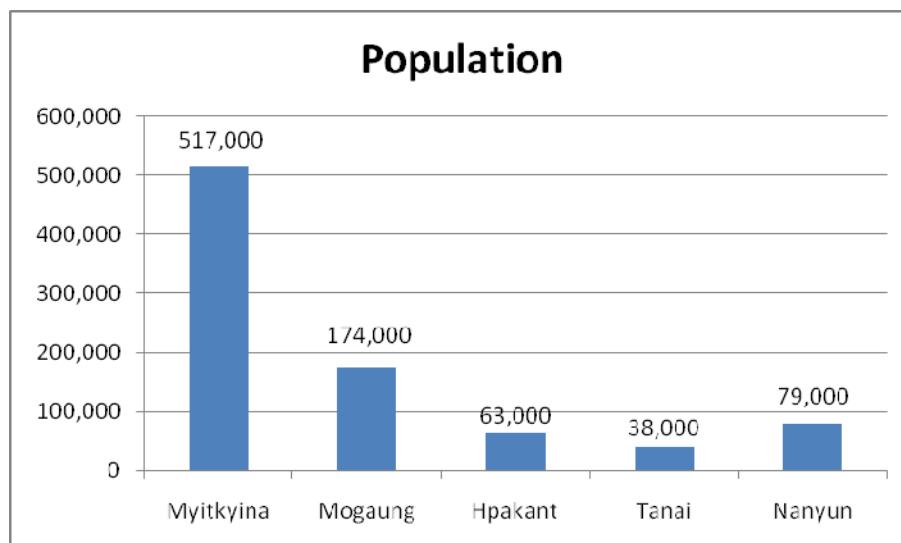
Figure 3-25: Hubs and Nodes along Northern Economic Corridor



Source: ERIA.

Demography: Among those townships, Myitkyina (District) has the largest population with 517,000 followed by Mogaung with 174,000 while other are small townships with population of less than 100,000.

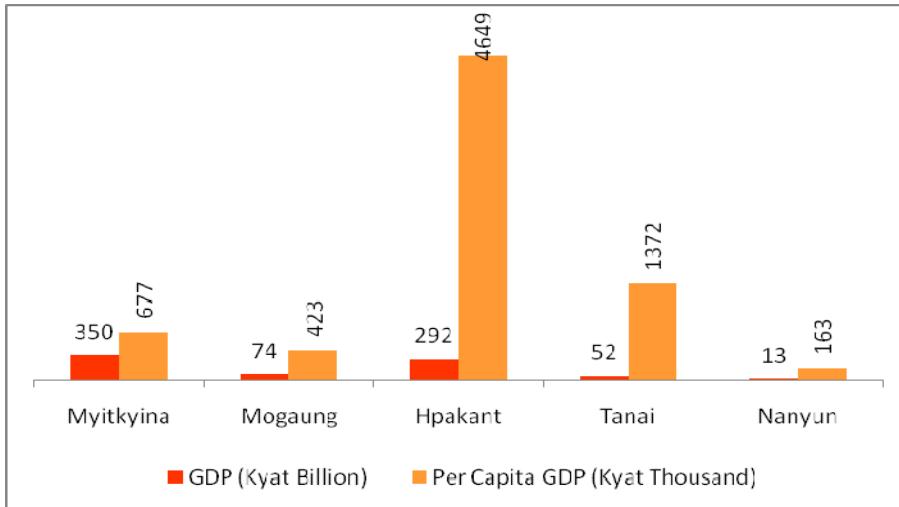
Figure 3-26: Population in 2011/12



Source: Planning Department.

Economic Structure: GDP per capita of Hpakant is the highest at the amount of Ks 4,649,265 among townships along northern economic corridor.

Figure 3-27: GDP (Kyat billion) and Per Capita GDP (Kyat thousand) in 2011/12



Source: Planning Department

Industries and business: Industry sector's contribution to GDP was provisioned to increase by 11 percent that is 107.6 billion kyats during 2011/12 in Kachin State. It could implement 82.7 percent of its target as industry sector's contribution to GDP amount became 101 billion kyats in March 2012. It increases by 4.2 percent compared to last year's industry sector's contribution amounted as 96.9 billion kyats. In Kachin State, there are a timber mill in Bhamaw District and railway workshops in Mohnyin Township and Myitkyina Township. In Cooperative sector, there are brick manufacturing, cutting and polishing houses for precious stones in Bhamaw District and Hpakant townships. There were 1168 registered private factories at the end of 2011/2012 fiscal year. There is Yuzana Tapioca grilling factory in Hpakant Township.

Hpakant is a well-known place for its jade mines. Over thousand tons of jade stones which were unearthed from Lone-Khin area in Hpakant Township in Kachin State had

been displayed in Yangon and Nay Pyi Taw to be sold out through a series of Gem Emporiums. Most of the jade stones extracted in Myanmar, for example 25,795 tons in 2010-11 and 43,185 tons in 2011/12, are from Kachin State. The largest jade stone in the world weighing at 3000 tons with 21 metres long, 4.8 metres wide and 10.5 metres high was found in Hpakant in 2000.

4.3 Contribution of Economic Corridors to the Economy

(1) Roles of economic corridors

North South Corridor: It is the main arterial route in Myanmar. The corridor contributes the development of two growth poles such as Yangon and Mandalay to grow and support the country's economy. Yangon is the commercial city and the largest market in Myanmar which occupies 30-40 percent share in retail market and 40-60 percent of premium market²² for 10 percent of the country's total population. In terms of GDP, Yangon Region's (4 districts) GDP shares 21.5 percent of the country GDP in 2011/12²³. Mandalay city is the second largest market in Myanmar in which GDP of Mandalay District was 4 percent of total GDP and Mandalay Region shared 12 percent in the GDP in 2011/12. Bago District contributed 3 percent but other hubs do not have a significant share in GDP. In per capita income, Yangon Region has the highest with kyat 1,400,000 and annual growth rate is 11 percent per annum while the other hubs are relatively same at kyat 700,000 on average. Income of people in Yangon is twice as much as that of other hubs. Yangon, Mandalay and Nay Pyi Taw have facilities for highway bus terminal, cargo truck terminal and warehouses to handle all

²² MMRD estimation from previous market surveys

²³ Ministry of National Planning and Economic Development, Economic Review 2011/12

passengers and cargo. Other cities have limited facilities. These facilities in Yangon should create considerable opportunities for future growth but they also need to be improved.

As Yangon is the only gateway with ports for overseas trade which shares 80 percent of total trade and handling about 400,000 containers a year, trade flow and commodity flow is considerable for both domestic and foreign trade. Yangon is a growth pole for all modes with overseas trade, international airlines, passengers and cargo freight. Thilawa SEZ will support Yangon to be a full growth pole. Though Mandalay is assumed to be another growth pole, it is a hub of road, rail and inland water transport only. However, Mandalay is a hub for domestic commodity flows and flows of border trade commodities. Nay Pyi Taw and Meikhtila are important hubs after these two metropolises. Various types of commodity exchange centres such as rice, pulses and beans, kitchen crops, general commodities and fish products are in Yangon while pulses and beans, oil crops, wheat and sugarcane products commodity exchange centres are in Mandalay. Infrastructure for Yangon and Mandalay are under construction according to respective city development master plans.

East West Corridor: Tachileik route was an important trade route during the socialist era, but Muse and Myawaddy trade routes emerged when the market oriented economic system began in 1990. The corridor connects four countries namely, Thailand, Lao PDR, China and India. It contributes to supply goods in Eastern Shan State and Chin State where there are difficulties to supply goods from the main land due to logistic constraints. Pakokku is a major market for the west bank of Ayeyawaddy River and Chin State. The corridor helps balanced growth for people in remote areas when the road infrastructure is completed.

Right Sash Corridor: It is a major trade route which shares 17 percent of the country's total foreign trade and 80 percent of total border trade. Some developments in housing, agricultural farming and services are found due to Chinese investments along the oil and gas pipeline. Development projects in Muse, Lashio, Pyin Oo Lwin and Kyauk Phyu deep seaport and SEZ projects are expected to contribute to the development of Shan State, Mandalay Region and Rakhine State in future.

Left Sash Corridor: It is a tripartite road to connect Thailand, Myanmar and India and on the plan of Ayeyawady -Chao Para-Mekong Economic Cooperation Strategy (ACMECS). Thailand is assisting in construction of new road between Myawaddy and Kawkareik and India is assisting road construction between Tamu, Kalay to Monywa which are bottlenecks of the corridor. Though it is a trade route of the second largest border trade, the major portion of border trade in Myawaddy area is informal. The initial part of the corridor is the same as GMS East West Corridor. Despite GMS EWEC starts in Danang of Vietnam and ends in Mawlamyaing of Myanmar, the current new ends in Yangon Ports and Dawei deep seaport would be for future. The corridor contributes to support mining industry, rice and other agricultural crops in Sagaing Region. India wants to enter Myanmar market from this corridor through Tamu border post. The corridor has much potential for transit trade. Road infrastructure development will contribute to the development of Chin and Sagaing and Kayin State in future.

Northern Corridor: It is Ledo road starts from Ledo town in Northern Assam of India. It passes through Kachin State and Northern Shan State in Myanmar linking three countries. It was once well-known as Silk Road as well as Stilwell Road built for vehicles of Allied Forces travelling along as a strategic road during World War 2. In

Kachin State of Myanmar, it passes through Kanpaitki and proceeds to Sadung-Myitkyina-Waingmaw, Tanai, Shinbwayyang, then through Nanyum of Sagaing Region, it reaches Myanmar-India border-Pansaung as Union Highway. It is 318 miles long from Kanpaitki of Kachin State to Myanmar-India border-Pansaung of Sagaing Region. Plan is underway to upgrade Ledo Road as a tarred one through BOT system in 2008. In the time being, it is not yet fully connectable route and taken into account as the potential corridor, it shall be examined in the future.

(2) Links to hubs and industrial nodes

Two growth poles, development hubs and nodes are well connected in each corridor. Some corridors have extension to possible nodes. All selected corridors are not independently situated and all are overlapping especially along North-South corridor which is the main corridor of the country. Contribution to the economy by these corridors will be difficult to assess. In the domestic linkage, Myanmar government has been constructing new roads to connect possible areas through short cut connections rather than proper network. The government plans and implements the development of Nay Pyi Taw to be a logistic hub of Myanmar in all modes of transport except ports. All highway bus lines, a new central railway station and an international airport have led Nay Pyi Taw to become a hub of road, rail and airway network. The government has initiated Nay Pyi Taw to become a growth pole in future if industries can be established around the cities.

At the regional level, it is found that there are many new road connection plans. The Public Works under the Ministry of Construction is responsible for union roads and state/region roads. Union road is given as priority to improve as AH Class III level by 2015/16. State and regional governments propose regional development roads such as

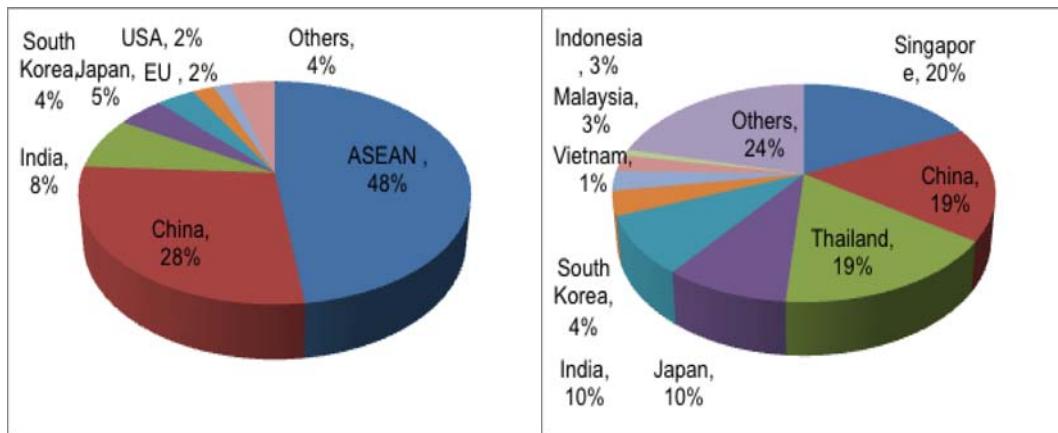
district to district roads and inter district roads to become part of local road network. Most of the roads are being upgraded and maintained for smooth transportation. New roads under construction are Nam Kkam –Nantu Road along with Myanmar China oil and gas pipelines which will directly connect Muse-Namkham to Thibaw which is 80 km shorter than the existing Muse-Thibaw road on Northeast Southwest Corridor. A new road of 28 km from Thingannyinaung-Kawkareik is under construction along East-West Corridor. A new road to be constructed in the future is KyaukPhyu –Made Island- Ann road along Northeast Southwest Corridor with the assistance of China.

(3) Contribution to trade

The immediate and most obvious benefit of the development of economic corridors can be observed in the contribution of the respective corridor to border trade. The high export growth was not severely affected by the import ban imposed by the United States in 2003, mainly because of the rapid expansion of trade with China and ASEAN, especially neighbouring Thailand. In fact, the aggressive demand for natural gas from neighbouring Thailand and the well-planned procurement of natural gas from China led to an increase in total volume of trade. With the strong supports of the government and the business activities of the private sector, border trade with China gained the largest share in total volume of trade. The border trade at Muse alone composed the largest share of Myanmar total border trade in commodity. As both China and India are emerging economic superpowers in the region and are the immediate neighbours to Myanmar, the spillover effects of the connectivity with them must be significant. The economic corridors in Myanmar are basically the trade routes between India, Myanmar and Thailand, although Myanmar's border trade with India has been slow as compared to those with China and Thailand. It has potential for transit trade if cross border transportation mechanism is materialized. Figure (3-27) and Table (3-13) show the

significant position of Myanmar-China border trade among others.

Figure 3-27: Share of Trading Partners with Myanmar by Regions and Countries



Source: CSO, 2012

Table 3-13: Percentage Share of Corridors in Total Border Trade

Corridor	Border Trade Posts	1996/07	2001/02	2010/11	2011/12
North-South	Lweje, Kanpatee,Muse	32.6	55.5	82.4	86.5
East-West	Tachileik and Reed	2.1	1.3	6.5	1.6
Right Sash	Muse	69.0	55.5	65.4	82.2
Left Sash	Myawaddy and Tamu	8.3	10	3.6	1.0

Source: Courtesy of Department of Border Trade.

North-South Corridor: The north-south corridor serves as the main route for border trade as well as transmission of goods from Upper Myanmar to Yangon ports for overseas trade. The extension of the corridor up to Myitkyina to reach Myanmar-China border at Kanpatee will facilitate more on the commodity flow of the country. However, recent instability in the Kachin state refrains the flow of border trade. Regardless of the situation, the corridor has a wide range of opportunities for domestic and international trade though it still needs development of hard and soft infrastructure.

East-West Corridor: Currently the cost of border trade between India and ASEAN is high due to insufficient infrastructure for physical connectivity. The corridor will enhance the cost effectiveness of border trade route of neighbouring India to Thailand. The trade route will benefit cities such as Tachileik, Kyaing Ton, Taunggyi, Meiktila, Pakokku, up to Haka and Reed in Chin state, and the trade flow through Tachileik to Meiktila will be high along with the expansion of roads which will allow heavy cargo trucks, trailers and container trucks in the next two years.

Northeast-Southwest (Right Sash) Corridor: The corridor will be a new trade route between China and India and border trade with China will play an important role in the hubs and nodes of Right Sash Corridor. Muse border trade zone has 80 percent of total value of the country's border trade and the ongoing projects in KyaukPhyu will bring investments to Myanmar. Infrastructure development between KyaukPhyu and Muse will not only benefit trade between China and India but also to the people residing and trading along the corridor. The corridor will pass through Rakhine, Magway, Mandalay, and Shan, and commodities produced in Rakhine state will be easier to trade with Mandalay region, Shan State and, from there, to China. Myanmar should work on how to maximize benefits from huge trade from/to Yunnan and KyaukPhyu deep-sea port.

Southeast-Northwest (Left Sash) Corridor: This corridor is a connection with GMS East-West corridor and passes the economic centres of Upper Myanmar such as Monywa and Mandalay, and border trade areas such as Kayin State and Tanintharyi Region. It will resolve the problem of weak physical connectivity between Myanmar and North India and goods will be exported all the way from Tamu directly to Thailand. Moreover, the route will provide an attractive industrial location to export to Thailand.

(4) Contribution to industry

North-South Corridor: As rapidly growing urbanization and industrial sector increase demand for housing and other infrastructures, there is an opportunity for investment in these areas. By providing easier access between two poles, Yangon and Mandalay, better earning, more employment and overall economic development can be assured. Lack of trading infrastructure provides an opportunity for investment on seaport and logistic infrastructure. The corridor will play a vital role in cooperation between the centres of mass production of agricultural produce to become a competitive market and adaptation of specific global value chain and production network. Thilawa SEZ in Yangon has great potential for industrial development.

East-West Corridor: This will contribute directly to the pressing concerns of employment by expanding the scope for market-driven production and trading activities of the western part of the country. The route will also provide one of the major routes across the country and is likely to have extra regional transport potentials due to GMS North-South Corridor. This will also be a route to expand eco-tourism due to the attractive tourism sites. The businesses along the corridor will produce more value-added products rather than in the form of raw materials.

Northeast Southwest (Right Sash) Corridor: The Right Sash area is less connected with other parts of Myanmar and along the corridor there are KyaukPhyu Deep Seaport and China oil and gas pipeline project. With the development of the economic corridor, there will be a provision for sufficient infrastructure to create an industrial cluster, which can attract potential investors. Rakhine State has investment opportunities in tourism since it has one of the world's largest mangrove and seashore

areas, and can also expand fishery exports to China. Since Muse is the largest check point of imports from China, there will be an expansion of a larger import market from China, and the pattern of local trade will also change. Heavy Industries will grow rapidly in KyaukPhyu SEZ which is at the end of corridor.

Southeast Northwest (Left Sash) Corridor: Tamu located at the west end is a mountainous place with insufficient road infrastructure to accommodate a large amount of international trade. The other end is Myawaddy- Hpa-An, which will be one of the receptive areas of the Dawei Deep Sea Port and SEZ project and Payathonesu (Three Pagoda Pass) Industrial Zone (IZ) plan but there remain significant missing links along this corridor. If GMS East-West Corridor is in operation, Mawlamyaing and Myawaddy will be among the hubs of the region. The corridor will attract investments in industries from Thailand and Southeast Asia along this corridor.

Table 3-14: Assessment of Promising Industries

Corridor	Industries with sufficient ability in competitiveness	Promising Industries	Rationale
North-South Corridor	Food-stuffs, Garment industry, Furniture industry, logistics services	Manufacturing spare parts for automobiles, production of industrial-use materials	24 IZs in Yangon and IZ in Mandalay, two largest markets for motor vehicles
East-West Corridor	Food stuffs, beverages, cement industry, Value-added forest products, Construction materials	Mining, Industrial raw materials, tourism	Mineral resources, link with 4 countries and potential for Myanmar-Lao trade
Northeast-South west Corridor	Oil and natural gas industry, transportation and logistics services, tourism	Construction, logistics services, hotel services, rail way and air transportation	Chinese oil and gas pipeline routes, future projects from China
Southeast-North west Corridor	Agricultural produce, Garment, Food stuffs, construction, transportation services	Construction, urban infrastructure, logistics services, manufacturing of consumer durables	Shortest way to Myanmar and Thai market, and availability of labour and materials

Source: ERIA.

4.4 Strategic vision to maximize the benefits of economic corridors

(1) Strategies for economic corridor development

Strategies for the development of economic corridors are assessed as follows;

- Constructing Transportation Infrastructure Development
- Extending Trade Facilitation Activities
- Encouraging investment on the development of Transport and Logistic Services
- Creating effective Multi-modal Transport
- Promoting Tourism Sector Development

(2) Trade facilitation

The direction of Myanmar's external trade is mainly with Asian countries. The most significant sources of imports are ASEAN and China. Thailand is Myanmar's largest trading partner followed by China, South Korea and India. This direction of trade is well matched with proposed economic corridors, which are leading to closer relations with existing most important trade partners.

Current procedures, higher transport rates and facilitation payments to expedite performance hinder the flow of trade and international road transporters expect an improvement of roads and border operations along certain key trade corridors. Fragmentation of the transport and forwarding sectors in Myanmar with many small operators with limited resources means that they lack the ability to develop into either domestic or international operations. The application of logistics activities in the domestic market is considered to be low due to lack of demand drivers and potential national service providers.

As far as trade facilitation measures are concerned, Myanmar has already initiated to build up a Single Window, but with slow pace. The following are the areas needed for trade facilitation.

Table 3-15: Strategies for Maximizing Benefits from Economic Corridors by Trade Facilitation

Area of Focus	Short term strategy	Medium term strategy	Long term strategy
Trade facilitation	<ul style="list-style-type: none"> • Deregulation of license procedure • Proper system on Payment transactions • Pilot implementation in border posts • Implement e-Customs and single window system in full range 	<ul style="list-style-type: none"> • Should conduct a regular forum to speed up a single-window system • Apply transit trade effectively 	<ul style="list-style-type: none"> • Plan to manage regional trade which passes through Myanmar
Logistic Facilitation	<ul style="list-style-type: none"> • Installation of X-Ray machines and modern equipment for cargo handling in border posts • Encouraging to establish more logistic companies 	<ul style="list-style-type: none"> • Implementation of Greater Mekong Sub-region Freight Transport Association (GMS-FRETA) • Warehouse facilities • Promotion of inter-regional and State cooperation and coordination mechanisms • Facilitate cargo handling from Yunnan Province of China and Northeast of India to KyaukPhyu and Sittwe Ports 	<ul style="list-style-type: none"> • Improve logistic services • Promotion of inter-regional and State cooperation and coordination mechanisms

Source: ERIA.

(3) Encouraging private investment

Private-friendly environment is crucial in attracting private investment and the regional governments will have to provide the institutional framework. Using the economic strength of each corridor will be the best strategy to attract investment. The Right Sash Corridor is a good example because of its oil and gas resources. In the medium term, provision of the stability of the economic environment will be the strategy to attract investment. In order to have secure economic environment, strong

public-private partnership is an indispensable factor for investment promotion and facilitation.

It is imperative to establish clear criteria and transparent procedures for administrative decisions including those related to investment approval mechanisms. All guidelines and criteria used to evaluate investment projects should be publicly available in either written or electronic form. This also applies to policies, rules and regulations, and procedures with respect to permits or approvals needed to start and operate a business. The government should provide a clear description and other necessary explanation of the administrative requirements, statutory time for rendering decisions, and other facts and requirements.

Table 3-16: Strategies to Attract Private Investment

Area of focus	Short-term strategy	Medium-term strategy	Long-term strategy
Investment	<ul style="list-style-type: none"> • Create favourable investment environment • Established clear criteria and transparent procedures for administrative decisions including with respect to investment approval mechanisms • All guidelines and criteria used to evaluate investment projects are to be publicly available 	<ul style="list-style-type: none"> • Create strong public-private partnership with the inclusion of a broad cross section of stakeholders • Maintain investment friendly environment • Provision of institutional framework 	<ul style="list-style-type: none"> • Should create private-led environment • Strong institutional framework

Source: ERIA.

(4) Strategy for foreign assistance

Long term strategy: The development initiatives through economic corridors across countries should be the long-term vision for Myanmar. Many developing countries have concerns that the economic corridors are beneficial only to economically more powerful neighbours and not to the smaller economies. These concerns must be strategically addressed in medium and long terms in order to attract robust investment

as well as to extract the benefit of foreign assistance for the locals.

Medium term strategy: People and industries will agglomerate into one region when the transportation cost is relatively low. The benefit of locating in one region outweighs those of locating in two different regions. Long distances between different centers in the country should be improved and connected by eliminating missing links along the particular corridors. Hinterland, feeder roads and ancillary services must also be expanded. It needs to be ensured that nodes of economic activity along the corridors are located within participating corridor, setting joint economic zones in the local development plan. Technology transfer is also essential in medium term.

Short-term Strategy: It is necessary to set the initial spatial boundaries in the immediate period, and assess existing economic activities e.g. existing production and trade patterns, transit (storage) activities, etc. The identification of the potential role of donors in assisting government and/or the private sector to respond to constraints on commercial activities along the economic corridor are also required in the immediate period. These prerequisites will be supports for the medium and long-term strategies.

(5) Promoting tourism development

Development of economic corridors is not only expanding the boundaries of traditional sectors but also enhancing the value and identity of corresponding areas and places. Places blessed with natural resource endowments can attract investors by themselves. All corridors in Myanmar generally provide places of attraction for tourists.

Table 3-17: Potential Tourist Attraction along Corridors

Corridor	Potential Tourist Attraction
North-South Corridor	In addition to the existing Mandalay cultural city, Indawgyi lake and the all-year-round snowcapped mountains of ASEAN nations

East-West Corridor	Far east areas and InLay lake area, the favourable weather and landscaping of the Eastern Shan State, visiting through cross border gate to/from Thailand and national groups in Shan and Chin States
Northeast- Southwest corridor	Cultural heritage of Bagan, Rakhine State and Muse border area, landscaping of Northern Shan State
Southeast- Northwest corridor	Sharing tourism with neighbouring Thailand, landscaping of the northwest part

Source: ERIA.

However, the tourist areas alone may not be attractive enough to the would-be visitors. The positive spillover of the attractive places must be fulfilled with the reliable means of transport and other hospitality related physical infrastructure in order to facilitate the tourism sector.

Table 3-18: Strategy in Tourism Development

Area of focus	Short-term strategy	Medium-term strategy	Long-term strategy
Tourism development	<ul style="list-style-type: none"> • Should create a compatible human resource development • Improve services related to tourism • Tourist arrival is targeted to 2 million 	<ul style="list-style-type: none"> • Creation of tourist destinations • Infrastructure improvement to attract international tourists • Tourist arrival is targeted to 4 million 	<ul style="list-style-type: none"> • Providing extended services such as retirement business • Tourist arrival is targeted to 6 million

Source: ERIA.

(6) Timeframe of the economic corridor development

Despite the economic corridor approach for creating a strong economic base to provide employment, reduce poverty and promote HRD, this paper has mainly focused on development of trade, industry and logistics for four economic corridors in Myanmar to support MCDV, which envisages human-centered development through high-growth and globally linked inclusive and balanced, and green and sustainable growth strategies. Economic corridors with good transportation infrastructure and logistic services are crucial for Myanmar to develop trade and industry. In transportation, road construction is the first priority through quick start and quick win, and it requires low

investment. Development of other modes takes time and heavy investment. The delivery of goods and services to all parts in the country can have direct routes as well as diverted routes. This means goods can be delivered to different destinations by diverting the routes at the hub or at the centre. There would be much impact on these places where employment opportunities, establishment of small businesses, and settlements etc. can develop. Trade volumes will also increase due to development of transportation infrastructure. Though there is a long list of issues that require improvement, trade deregulation and facilitations to some extent have been underway in the new regime. In the end, development of transportation sector will contribute greatly to the Myanmar economy. As for transportation and logistics, transit trade would be difficult if there is a lack of adequate logistic facilities and services. In Myanmar, there are wide gaps in all the aspects of logistics and there is a need to fill these gaps, if the domestic corridors are to be linked to international routes. Myanmar needs to prepare to tap a greater share of regional trade which was USD 157 billion in 2012. If Myanmar can absorb 10 percent of the regional trade, the volume of transit trade would be USD 15 billion which is the same amount as current foreign trade of Myanmar. Thus, Myanmar needs to upgrade transport facilities to shorten time and lower costs for the flows of goods and services for transit trade.

On the other hand, development of the industrial sector requires more inputs such as sufficient electricity, communication, transportation, investment environment etc. Myanmar needs to prepare for ASEAN AFTA and AEC in 2015 when ASEAN members will create a single market that allows free flow of goods, services, investment, labour and regional integration.

There are some other challenges for development of economic corridors. These four corridors overlap (cross) in some hubs. So, impact on that particular hub and its

economy is difficult to assess. Infrastructure projects or development of these corridors will be delayed due to limited budget and resources. Investments in infrastructure projects with BOT system are not attractive enough for private investors as it entails a long payback period with low returns. Myanmar did not enjoy assistance from GMS programme and other regional programmes in the past 30 years. International assistance is still late in coming. Internal conflicts and security problems in some areas of the country may hinder the development of corridors. Introducing democratic processes in a chronically poor and least developed economy is not easy and needs time to bear results. The government has been initiating National Comprehensive Development Plan (NCDP) but its long-term vision and schedule are unclear.

Economic corridors in Myanmar will connect not only domestic networks but also regional agenda. The proposed long /medium and short term strategies will make it possible to achieve Myanmar Comprehensive Development Vision (MCDV) along with the National Comprehensive Development Plan. In this context, benefits of the corridors can be seen in job opportunities, increased income and improved living standards due to development of logistics, trade, industry and services.

In conclusion, based on the study of economic corridor approach in Myanmar, development prospects in the overall Strategic Vision would be as follows;

- **Short term (2011-2015):** Benefits of Economic Corridors will not be significant in the short term but will start to have some impact (Initial stage)
- **Medium term (2016-2025):** It is more apparent in medium term when international assistance and AFTA-AEC have materialized after 2015. However, development prospects are still in construction period and will attract FDI (Transition stage)
- **Long term (2026-2035):** Hard Infrastructure has been completed and soft infrastructure has been reformed and fully linked with regional and international

networks, benefits of industrial development and FDI. (Take off stage)

5. Two-polar Growth Strategy

The Myanmar government seeks higher and balanced economic growth. This is a challenge for the government since some economic literature identifies a trade-off between higher economic growth and better regional equality, especially for countries in the early stages of development. In this paper, we propose a two-polar growth strategy that includes both “high” and “balanced” growth. The first growth pole is Yangon and the second is Mandalay. Nay Pyi Taw, the national capital, will develop as an administrative centre, not as an economic or commercial one. We also propose border development with enhanced connectivity to richer neighboring countries as a complementary strategy to the two growth poles.²⁴

5.1. *Growth and regional inequality*

“Balanced regional economic growth” is an attractive policy slogan in the times when many countries fail to manage regional income inequality. But there is a question as to whether or not equality with higher economic growth is feasible in the first place. There are a number of studies that examine the relationship between economic growth and regional income inequality, finding that regional income inequality is not just an adverse effect of economic growth and that the two phenomena have circular causation. Just as economic growth enhances economic agglomeration, economic agglomeration also enhances economic growth. The rationale is as follows: Inevitably, economic growth is geographically uneven because some regions have more advantages in doing business than other regions. Workers and firms tend to

²⁴For details, see Kudo and Kumagai (2012).

agglomerate in developed regions where they seek higher wages and larger markets. Thus, economic growth enhances economic agglomeration. At the same time, economic agglomeration is a source of positive externalities such as labour pooling and knowledge spillover. It makes it possible to provide physical and institutional infrastructures efficiently with limited resources. Therefore, economic agglomeration enhances economic growth. The first principle of economic development seems that scarce development resources should not be spread over to too many regions, especially in the early stages of economic development.

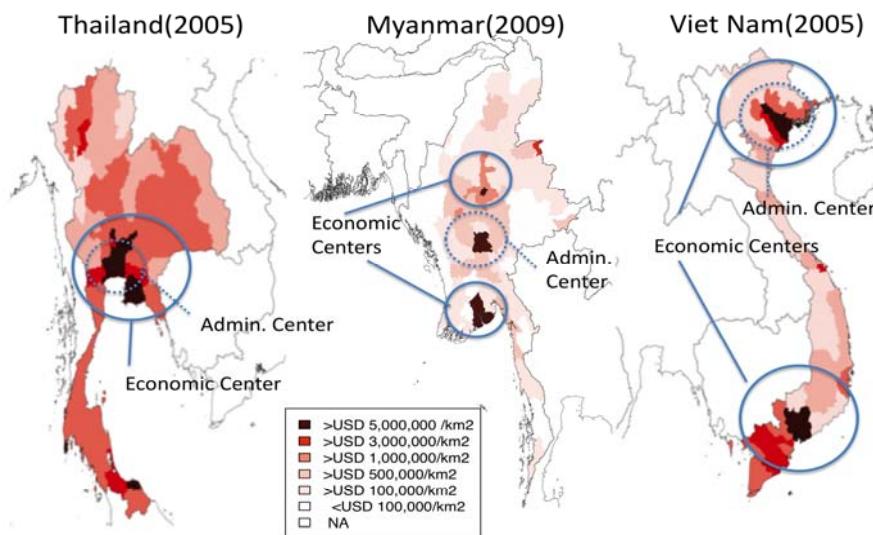
5.2. Two growth poles: Yangon and Mandalay²⁵

It is important to learn how the geographical concentration of economic activity has changed during the rapid economic growth period in other developing countries. The benchmarks for Myanmar seem to be Thailand and Vietnam, both of which have similar land areas and population sizes relative to Myanmar²⁶. Thailand and Vietnam have a contrasting spatial structure of economic activities with each other. Thailand is a typical “one-polar” country while Vietnam is clearly a “two-polar” country. Figure 3-28 shows the GDP density (GDP per km²) of Thailand, Myanmar and Vietnam. For Thailand, it is obvious that the country’s economic activity is concentrated around Bangkok. For Vietnam, there are two agglomerations of economic activity: around Hanoi in the north and Ho Chi Minh City in the south. Considering the spatial development strategy of Myanmar, it is important to choose whether to adopt one-polar or two-polar (or many-polar) growth strategy.

²⁵ For details, see Kudo and Kumagai (2012).

²⁶ Although Vietnam has a larger population than Myanmar, both of them are mid-sized countries in mainland Southeast Asia.

Figure 3-28: GDP Density of Thailand, Myanmar and Vietnam



Source: ERIA based on IDE-GSM dataset.

From the population and GDP density by district, and industrial distribution, we found that Yangon is eligible to be the first pole of economic growth because both economic activities and population are concentrated here. We also found that the second pole of economic growth would be Mandalay. This is because Mandalay and its surrounding area, including the poor Central Dry Zone (CDZ), already have a certain level of economic activity and population, although the agglomeration is smaller than that of Yangon. To forecast the consequence of each development strategy, we conducted the simulation analysis using an IDE Geographical Simulation Model (IDE-GSM). We analyzed the relationship between the number of development poles, the national GDP of Myanmar, and Yangon and Mandalay's GDP share in national GDP²⁷.

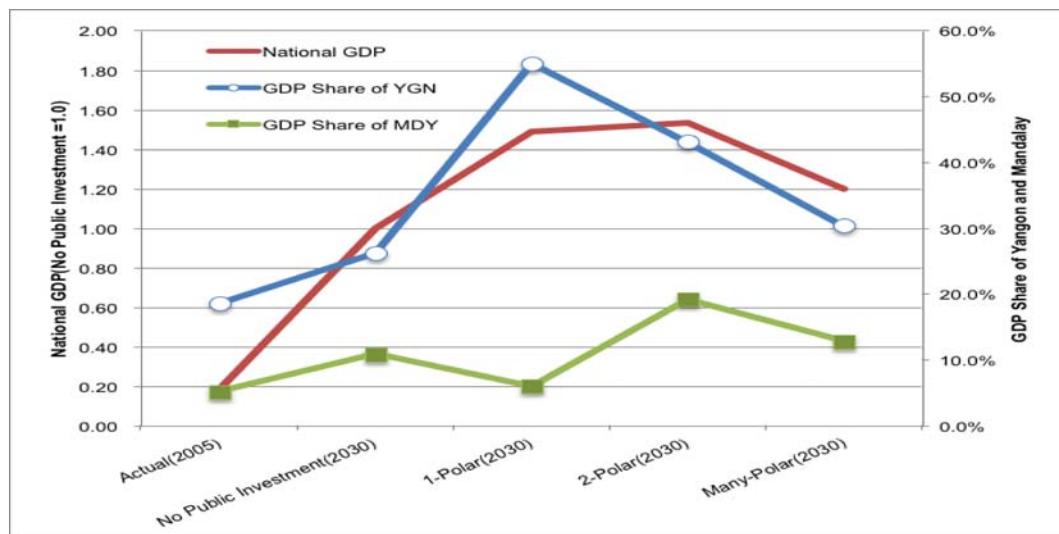
We assume that the costs of increasing the productivity parameter in a growth pole

²⁷ For details of the simulation model, see Kumagai, *et al.* (2012).

are proportional to its population. We also assume that available public development expenditure is fixed and that if the number of development poles is increased, the expenditure would be shared by all growth pole regions proportional to their population. In addition, the increase in productivity of each region is assumed to be proportional to the development expenditure per capita.

Under this assumption, the two-polar strategy would decrease Yangon's GDP share from 55.1 percent to 43.1 percent, while the national GDP would slightly increase from 1.49 times to 1.54 times, compared with the one-polar strategy. Mandalay's GDP share would increase from 10.8 percent to 19.1 percent. There seems to be no trade-off between higher growth and lower inequality for the two-polar strategy. However, if development resources are spread to many poles (here we assume 15 regions, including Yangon and Mandalay), the national GDP decreases to 1.20 times, while the share of Yangon's GDP decreases to 30.4 percent (Figure 3-29).

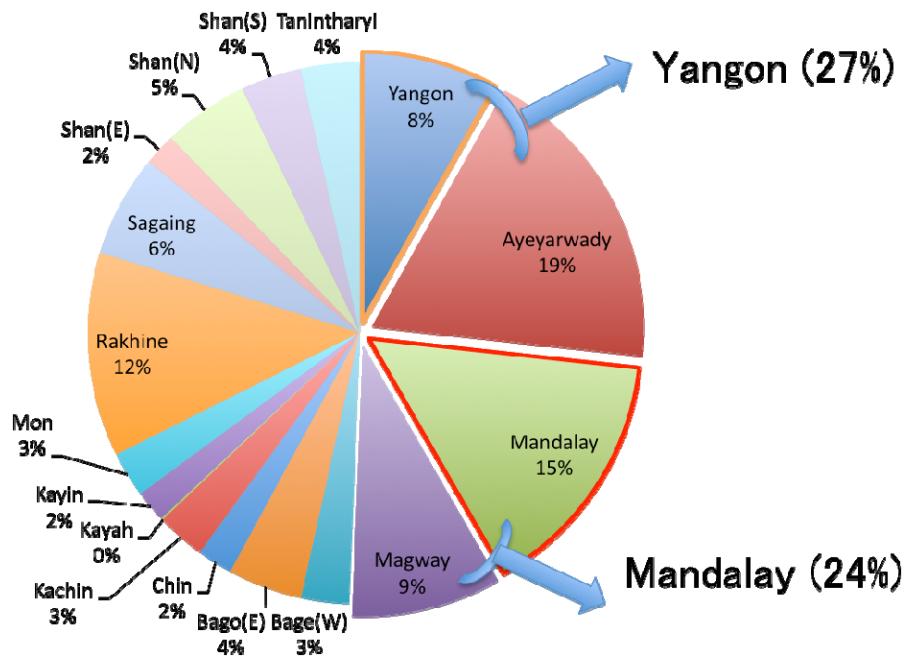
Figure 3-29: The number of growth poles, national GDP and GDP share of Yangon and Mandalay (as of 2030)



Source: ERIA based on IDE-GSM simulation results.

From the viewpoint of poverty eradication, again, the two-polar strategy seems to be proper. As depicted in Figure 3-30, Yangon, the economic centre of Myanmar, has a poverty share of 8.1 percent. Combined with neighboring Ayeyarwady, the poverty share becomes 26.7 percent. If Yangon takes care of this poor population in Mandalay and Magway, a part of the populated and poor CDZ, the share reaches 50.6 percent, just above half of the national poverty population. This is clearly a tall order for Yangon, and a poverty eradication strategy depending on mono-centric economic agglomeration in Yangon has some risk. Considering that Mandalay already has relatively high economic agglomeration, it is more reasonable for Mandalay to take care of its own poor population as well as that of neighboring Magway (and Sagaing). For Myanmar, it seems to be desirable to have a two-polar economic structure like Vietnam.

Figure 3-30: Poverty Share by Region/State (2010)



Source: ERIA based on “Integrated Household Living Conditions Survey in Myanmar (2009/10): Poverty Profile: Yangon, UNDP”

5.3. Border Development with Enhanced Connectivity

As noted above, some degree of concentration of economic activity is inevitable and even desirable for developing countries, especially for least developed countries. However, care should be taken relative to regions that are on the economic periphery. In the case of Myanmar, mountainous border regions need due attention. It is difficult to invite or develop certain kinds of industry in less developed regions with small populations.

The first principle of economic development discussed in this paper is that scarce development resources should not be spread to too many regions, especially in the early stages of economic development. Considering the fact that Myanmar is surrounded by richer neighboring nations, enhancing the connectivity with these nations is a key to a more balanced development even while not diverting greater development resources from economic centers.

Here, the economic effects of enhancing connectivity are analyzed again by IDE-GSM. In this “enhanced connectivity” scenario, we combined: (a) the customs facilitation measures at some national borders in 2015 and 2020, (b) upgrading the roads connecting these borders through major cities in Myanmar in 2015 and 2020, and (c) connecting Dawei and KyaukPhyu ports with India and Europe in 2020.

Table 3-18 shows that the income gap between seven regions, where Burmese people mostly live, and seven states, where ethnic minorities mainly live, is narrowed by enhancement of connectivity and the average incomes of seven regions and seven states improved, compared with the two-polar strategy without enhancing connectivity. This simulation result shows that the enhancement of connectivity considerably increases the GDP in periphery regions without reducing the GDP in economic centres. The inequality measures are all improved when compared with the two-polar strategy

without enhancement of connectivity.

Table 3-19: Inequality between Seven Regions and Seven States in Myanmar by Development Strategy

	Seven Regions (vs Seven States=1.0)		GDP per capita (National average(2005)=1.0)		
	GDP	GDP per capita	Seven Regions	Seven States	National
Actual(2005)	3.01	1.12	1.03	0.92	1.00
No Public Investment(2030)	3.42	1.15	3.63	3.15	3.51
1-Polar(2030)	5.73	1.74	5.47	3.14	4.93
2-Polar(2030)	5.92	1.79	5.64	3.15	5.06
2-Polar+Connectivity(2030)	5.80	1.76	5.75	3.26	5.17
Many-Polar(2030)	4.02	1.30	4.35	3.33	4.10

Source: ERIA based on IDE-GSM simulation results.

6. Spatial Development Model

The importance of attracting FDI and participating in the *de facto* production network has been emphasized so far. For a developing country like Myanmar, initiating even one of manufacturing processes of MNCs will make it easier to start industrialization (Kimura and Obashi 2011, P. 15). Here we would like to present some models in accordance with geographical features in order to participate in the production network and to attract FDI companies.

6.1. Coastal Metropolitan Model

While there are disadvantages such as unpaved roads, insufficient electricity, and poor and higher-priced telecommunication in developing countries, there also are advantages like abundant labor force and lower wage. The investment climates are mostly difficult for FDI companies but as shown in Section 3, it is possible to provide

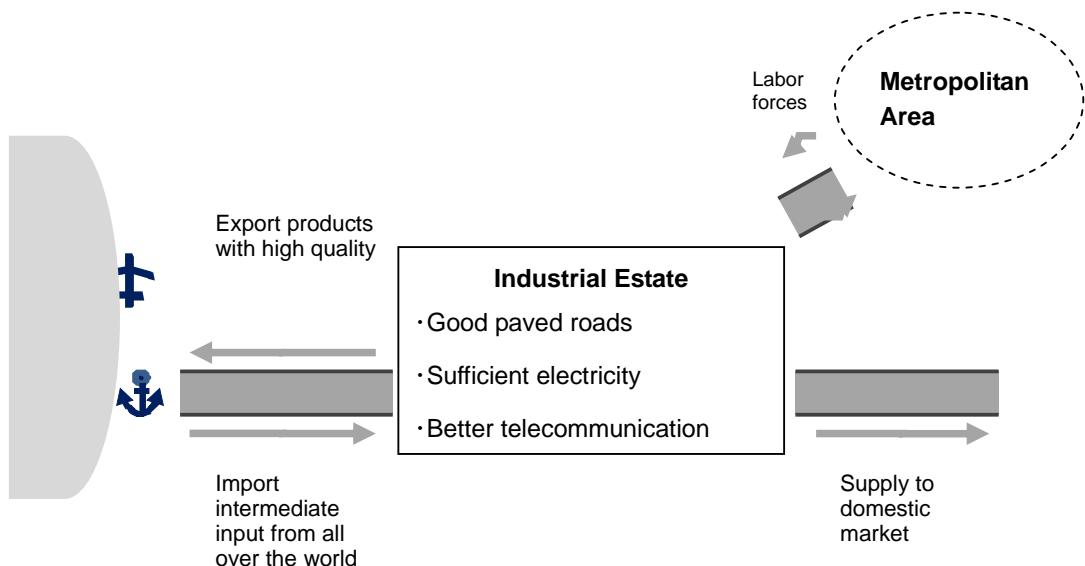
better investment climates in selected zones like a SEZ or an industrial estate (“SEZ or industrial estate” will be referred as “industrial estate” hereinafter).

In addition, if better access to a port and an airport from the industrial estate is provided, then taking off becomes easier for a developing country. For instance, if the industrial estate is located in inland region, the factories in the industrial estate cannot easily procure imported intermediate input and have to be dependent on domestically procured intermediate input. On the other hand, a better access to a port makes the factories easier to import intermediate input from all over the world. It is a very important condition for a FDI company. Additionally, if the industrial estate is located at outskirts of a metropolitan area, procurement of labor is easier and the metropolitan area is a good market. The location at the outskirts of a metropolitan with better access to a port and an airport is called “Coastal Metropolitan Model (Figure 3-31)”. As a matter of fact, the areas which receive a lot of FDI are metropolises which hold large population and better access to ports and harbors. Bangkok and its suburban area like Eastern Sea Board and Ayutthaya, the east coast of Malaysia like Penang, Kelang Valley and Johor, Jakarta and Surabaya and their suburban areas in Indonesia like Bekasi & Karawan and Pasuruan, respectively, Laguna, Cavite and Cebu in the Philippines, Hanoi and Ho Chi Minh City area in Vietnam as shown in Figure 3-32 (Ishida 2009, P. 2) are some of the examples.

With the FDI and improvement in the access to port and an airport, the industrial structure can be changed. Initially, garment, footwear and food products are the main industries. However, factories of electrics, electronics, automobile and upstream industries of textile such as yarn and fabric are still few in number. Allocation of these new industries, however, becomes possible by way of foreign companies’ technological transfer and importing appropriate intermediate input. In the first phase, the

manufacturing process is still simple like complete knock down (CKD) in case of automobile and motor-cycle. In the second stage, FDI companies producing parts and components are expected to increase in accordance with the needs of the assemblers. If industrial cluster of specific industries is formed, it should be promoted. In case of Thailand, industrial cluster of automobiles composed of multi-layers of parts and components industries has been formed. In order to promote the development of parts and components industry, Thai government gave incentives to FDI companies which invested in the supporting industries. In Malaysia, semiconductors and electronics industrial clusters have been formed and Hanoi and its neighboring provinces have formed clusters of printers and mobile phones.

Figure 3-31: Coastal metropolitan model



Source: Created by the ERIA.

For the purpose of developing the coastal metropolitan model, import tax exemption or reduction scheme should be well-designed. Usually import tariff on the intermediate input for exporting products and on the capital goods for starting operation

is exempted or reduced. If this system is simply applied, the manufacturing process for exporting products will be promoted. However, the companies which produce parts and components domestically are not expected to increase if the assemblers get incentives in importing intermediate input. If the import tariff on the suppliers to the export-processing companies is reduced, the FDI in supplying the intermediate input is expected to increase.

Figure 3-32: Areas that Received Substantial FDIs



Source: created by the ERIA.

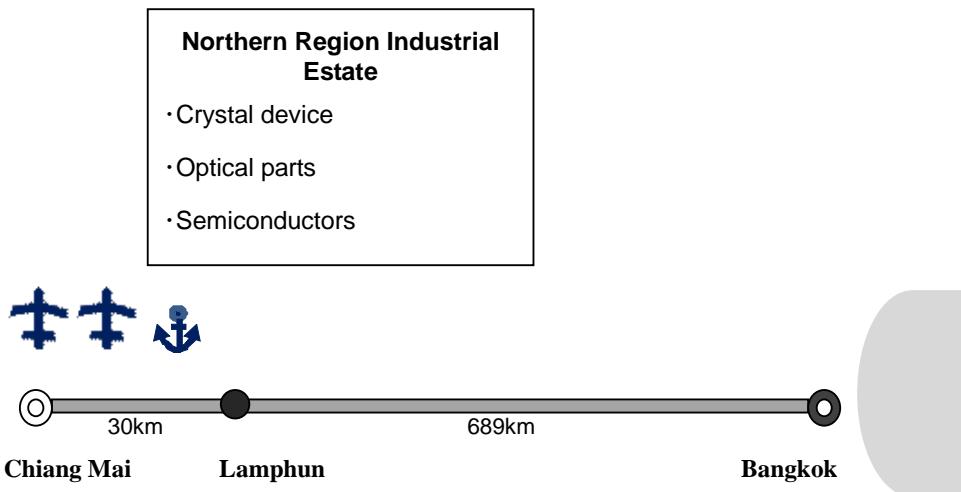
6.2. *Inland metropolitan model*

Usually, inland areas are disadvantageous in attracting the FDI because it takes more time to transport from/to ports and harbors. However, there is an example of inland city, the Northern Region Industrial Estate in Lamphun Province, Thailand,

which received increased of FDI and the model explained below is called Inland Metropolitan Model (Figure 3-33) in this chapter.

In this industrial zone, there are companies producing crystal device, optical parts, semiconductors, precision components and so on. These precision and optical equipments and semiconductors have common characteristics; the products are not bulky, their weights are light and the value-added is higher. These products are suitable for the inland area. For the ratio of the freight value with transport cost is relatively higher. In this context, medical equipment and highly-value-added fruits are also possible. In addition, software development, which does not need transportation, is also suitable for inland area.

Figure 3-33: Chiang Mai and Lamphun as an Inland Metropolitan Model



Source: created by the ERIA.

In case of these industries, the road condition should be good. For transporting precision, optical and medical equipment, shaking and rattling of trucks has to be avoided. In addition, access to the airport should also be good. In responding to urgent request from customers, having an option of air transport is very important for the investors.

The Northern Region Industrial Estate in Lamphun province is just 30 km from Chiang Mai airport. It is said that most of the products are transported to Bangkok or Laem Chabang port by way of about 700 km land transport. The products can be sent to Bangkok or Laem Chabang port in the morning after leaving Lamphun in the evening on the previous day, as the road conditions are good enough. Chiang Mai has a population of 1,708,564 persons and is regarded as the second city in Thailand after Bangkok. The capital of *Lanna* Kingdom was located in Chiang Mai in 13th-18th century. It is attractive enough to procure labor forces.

6.3. Application of the models to specific regions in Myanmar

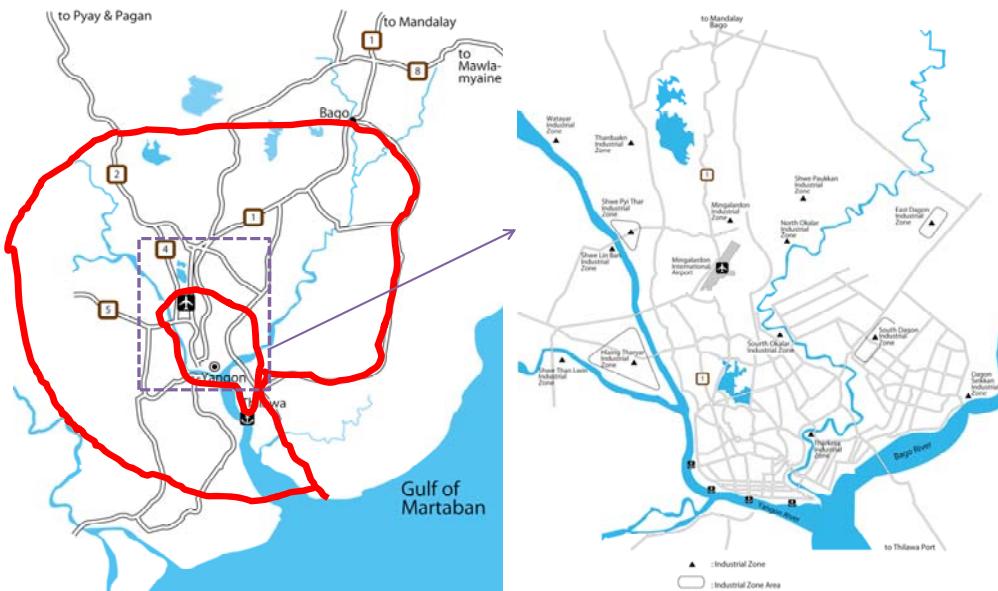
(1) Thilawa-Yangon area

The most suitable case of applying the coastal metropolitan model is Yangon and Thilawa Region (Figure 3-34). For Myanmar International Terminals Thilawa (MITT) and Myanmar Integrated Port Ltd (MIPL) are located at Thilawa and the depth alongside of the former is 10 m (Min and Kudo 2012, pp. 205-208). The distance to the largest metropolitan in Myanmar, Yangon, is 28 km. The time and cost for constructing the access road to a port can be minimized, so the participation of the *de facto* production network is possible with a minimum time and cost. As a matter of fact, the Japanese Government and the Myanmar Government concluded a memorandum of cooperation for Thilawa SEZ on December 21, 2012²⁸. The Ministry of Land Infrastructure and Transport of Japan has also dispatched a policy planner for designing the development of Thilawa Port²⁹.

²⁸Press Release of Ministry of Economy, Trade and Industry of Japan dated on December 27, 2012.

²⁹Press Release of Ministry of Land Infrastructure and Transport of Japan on January 25, 2013.

Figure 3-34: Thilawa-Yangon area and Potential Ring-Roads



Source: Created by the ERIA.

Yangon City has been developed to the north from the meeting point of Yangon and Bago Rivers. NR No. 1 starts from the northern end of Yangon and other national roads such as NR No. 2 toward Bagan and NR No. 3 toward Mawlamyaine are separated from NR No. 1 on its northern extension (left map of Figure 3-34). On the other hand, the south-west side of Yangon River and south-east side of Bago River has not yet been well-developed.

Yangon Port holds four terminals along Yangon River (right map of Figure 3-34). Monkey Point, the meeting point of Yangon River and Bago River is shallow, so the navigation becomes impossible when the tide is low (Ishida 2011a, pp. 25-26). Thus the need for all the four terminals is expected to decrease when capacity of Thilawa port is expanded. If this can be realized, some of Yangon Port Area can be redeveloped for other purposes.

There are several industrial estates in the western part and northern part of Yangon

(right map of Figure 3-34). Most of the industrial estates do not provide facilities for industrial water supply, wastewater treatment, back-up electricity and telecommunication. In order to attract FDI, newly developed industrial estates have to provide these facilities. Regarding electricity, some industrial estates in the outskirts of Jakarta get electricity supply from an independent power producer (IPP). Thus attracting the foreign IPPs or water treatment companies is also possible.

In the future, constructing a ring road which connects Mingaladon airport, Thilawa, other industrial estates in Yangon and NR No. 1 is needed in order to transport products among these places without hitting a traffic jam in the center of Yangon. Developing the under-developed area in the south-west side of Yangon River and south-east side of Bago River is also a challenge. Some parts of the ring road pass through these areas. In case of Ho Chi Minh City, the east bank of Saigon River or the Second district had been under-developed, but recently it has been planned to develop this area as a financial city like Pudong in Shanghai. In this way, developing a commercial and a financial city is possible in a district along with developing a new industrial estate. As means of transporting passengers who work at and visit these areas, developing mass railway transits in north-south and east-west directions will be needed in the future.

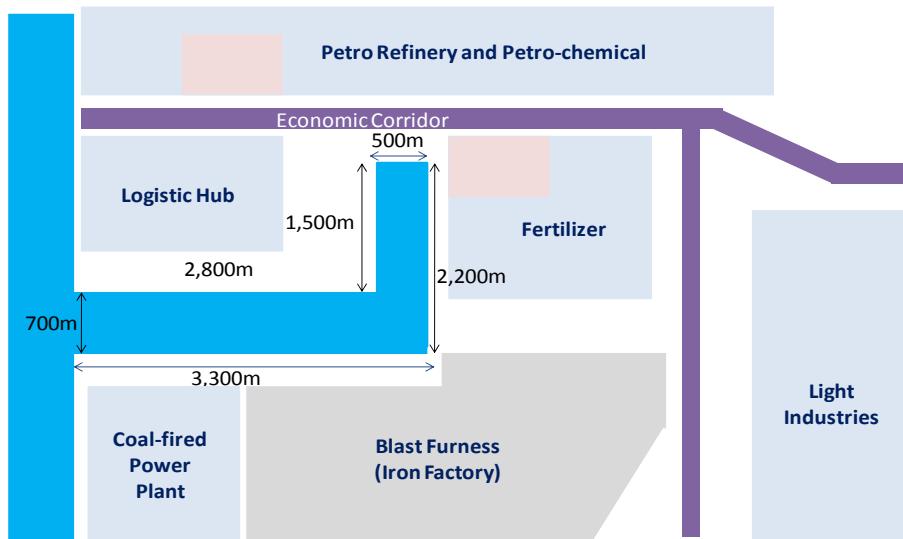
6.4. Dawei

Transporting goods from Bangkok to Andaman Sea by a ship takes about three weeks including the trans-shipment at Singapore or at Port Kelang. The distance from Bangkok to Dawei by road is just 230 km. With the completion of a good road, the journey takes about 5 – 6 hours by truck.

Dawei is a city on Andaman Sea. At Dawei, there is a plan to develop a deep sea port. In 1996, the Myanmar Port Authority (MPA) and Italian – Thai Development Public Co. Ltd. (ITD) signed a MOU on conducting a feasibility study for a deep sea

port and integrated development. The industrial estate is composed of petro refinery and petrochemical industries, Iron factory, coal-fired power plant, fertilizer plants and factories of light industries. The allocation of these industries will be dependent on the movement of private sector.

Figure 3-35: Master plan for Dawei Port and Industrial Estate



Source: Created by the ERIA.

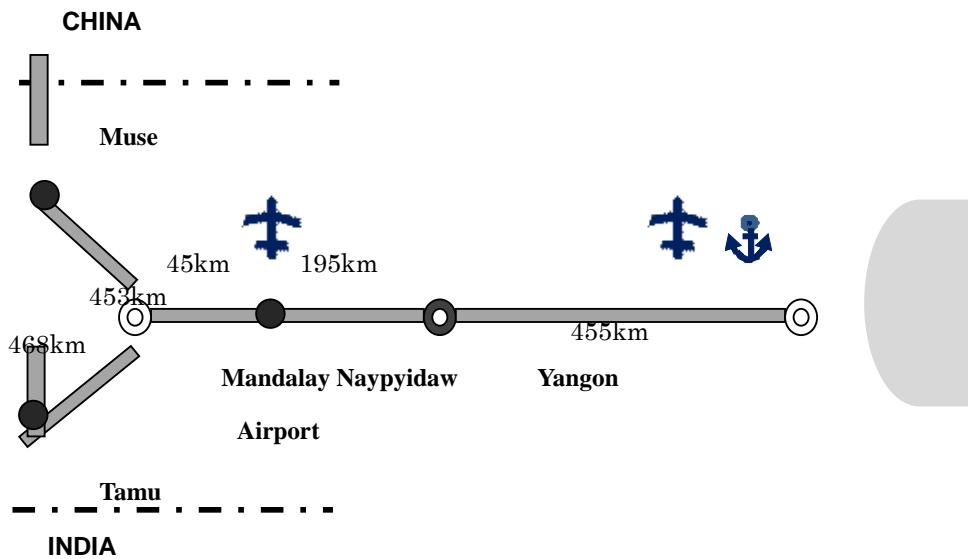
The distance from Bangkok to India, Africa, the Middle-East and the Europe will be cut short by way of Dawei Deep Sea port. Thus the material-oriented industries for Bangkok have a higher potential.

6.5. Mandalay

Mandalay is a division which holds the second largest population in Myanmar. Thus Mandalay is similar to Chiang Mai and Lamphun. The distance from Mandalay to Yangon is 695 km, almost same as the distance between Lamphun and Bangkok (674 km). The Mandalay International Airport is 45 km on the way to Yangon from Mandalay City. If well-paved road between Mandalay City and Yangon is developed,

an industrial estate is established near the airport and warehouses are developed at the air port, FDI in precision, optical and medical equipments, software, ICT technologies can be expected to grow here. For ICT technologies and software, good cooperation with Yadanabon Cyber city is expected.

Figure 3-36: Location of Mandalay



Source: Created by the ERIA.

Establishing the logistics route is a first step where goods, after leaving Mandalay in the evening on the previous day, can be transported to Yangon in the morning. However, the aircrafts flying between Yangon and Mandalay are smaller planes like Foker 100, ATR 72 and ATR 42; so only a limited quantity of goods can be transported. In order to expand the size of aircrafts, a trial to increase tourists from Yangon to Mandalay is under way. This would result in increased space for cargo too. In addition, direct flights from Bangkok and Kunming can expand the industry potential of this area, including high-value added agri-business.

From Mandalay to Muse, a border city with China is 453 km and to Tamu, a border city with India is 468 km. Mandalay is a potential node between China and India, China and Yangon and India and Yangon. It should not be forgotten that there are no big cities on the other sides of Muse and Tamu. Distance between Muse and the nearest big city Kunming is 855 km.

7. Border Area Development

7.1. *Significance and Potential of Border Area Development*

The border area development is one of the crucial issues for attaining inclusive and balanced growth. The peripheral areas are usually far behind the central areas in development stage due to its inability in inviting or developing certain kinds of industries. Even the two-polar strategy, by itself, does not resolve the economic gap between the peripheral areas and the central ones.

Hence, there is the necessity for a complementary strategy to develop the peripheral areas. However, the strategy for the peripheral development should not draw too many resources from the central areas to avoid an “equally poor” situation.

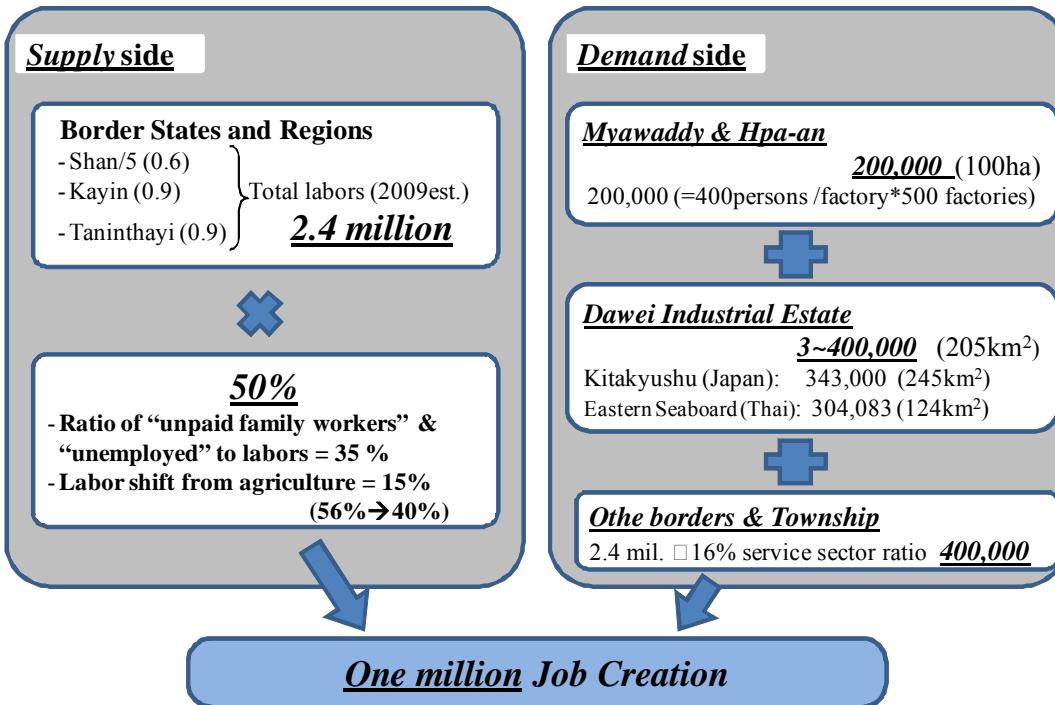
Simulation results above show that the enhancement of connectivity bottoms up the GDP in periphery regions without reducing the GDP in economic centers, and also narrows the gap effectively between economic centers and peripheries. Financing it does not draw too many development resources from the development of economic centers, the strategy to enhance the connectivity of border areas complements the two-polar strategy, and seems to be a key to attain balanced growth for Myanmar.

We propose the “one million job creation” in the border areas of Myanmar side with neighboring countries. We roughly estimate “one million” from demand and supply side of labor forces. The targeting border areas are: (a) Kawthaung, (b) Dawei, (c) Myawaddy and Hpa-an, (d) Tachilek, (e) Muse, and (f) Tamu.

For job estimation, we assume the industrial allocation and infrastructure condition as follows. (a) Myawaddy and Hpa-an have labor-intensive industries, e.g. garment and food processing, some of which are relocated from the Thai border, i.e. Mae Sot, (b) Dawei creates large scale of industrial cluster including heavy industries such as steel and petro-chemical ones as well as seaside tourism, and (c) Other border areas focus mainly on service sectors such as cross-border tourism, hospitality business like hotels, and trade logistics, as well as light manufacturing industries.

An estimation of labor demand and supply in border areas based on the above-mentioned assumption is shown below. On the demand side, (a) Myawaddy and Hpa-an produce about 200,000 jobs, by analogy of the industries in Mae Sot, (b) Dawei creates approximately 3-400,000 jobs on the analogy of Kita-Kyushu industrial zone in Japan and Eastern Seaboard industrial zone in Thailand, both of which have similar area and industrial structure to those planned in Dawei, and (c) Other border areas including township, which may mainly develop and promote service sectors and trade logistics, could create 400,000 jobs. This would be equivalent to the volume of labor forces for service sector (wholesale, retail trade, restaurant and hotels) that comprises 16 percent of total labor force of 2.4 million estimated in border states and regions. By summing up the estimated job creation above, i.e. 200,000 jobs in Myawaddy and Hpa-an, 3-400,000 jobs in Dawei and 400,000 jobs in other border areas, it amounts to approximately one million jobs.

Figure 3-37: Job Creation in Border Areas with Thailand



Source: Created by the ERIA

On the supply side, the labor force in the border-states and border-regions with neighboring countries is about 2.4 million. If we consider that “unpaid family workers” and “unemployed” occupy 35 percent of labor forces, and that agriculture sector reduces its share by 15 percent, as a trend, then half of border labor forces of about one million may fill up the job opportunities newly created on the demand side.

There are two types of border development in Myanmar. One is through border trade and the other is through border industry. The objective of the former- border area development through border trade, is to achieve smoother cross-border economic transactions with neighboring countries. In short, the aim is to minimize the resistance value of border checkpoints and to boost the function of checkpoints as connecting nodes with neighboring countries.

7.2. *Border trade*

According to Myanmar's Ministry of Commerce, in 2007/08 border trade accounted for 13.6 percent of the country's total imports and exports; the percentage of border trade for exports has fluctuated stably around 12 percent since FY2003, but in the case of imports, the percentage has risen significantly (Table 3-20). This is due to the fact that imports via border trade from China and Thailand have grown substantially. Comparing the imports via border trade in 2002/03 and 2007/08, imports from China expanded 2.7 times and those from Thailand expanded 5.5 times.

Table 3-20: Myanmar's Exports and Imports by Type

Fiscal year	Export			Import			Total	Unit: million USD
	Normal trade	Border trade	Share of border trade	Normal trade	Border trade	Share of border trade		
2003	2,078	300	12.6	1,971	211	9.7	11.2	
2004	2,580	385	13.0	1,683	252	13.0	13.0	
2005	3,128	429	12.1	1,693	282	14.2	12.9	
2006	4,585	647	12.4	2,491	445	15.2	13.4	
2007	5,655	747	11.7	2,771	583	17.4	13.6	

Source: Ministry of Commerce

Let us consider the amount of trade by country and by border gate (Table 3-21). Firstly, looking at the country wise trade figures for 2006/07, China accounted for 69 percent and Thailand for 28 percent of the total border trade. By contrast, the combined share of third-place Bangladesh and fourth-place India amounted to less than 4 percent of the total. Myanmar has not established any formal border gates with Laos. Myanmar's current border trade essentially consists of overland distribution to and from China and Thailand. Next, looking at trade figures by border gate, the largest border trade gate is the one at Muse, a town in Myanmar on the border with Ruili in China,

which accounts for 65 percent of the total amount of border trade. The second-largest border gate is Myawaddy on the border with Mae Sot in Thailand, which accounts for just 14 percent of border trade. Between them, these two border gates handle approximately 80 percent of the total of Myanmar's border trade. In the next section, we will examine the border trade at Muse in detail.

Table 3-21: Myanmar's Border Trade by Border Gates as of 2006/07

Border trade		Export		Import		Total		Unit: million USD
Border gates	Myanmar side	Counterpart countries	Value	Share	Value	Share	Value	Share
Muse	China	433.0	66.9	281.1	63.1	714.1	65.4	
Myawaddy	Thailand	61.0	9.4	95.1	21.3	156.1	14.3	
Kawthong	Thailand	35.7	5.5	42.5	9.5	78.1	7.2	
Myeik	Thailand	44.9	6.9	0.1	0.0	45.0	4.1	
Lwejel	China	17.6	2.7	15.2	3.4	32.8	3.0	
Sittway	Bangladesh	21.3	3.3	1.0	0.2	22.3	2.0	
Tachilek	Thailand	16.0	2.5	5.0	1.1	21.0	1.9	
Tamu	India	6.8	1.1	2.8	0.6	9.6	0.9	
Rhi	India	4.2	0.6	2.0	0.4	6.2	0.6	
Maungdaw	Bangladesh	4.2	0.7	0.4	0.1	4.6	0.4	
Chinshweho	China	2.5	0.4	0.4	0.1	2.9	0.3	
International trade		Export		Import		Total		
Countries		Value	Share	Value	Share	Value	Share	
China		453.12	70.0	296.64	66.6	749.76	68.6	
Thailand		157.59	24.3	142.63	32.0	300.22	27.5	
Bangladesh		25.48	3.9	1.38	0.3	26.86	2.5	
India		11.02	1.7	4.75	1.1	15.77	1.4	
Total		647.2	100.0	445.4	100.0	1,092.6	100.0	

Source: Courtesy of Ministry of Commerce.

The Muse (105th-mile) border gate functions as a connecting node for the two

countries through AH-14: Mandalay-Lashio-Muse-Shweli. The 450-km-long road connects Muse on the Chinese border and Mandalay, the second-largest town in central Myanmar.

This is a part of the “Burma Road,” which was completed by 1938 to supply commodities to the Chinese Nationalist Party (CNP) or the Kuomintang in Chongqing. In 1998, under the build, operate, and transfer (BOT) arrangement, this road was paved and expanded to accommodate larger forms of transportation. Before the road improvements, it took a couple of days to travel from Mandalay to Muse; and as long as a week during the rainy season. Today, it takes only 10–12 hours of driving time.

Both the regularization and the institutionalization of cross-border transactions and road development contributed to a boost in border trade between the two countries. China’s exports to Myanmar through border posts increased 3.5 times—from USD 263.3 million in 1999 to USD 915.4 million in 2008. Similarly, China’s imports from Myanmar via border trade expanded 8.4 times – from USD 55.1 million in 1999 to USD 461.4 million in 2008, according to Chinese custom data. The Myanmar government promoted border trade not only with China but also with Thailand, India, and Bangladesh. Among these, Myanmar–China border trade recorded the most meaningful improvements. Today, border trade with China has become a lifeline for Myanmar’s economy.

As the trade volume continued to grow, the DBT-MOC started to construct a larger border gate in Mang Yu village in Muse Township from August 2005. This is located 105 miles away from Lashio, a commercial town for the trans-shipment of truck cargo for Mandalay, and seven miles away from Muse, a border town. By August 1996, the Muse (105th-mile) border gate has started to function in a full-fledged manner, providing the so-called “one-stop services” (OSS).

The Myanmar government upgraded the border gate to become a border trade zone in 2006. The Muse (105th-mile) Border Trade Zone is thus considered to be the first and largest trade zone in Myanmar. Within its premises, there are CIQ facilities, truck terminals, weighbridges, ware- houses, wholesale centers, cold storages, trade fair pavilions, company offices, restaurants and shops, guesthouses, and so forth. The export and import inspection centers are equipped with X-ray machines that were provided by the Chinese government. Fiber-optic cable lines and land/mobile phone services are also available. The zone also enjoys good access to e-mail and the internet.

The sustainable growth of border trade between Myanmar and China is faced with challenges. First, possible armed conflicts between the Myanmar army and ethnic ceasefire groups in the border areas overshadow the prospects of border trade between the two countries. The military clash between the Myanmar armed forces and the Kokang ceasefire group in Shan State Special Region No. 1, Myanmar National Democratic Alliance Army (MNDAA), in August 2009, clearly showed that peace and security in border areas is fragile. The occurrence of more military conflicts between these groups would not be surprising in the future. This poses the foremost threat to the growth of Myanmar's border trade with China.

Second, the Myanmar government still distorts the nature of transactions. For example, the so-called "truck changing system" practiced in the Muse (105th-mile) Border Trade Zone inevitably causes inefficiency. The purpose of this system is to ensure the thorough inspection of cargo. However, there must be other ways of effective and efficient inspections that do not place so great a burden on transporters. Moreover, there are 16 checkpoints on the route between Mandalay and Muse, which individually entail about ten hours for all the inspections as described in this chapter.

The DBT-MOC is still boastful of its implementation of OSS. However, some transporters sarcastically say that one-stop services literally stop them for a good span of time.

Third, the trucks from one country cannot go beyond the other country's trade zone. Myanmar trucks can enter the Jiegao Border Trade Zone on the Chinese side, but they cannot go beyond it. Further, Chinese trucks can enter the Muse (105th-mile) Border Trade Zone on the Myanmar side, but cannot go beyond it. As a result, cross-border truck cargo has to be trans-shipped at either the Muse (105th-mile) or Jiegao checkpoints. This is because of a lack of exchange of traffic rights between the two countries.

In reality, most of Myanmar's cargo trucks for export go into the Jiegao Border Trade Zone across the border, and they unload export cargo there. By contrast, most of the Chinese cargo trucks for export do not enter the Myanmar side. They unload their export cargo and load them onto Myanmar trucks in the Jiegao Border Trade Zone. The DBT- MOC encourages Chinese cargo trucks to enter the Muse (105th-mile) Border Trade Zone. However, they are reluctant to enter the Myanmar side, as the road conditions are poor compared to the Chinese side, and as car accident insurance does not cover accidents on Myanmar soil. There are no reliable insurance companies in Myanmar. Under such conditions, Chinese trucks do not cross onto Myanmar soil.

The new "Burma Road" now serves as an artery for commodity flows between Myanmar and China. The development of this road and border gate was a great boost for the promotion of border trade. However, the Myanmar government still needs to tackle the abovementioned issues in order to ensure the sustainable growth of border trade. The prospects of Myanmar's border trade with China depend on the extent to which the Myanmar government deals with these challenges.

7.3. *Border industry*

Considering the significance in developing border area and the current open-door policy, we herein represent a basic concept for border area development.

The location advantages of border areas should be focused on in their development, particularly of those between less developed countries like Myanmar and more developed ones such as Thailand and China. The location advantages include complementary factor endowment and cross-border infrastructure services. To be specific, an industry located in border areas has a growth potential, as it exploits the location advantages of the abundant and low-cost labor forces in a less developed country, while avoiding high service-link costs and unstable utility services that accrue from underdeveloped infrastructure in less developed country by utilizing cross-border infrastructure services provided from more developed countries.

Complementary factor endowment: From an economic point of view, a border is nothing but an impediment to free mobility of production inputs: labor, capital, technology and information. As a result, a border creates differences in factor prices across the border, and complementary inputs become available in the border. A border industry can grow by combining complementary inputs to produce cost-competitive products.

In particular, border areas between relatively less-developed and advanced economies can effectively offer their respective complementary inputs. For instance, Myanmar can provide lower-cost labor forces, while Thailand can offer other inputs (materials, parts, and components), technology and capital. Thus, without any difficulties in business and investment environments, Myanmar could invite the factories by Thai investors and provide lower-cost labor forces for them, thereby

facilitating its border area development.

Cross-border infrastructure services: Border areas between relatively less-developed and advanced countries can avoid high service-link costs and unstable utility services that accrue from underdeveloped infrastructure in less-developed country by utilizing cross-border infrastructure services provided from advanced countries. In fact, the required infrastructure investment to connect its border areas with the existing infrastructure in advanced countries, even if it is necessary, may be far smaller than that for developing a nationwide infrastructure system in less-developed countries.

In the case of the Myanmar-Thai border areas, even if firms were located in their Myanmar side, the firms would have better access to utility services such as electricity, water, and telecommunication that are provided by Thailand. And they could gain transportation access to the well-developed Bangkok Port and LaemChabang Port through well-connected road networks in Thailand.

Since border-area industries have a great potential to enjoy all the benefits coming from the border-location advantages above, therefore, the strategy for border area development should concentrate on utilizing the location advantages to maximum extent. Border areas should no longer be regions that depend on assistance from the central areas. Border areas could be frontiers and conduits that absorb the economic energy of emerging countries such as Thailand and China at present and India and Bangladesh in future into the Myanmar economy. In developing border areas, however, social community and environmental conservation should be taken into account to make its development sustainable.

Over the course of nearly ten years, many factories have been newly opened in or

relocated to Mae Sot. By 2005 there were 464 factories with 36,821 workers in Tak Province. Of these, 235 factories (or 51%) were located in Mae Sot, employing 31,876 workers or 87percentof the total laborers in Tak Province. These figures imply that most of the labor-intensive industries in the area are concentrated in Mae Sot. The textile and garment (hereafter “garment”) sector represents a labor-intensive industry. There were 113 garment factories in Tak Province in 2005, and most of them were apparently located in Mae Sot. These garment factories employed 26,889 workers or 73 percent of the total laborers in Tak Province. The capital-labor ratio of the garment industry was also among the lowest ones.

The garment industry in Mae Sot has an advantage in logistics over, for example, that found in Yangon. Consider a scenario of garments manufactured in Mae Sot and exported to Tokyo. The 490 km-long road connecting Mae Sot and Bangkok is well paved and developed, and vehicles can make the journey in around 12 hours at a cost of about USD 290. In Bangkok, two major ports are available; one is Bangkok Port or KlongToey Port and the other is LaemChabang Port, the latter of which is one of Asia’s leading ports and the most important commercial deep seaport in Thailand. It takes eight or nine days to travel from LaemChabang Port to Tokyo/Yokohama Port and costs USD 1,340 for a 40-foot container. Products made in Mae Sot arrive at Tokyo in about 10 days at an approximate cost of USD 1,630.

The garment industry in Mae Sot also has an advantage in terms of the procurement of raw materials. According to a survey, of eight respondents, four garment firms used only Thai domestic raw materials; one used domestic material upto 73 percent and imported about 27 percent, while three used only imported materials. By contrast, the garment industry in Yangon has been totally dependent on imported raw materials. They import everything such as fabrics, accessories, threads and even plastic bags,

except probably carton boxes. As already stated, it takes time to import things, whatever they are, into Myanmar. Garment firms in Yangon need more lead time for production because of the procurement of raw materials from abroad. A longer lead time makes it difficult for Myanmar's garment industry to focus on the production of seasonal and/or fashion apparel items, which require quick responses. It is an advantage for garment factories located in Mae Sot to be able to use both domestic and foreign raw materials.

Since the late 1990s Myanmar has been experiencing a series of nationwide power shortages. The shortage of electricity is one of the most serious problems for the garment industry as well as other manufacturing sectors in Myanmar. However, in Myawaddy, many of the households have been provided with power by a Thai company located in Mae Sot. This case shows that the cross-border transmission of electricity is possible between the two border towns. Once legal and institutional arrangements have been made between the two governments, factories located in Myawaddy could be officially and regularly provided with electricity from the Thai side.

From the above, it is clear that the Myanmar–Thai border region is endowed with conditions that are advantageous to labor-intensive industries. So, why do sewing companies locate in Mae Sot, Thailand, but not in Myawaddy, Myanmar?

If the sewing companies in Mae Sot move to Myawaddy, which is just across the small Moei River, they should be able to enjoy the greater location advantages of a less developed country. For example, the Thai sewing companies located in Mae Sot must pay minimum wages to their workers as stipulated by Thai law. As mentioned above, Thailand's minimum wage is nearly five times the level of Yangon workers' wages. Moreover, when Mae Sot sewing companies hire foreign workers, they must follow costly and complex regulations. In any case, if Thai companies were simply to cross

the Moei River, they can hire many more Myanmar workers than they currently employ, who are willing to work for wages that are markedly lower than the current minimum wage. Moreover, if the products are transported across the Moei River bridge to Bangkok, there should be almost no difference in the physical transport time and the transport cost between factories located in Myawaddy and those located in Mae Sot.

Despite this, sewing companies do not move to Myawaddy because of the poor quality of Myanmar's investment and business environment. In an attempt to solve this problem, Myanmar is studying the establishment of a special economic zone in Myawaddy such as the one proposed in the above-mentioned IEAT commercial feasibility study. The study hypothesizes a variety of cross-border transactions taking place freely, in principle, within a specific geographic area. In the special economic zone, the plan is to deregulate trade, including CMP imports and exports, to legally supply infrastructure services such as electricity and communications from Thailand, and to hire Myanmar workers at appropriate wage levels. One objective of the special economic zone is to attract companies that utilize Myanmar's raw materials, including the labor-intensive sewing industry, lumber processing, and agricultural product processing. Various methods to improve the investment and business environment are also under consideration, such as the granting of a visa exemption privilege to investors in the special economic zone as well as the joint use of the Mae Sot Airport by both countries since Myawaddy has no airport. If this type of special economic zone is established, there is a possibility that some the companies currently concentrated in Mae Sot will move to Myawaddy.

7.4. *Strategic Measures for Border Area Development*

Based on the basic concept for border area development focusing on border

location advantages, this section proposes three strategic measures to materialize the potential advantages and to utilize them to maximum extent for border area development, i.e. enhancing inner- and outer- connectivity of border areas, developing human resources for border area development, reducing institution-wise service-link costs through SEZ framework, and the specific strategy for border areas.

(1) Enhancing inner- and outer- connectivity of border areas

The first strategy is to enhance the inner- and outer- connectivity of border areas. The border-location advantages would not be realized as long as the cross-border functions themselves did not work effectively and also if the border areas were isolated from the central areas and overseas areas. Essentially, East Asia has intensified the production and distribution networks in manufacturing sectors by exploiting the difference in location advantages, i.e. the differences in factor prices under the lowered service-link costs. Myanmar, including its border areas, has not yet been integrated into such networks in spite of its abundant and low-waged labor forces. It is because it still suffers the high service-link costs that accrue from underdeveloped infrastructure for connectivity in terms of transportation and communication. Unless the connectivity improves, the savings in labor costs are more than offset by the higher service-link costs. How the economic performance improves by enhancing the inner- and outer-connectivity of border areas will be examined next by IDE-GSM analysis.

(2) Developing human resources for border area development

The second strategy is to develop necessary human resources for border area development. One of the border location advantages - abundant endowment of low-cost labor force does not automatically guarantee labor for border industries, or

appropriate job opportunities for potential workers, since there is usually a gap between labor demand and supply in terms of labor quantity and quality in specific areas such as borders. Essentially, the job creation in border area is nothing but a top-priority nation-wide issue for attaining inclusive growth, in the sense that it would contribute to social stability in border area and also provide the opportunities to let Myanmar migrants return to their home country. Next, there is the strategy for human resource development from the quantity aspect – “one million job creation” by border area development, and from the quality aspect – skill development for border-area workers.

It is not an easy issue for Myanmar, which has remained so far an agriculture-based economy, to develop the human resources for industry-based economy. The TVET (Technical and Vocational Education and Training) is not only the issue of border area development but also a nationwide issue. Hence, the focus is on the skill development for border-area workers.

First, the functions and facilities for training should be located inside of or near to industrial estates supposed to be set up in border areas (SEZ, FTZ, etc. if any). In general, the classroom lecture at training facilities (off-the-job training) should be combined with the practical training in a corporate site (on-the-job training). It is because there are sometimes a mismatch between the skills learned from training centers and the skills required by companies, especially in the times of rapid progress in innovation. To address this mismatch, some companies make an agreement with training centers in which the companies dispatch their staff to training centers as trainers, and, in turn, training centers send their students to the companies’ factories for on-the-job training. This system is beneficial for both sides, since the companies can expand the opportunities to acquire skilled workers, while the training center can improve training program by keeping up with companies’ innovations. This

collaboration system may work well if the training centers are located close to companies' production sites.

Second, the border industrial areas should have networks with educational and training functions in central areas, regardless of their public or private entities. In particular, the "brain drain" is a serious problem, since precious human resources which are highly educated and trained by using domestic resources are not utilized for national development. The fundamental cause of "brain drain" lies in the lack of domestic job opportunities. Thus, if there were some networks in which information of job opportunities in border areas can be carried to the central areas, the "brain" may be prevented from leaving. The border-central networks for training also contribute to a double-track program in which border-area workers can get the training for higher skills in central training centers.

Third, the border industrial areas should have networks with educational and training institutes in Thailand and other Asian countries. In Thailand, the Chiang Saen International Institute for Skill Development³⁰ can be a suitable candidate for such networks. The Institute, which was established in 2003 in 28 ha land area with 9 buildings, is located in the border area with Myanmar, and has an international training course focusing on "hospitality business" as hotel, tourism, etc. The border industrial areas can dispatch their trainees to the Institute, or can invite trainers from the Institute to the border areas. Similarly, the border industries can have networks with Thai private-training functions and facilities, some of which are located in industrial estates. Thai Chamber of Commerce also has educational functions, and can be an ideal network

³⁰ The Chiang Sean International Institute for Skill Development was established in 2003 with 68 acres and 9 buildings. The training program has: 1) domestic training targeting on Thai workers mainly in the area of "hospitality business" like hotel, tourism, etc. 2) international training targeting on government officials (the past record: 21 countries and 716 participants).

partner. Considering the variety of stakeholders related to Technical Vocational Education and Training (TVET), a multi-track of TVET network and best-mix of TVET system should be created and the TVET function in border areas should be incorporated in the TVET network.

(3) Reducing institution-wise service-link costs by SEZ framework

The third strategy is to adopt SEZ frameworks in the border areas for the purpose of reducing institution-wise service-link costs and of attracting foreign manufacturing investors with production and distribution network. One of the reasons why foreign companies have not yet attracted enough to be located in border areas, in spite of their location advantages, is the restrictive investment and business environment. Here various regulations, both explicit and implicit, are imposed on foreign firms, e.g. minimum capital requirements, export and import licenses, restriction on foreign currency transactions, restriction on using utility services such as electricity provided by foreign countries, etc. For instance, the electricity provided from a Thai side is in fact available in Myawaddy, which is one of the attractive border-location advantages. Unless the usage of this electricity is admitted legally and regularly, the border industries cannot enjoy this location advantage, and will also dampen the incentive for foreign investors to relocate their factories in the border areas.

The special economic zone (SEZ), including the free trade zone (FTZ) and export processing zone (EPZ), can be a good policy tool to reduce such business and transaction costs. They can provide well-developed infrastructure with intensive investment in the demarcated production sites, and also efficient administrative procedures including single-stop and single-window services for export and import, business services such as offshore banking and logistics, and public supports for human resource development and technological transfer. All these services can be made

possible in SEZ by insulating them from the rest of the country.

Thus, the SEZ framework should be adopted in border areas, so that the border industries can reduce institution-wise service-link costs and enjoy fully border-location advantages. It can also create a great incentive for foreign investors to relocate their factories and offices in the border areas.

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Annex 3-A

Industries in Industrial Zones along the Corridors

Sr.	Corridor	State / Region	District	# of industrial zones	# of factories
1	North South	Kawthaung	Kawthaung		
		Myeik	Myeik		
		Dawei	Dawei		
		Yangon	Yangon	31	4042
		Bago	Bago		
		Bago	Taungoo		
		Nay Pyi Taw	Naypyidaw	1	Plan
		Mandalay	Meiktilar	1	295
		Mandalay	KyaukSe		
		Mandalay	Mandalay	1	1379
		Kachin	Myitkyina		
2	East West	Shan	Tachileik		
		Shan	Kyaing Ton		
		Shan	LoiLem		
		Shan	Taunggyi	1	767
		Magway	Pakokku	1	272
		Chin	Haka		
3	Northeast- Southwest	Shan	Muse	1	Plan
		Shan	Lashio		
		Mandalay	Pyinoolwin	1	16
		Magway	Magway	1	121
		Rakhine	Kyauk Phyu		
4	Southeast Northwest	Kayin	Myawaddy	1	Plan
		Kayin	Hpa-An	1	9
		Mon	Thaton		
		Mon	Mawlamyaing	1	86
		Taninthayi	Dawei		
		Sagaing	Monywa	1	596
		Sagaing	Kalay	1	34
		Sagaing	Tamu		

Source: Survey

CHAPTER 4

SME development

1. Industrialization through Development of Small and Medium Enterprises

Successful industrialization is a cumulative process involving movements from one stage to another through the establishment of new industries with higher value-added and technology contents. Most common feature of successful East Asian economies has been increased share of exports in GDP and high investment rates, with the latter being financed by high domestic saving rate or capital inflows.

In light of global developments in trade organizations (e.g. the World Trade Organization), the use of tariffs, quotas and subsidies have become difficult. However, there is still room and some exceptions for latecomer countries. WTO rules allow the use of trade policy in the form of selective subsidies to promote (i) domestic R&D; (ii) regional development; (iii) environment friendly activities. Safeguard measures can be taken up for a maximum of 8 years, only in two cases: (1) when import can destabilize a country's balance of payment (Article XVIII); and (2) when foreign competition threatens a specific industry, due to an import surge (article XIX on temporary safeguard) or an unfair trade practices (Article VI on anti-dumping and countervailing duties), and forbids the use of voluntary export restraints. (Di Maio, 2009).

Industrial policy interventions are increasingly likely to take different forms, targeted at certain industries or firms. Japan, Korea, and some other East Asian economies in the early stage of their industrialization used strict entry restrictions, allocation of export rights to specific markets, tax incentives, custom rebates, grants,

subsidized credits, and promotion of inward FDI in selected industries such as steel, shipbuilding, and electronics. Government demands, for example, procurement and supports in defense industries also play a role. (Kim, *et al.* 1995). However, success or failures are dependent on the proper choice of instruments for these interventions, which must be guided by the strategic objectives of the country, by existing endowments, institutions, and markets, and by what is feasible given the capabilities of the government.

Hausmann, *et al.* (2008) recommend that: “Government needs to evaluate its industrial policy framework not by asking questions of the type: which tax breaks or subsidies are we using? which sectors have we identified? what is the budget we have allocated for industrial promotion? The relevant questions instead are: have we set up the institutions that engage the bureaucrats in an ongoing conversation of pertinent themes with the private sector, and do we have the capacity to respond selectively, but also quickly and using a variety of updated policies, to the economic opportunities that these conversations are helping identify?”

1.1. Potential Sectors of Myanmar

There is always a mixture of successes and failures in picking winners in industrial policies as discussed at length by the Economist magazine in its article “Global Revival of Industrial Policies”³¹ citing many examples around the world, in the aftermath of the global financial crisis in 2009. The article suggests three conditions for success. *First*, the policy must be pursued based on local or national comparative advantage. *Second*, it must follow, not lead the market. *Third*, it must target areas where the government has natural interest and competence, not to “intervene in purely private

³¹ <http://www.economist.com/node/16741043>, accessed on March 28, 2013

domains with short-term goals, bailing out old firms to save jobs or spending lavishly on white elephants”.

In order to identify potential sectors, a framework proposed by Lin (2011) is used which consists of six steps for industrial development. *First*, choose a country to follow that has a roughly similar set of resources or comparative advantages, but about double the real income per head. Then identify tradable industries that have grown for two decades. *Second*, if businesses are already active in these industries, identify constraints to further upgrading and new entry. Then act to remove them. *Third*, where no such businesses are yet active, look for FDI in these activities. *Fourth*, look for industries where domestic businesses are already successful and support scaling up: improvements in infrastructure, training, finance or support for research and development. *Fifth*, where infrastructure and business environments are poor, concentrate activities in special economic zones or industrial parks. *Sixth*, provide time-limited incentives to pioneering companies.

Following Lin’s framework, Step 1, the following sectors can be identified which had top export performance in Thailand in the last decade (Table 4-1). Out of these 40, there are 10 export-competing products from Myanmar, mainly minerals, agricultural, rubber, and precious stone products. Myanmar exports 5 main products, namely, garment and footwear, vegetable (pulses), wood and fisheries, which are not in the top 40 exporting products. To further promote these top 15 and other non-40 sectors, which are not directly competing with Thailand, Step 4 should be taken up by identifying proper policy intervention to scale up the sectors.

Table 4-1: Selected Top-40 Exporting Products of Thailand (2002-12) and Myanmar Top-15 (2010)

	Products/Industries	Thailand	Myanmar
1	89: Ships, boats and other floating structures	✓	
2	36: Explosives, pyrotechnics, matches, pyrophorics, etc	✓	
3	75: Nickel and articles thereof	✓	
4	78: Lead and articles thereof	✓	
5	15: Animal, vegetable fats and oils, cleavage products, etc	✓	
6	31: Fertilizers	✓	
7	33: Essential oils, perfumes, cosmetics, toiletries	✓	
8	80: Tin and articles thereof	✓	
9	82: Tools, implements, cutlery, etc of base metal	✓	
10	86: Railway, tramway locomotives, rolling stock, equipment	✓	
11	74: Copper and articles thereof	✓	13
12	87: Vehicles other than railway, tramway	✓	
13	34: Soaps, lubricants, waxes, candles, modelling pastes	✓	
14	30: Pharmaceutical products	✓	
15	17: Sugars and sugar confectionery	✓	14
16	28: Inorganic chemicals, precious metal compound, isotopes	✓	
17	26: Ores, slag and ash	✓	6
18	11: Milling products, malt, starches, inulin, wheat gluten	✓	
19	22: Beverages, spirits and vinegar	✓	
20	40: Rubber and articles thereof	✓	7
21	88: Aircraft, spacecraft, and parts thereof	✓	
22	35: Albuminoids, modified starches, glues, enzymes	✓	
23	29: Organic chemicals	✓	
24	56: Wadding, felt, nonwovens, yarns, twine, cordage, etc	✓	
25	45: Cork and articles of cork	✓	
26	76: Aluminium and articles thereof	✓	
27	93: Arms and ammunition, parts and accessories thereof	✓	
28	12: Oil seed, oleaginous fruits, grain, seed, fruit, etc, nes	✓	10
29	16: Meat, fish and seafood food preparations nes	✓	
30	01: Live animals	✓	15
31	18: Cocoa and cocoa preparations	✓	

32	08: Edible fruit, nuts, peel of citrus fruit, melons	√	12
33	39: Plastics and articles thereof	√	
34	19: Cereal, flour, starch, milk preparations and products	√	
35	73: Articles of iron or steel	√	
36	57: Carpets and other textile floor coverings	√	
37	71: Pearls, precious stones, metals, coins, etc	√	8
38	10: Cereals	√	11
39	27: Mineral fuels, oils, distillation products, etc	√	1
40	60: Knitted or crocheted fabric	√	
41	62: Articles of apparel, accessories, not knit or crochet		2
42	07: Edible vegetables and certain roots and tubers		3
43	44: Wood and articles of wood, wood charcoal		4
44	03: Fish, crustaceans, molluscs, aquatic invertebrates nes		5
45	64: Footwear, gaiters and the like, parts thereof		9

Source: UN COMTRADE.

In order to promote the other 30 sectors, Step 3, 4, and 5 can be used to encourage FDI, building necessary infrastructure and some other time-bound incentives for first-mover firms.

There are a number of sectors from the identified ones that are labor-intensive. Typically, these industries are relatively large employers of lower skilled labor and offer opportunities for smaller producers. They span the primary, secondary and tertiary parts of the economy. They include primary activities such as agriculture, forestry, fishing, and certain aspects of mining, clothing and textiles, CMP-based garment manufacturing, footwear, food and beverages, furniture, and basic parts and component manufacturing and assembling.

Table 4-2 shows that Myanmar relatively has labor cost advantages compared with other countries in the region.

Table 4-2: Investment Related Costs in Selected Cities

	Worker's monthly base salary (Factory worker)	Engineer's monthly base salary (Mid-level workers)	Staff's monthly base salary (Clerical staff, non-manufacturing industry)	Manager's monthly base salary (Department chief, manufacturing industry)	Manager's monthly base salary (Department chief, non-manufacturing industry)	Legal Minimum wage (monthly)	Corporate income tax rate (%)	Social security burden ratio (Employers') (%)
Dhaka	78	251	306	578	811	40	37.5	7.5
Chennai	260	646	605	1,431	1,595	105	30.0	18.4
Vientiane	118	218	167	361	445	78	28.0	5.0
Phnom Penh	80	204	266	663	1,019	80	20.0	0.8
Yangon	68	176	173	577	562	N.A.	30.0	2.5
Hanoi	111	297	369	713	947	95	25.0	22.0
Jakarta	209	414	409	995	1,448	167	25.0	9.5
Bangkok	286	641	617	1,565	1,597	136	23.0	5.0

Source: Japan External Trade Organization (JETRO) 2012.

A number of medium technology sectors in the Myanmar economy employ substantial numbers of people and have significant prospects for development. These include existing sectors such as *metals fabrication; machinery and equipment; chemicals and plastics;* as well as *oil and gas and jewelry.*

A number of these sectors represent potential for downstream processing of this mineral base. Obstacles to downstream sector development are lack of investment and technology, skills development, industry-specific infrastructure and transport requirements.

There is room for Myanmar to participate into regional production networks of *electronics* and *automotive* industries. These advanced manufacturing sectors are generally characterized by relatively high levels of skills and technology requirements. These sectors are often driven by foreign direct investors who own the proprietary knowledge and who subcontract original equipment manufacturing.

Challenges exist with respect to deepening of domestic technology linkages and building more competitive manufacturing capabilities. This is likely to require targeted support in the areas of technology development, technological infrastructure and more focused FDI promotion efforts.

1.2. Current State of SME development

In Myanmar, SMEs are considered as an important element in the national economics. SMEs play a significant role in the country's economic, social and political development. The sustainable development of the SMEs will contribute to employment creation, resources utilization, income generation and promotion of investment.

Table 4-3: Sectoral Distribution of SMIs in Myanmar

Sector/Industries	Large	Medium	Small	Total	% of Total
Food & Beverages	2,369	4,110	20,976	27,455	63.51
Construction materials	510	650	2,117	3,277	7.58
Metal and Mineral Production	315	381	1,204	1,900	4.39
Clothing & wearing apparel	341	380	1,001	1,722	3.98
Personal goods	375	410	330	1,115	2.58
Raw good production	169	240	282	691	1.60
Literature and Art	60	117	183	360	0.83
Consumer Products	144	79	97	320	0.74
Automobiles	194	40	33	267	0.62
Industrial tools and equipment production	15	49	66	130	0.30
Agriculture machinery	9	25	37	71	0.16
Electrical equipment	43	15	12	70	0.16
General	264	791	4,799	5,854	13.54
Total	4,808	7,287	31,137	43,232	
% of total	11.09	16.92	71.99		100.00

Source: Central Department of SME Development.

Myanmar's government pays special attention in developing SMEs and nurturing existing SMEs to become more competitive and innovative. After adoption of market oriented economic system, the government has promulgated necessary laws and regulations in order to enhance the industrial sector including state – owned and private enterprises and to create conductive business environment for SMEs.

Newly revised Foreign Investment Law has already been enacted in November 2012 as well as related rule and notification were also released in March 2013. However several laws including Myanmar Citizen investment, Industrial Enterprises Development and SMEs laws have been under review and will be associated with sound regulatory framework rules and regulations in order to ensure inclusive development through SMEs development.

On 9th January 2013, the notification No. 11/2013 was issued by the President's Office announcing the formation of Central Committee chaired by the President and Working Committee for Development of Small and Medium Enterprises chaired by Vice President (2). This reflects the strong intention of the Myanmar Government to formulate strategy and policy to develop the country's SMEs.

As discussed above, Myanmar is still an agricultural country, and the largest contribution to GDP is made by agriculture and resourced-based economy. This is also reflected in the distribution of SMEs by size and industries. The Table shows the concentration of SMEs in food and beverages, labor – intensive, resources-based, low skill, technology, and low capital-intensive manufacturing sectors.

SMEs in LDCs are often hampered by many constraints to growth in size and to become viable/efficient larger enterprises. The constraints may differ from region to region, between rural and urban areas, between sectors and subsectors, or between individual enterprises within a sector or subsector or a region. However, there is a

number of constraints common to all SMEs, which include the lack of fund to finance their working as well as investment capitals, human resource with high skills, advanced technologies, up-to-date and comprehensive information, difficulties in procuring raw materials and other required inputs, marketing and distribution, high transportation costs, problems caused by cumbersome and costly bureaucratic procedures, especially in getting the required licenses, and policies and regulations that generate market distortions.

Tambunan (2013) lists main constraints common to SMEs in other Asian developing countries, depending on differences in many aspects such as the level of SMEs development, the nature and the degree of economic development, public policies and facilities, and the nature and the intensity of government interventions towards SMEs.

Table 4-4: Most Important Constraints Facing SMEs in Asian Developing Countries

Country	Main Constraints									
	Raw materials	Marketing	Capital	Energy	Information	Technology & skill	Infrastructure	Tax	Inflation	Market distortions
Indonesia	✓	✓	✓	✓	✓					
Philippines		✓	✓			✓				
Viet Nam			✓			✓	✓			✓
Cambodia			✓	✓		✓				✓
Lao PDR	✓		✓					✓	✓	
Thailand	✓	✓	✓		✓	✓				
Malaysia	✓		✓		✓	✓				
Brunei		✓	✓			✓				
China	✓	✓				✓	✓			

India	✓	✓		✓	✓
Pakistan	✓	✓			✓
Bangladesh		✓	✓	✓	✓
Nepal	✓	✓		✓	✓

Source: Tambunan (2013).

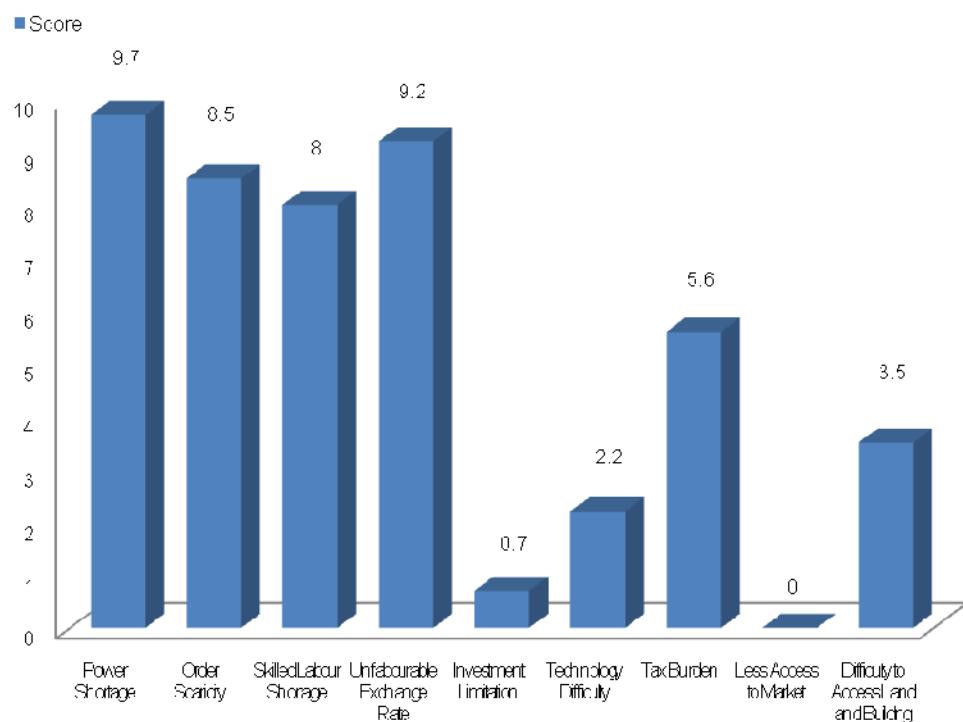
Table 4-4 shows that the constraints include various problems: (i) the procurement of raw materials and other required inputs - price instability, unsustained supply (stocks are often not available), and inferior quality; (ii) difficulties in marketing - high costs of marketing, unfair competitions and monopoly practices by MNCs, cheaper prices of imported competitive items; (iii) lack of capital; (iv) high costs of energy, particularly high prices of electricity and fuel; (v) lack of information especially in regard to market, technology, and price information; (vi) lack of modern technologies and human resource with high skills; (vii) lack of infrastructures, especially for SMEs located in rural areas; (viii) tax system and tariffs which are often in favor of large and modern businesses; (ix) high inflation; (x) market distortions caused by regulations, restrictions, legal framework, law and order, and discrimination policies in favor of MNCs; and (xi) labor issues like minimum wage regulations, social securities, and other restrictive labor market regulations.

It is apparent from the table that the most common constraints across countries in the region are: marketing, access to finance (capital), access to modern technologies and skilled workforces, and market distortions.

SMEs in Myanmar certainly face these similar problems. SMEs in Myanmar are reported to be facing high cost of energy, infrastructure, limited access and high costs of finance, the shortage of technical and professional expertise, due to their inability to attract and retain suitable talents, and past policy distortions such as the legacy of

central planning and command economy. Poor infrastructure and limited flows of technology have led to the limited utilization of ICT, low production technology and less involvement in R&D activities. They may lack awareness on the importance of adopting best business practices and quality management systems, such as financial management, marketing, and customer focused activities.

Figure 4-1: Severity of Possible Constraints in Garment Industry Development



Source: Khine Tun (2012).

Survey results (31 firms) from Khine Tun (2012) on garment industry, which is an important entry point to export-oriented SME development for Myanmar shows that the most serious constraints at present is power shortage (9.7 points of 10 (most severe constraints)) followed by unfavorable exchange rates, order scarcity, labor shortage, and tax burden. The remaining areas such as investment limitation, technology difficulty,

less access to market and difficulty to access land and building seem lesser or moderate problems.

A snapshot survey (2013) of 7 association members (from garment, textile, food processing, electric and electronics, paper, pulse and bean manufacturing firms) of Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) also confirms that high cost of energy and land, skill shortage, access to finance, technology, information, and complicated regulations are among the top constraints for the interviewed firms.

The current global trading arrangements, such as the multilateral rules of the World Trade Organization (WTO), ASEAN Free Trade Area (AFTA) and other regional and bilateral free trade agreements, pose both challenges and opportunities for Myanmar. Greater integration into the global economy provides wider opportunities for domestic SMEs to participate in the regional and world production networks. However, SMEs are less able to capitalize on market opportunities brought about by regionalization and globalization, as a result of their limited technical and financial capabilities. One of the most important long-term strategy would be to facilitate more SMEs' participation in regional production networks.

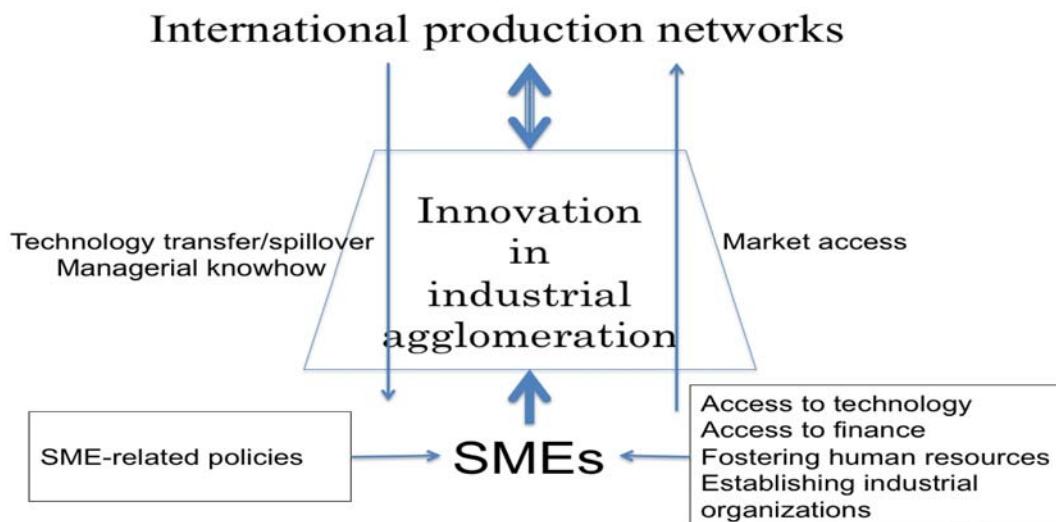
1.3. SMEs' Participation in the Regional Production Networks

Production networks in East Asia, especially in the manufacturing and machinery industries are well recognized as the most advanced in the world, in terms of their magnitude, extensiveness, sophistication, and resiliency (Kimura and Ando (2005), Kimura and Obashi (2011), and Ando and Kimura (2012)). There are various kinds of benefits for manufacturing SMEs joining the production networks, which are normally

led by multinationals (Figure 4-2). Empirical studies conducted by ERIA (Vo, *et al.*, 2010) obtained findings on the determinants and constraints for SMEs participation in regional production networks. First, *productivity, foreign ownership, financial access, innovation efforts, and managerial/entrepreneurial attitude* are key characteristics for SMEs to participate in production networks, backed up with sufficient technology capability.

Second, as for the constraints on upgrading the position of SMEs in production networks (i.e., moving up to higher quality tiers in production networks), the study indicates binding internal factors. The extent of foreign participation in the ownership of SMEs, firm size, productivity, access to finance, and the capability of SMEs in servicing their debts determines whether or not SMEs that are participating in production networks are able to move to higher quality tiers in the networks.

Figure 4-2: SMEs' Participation in Production Networks



Source: ERIA, 2012.

Deeper participation in production networks by SMEs is facilitated by a ‘matching’ process to form business partnership with larger firms, some of which are multinationals, operating in cross-border production networks. While the process can occur naturally driven by market forces, it may as well be assisted by government or other institutions with an objective to have an efficient matching process.

Successful development of production networks is a complex issue, but at least requires three interrelated conditions, namely the *presence of flagship firms*, attractive infrastructure and low service-link costs, and good cooperation between host country’s authorities, firms, and training and R&D centers.

Foreign ownership can play an important role in promoting SMEs towards higher-quality participation in production networks. Not only large foreign-invested enterprises as flagship firms, but also foreign SMEs (especially those from advanced economies) can make a significant contribution towards widening the value of regional production networks. Attracting foreign direct investment, therefore, should not focus solely on large companies, to the exclusion of small and medium firms.

Firm technological and innovation capability is another key determinant of SMEs participation in production networks upgrading the quality of their roles. This requires a good infrastructure for technological transfer, namely modern telecommunications networks, wide Internet coverage, highly qualified educational institutions, and IPRs protection. These infrastructures provide a platform on which SMEs can upgrade their technology and products to meet international standards, and in the end, sharpen their competitiveness in the market.

While reducing tariffs on parts and final products, host country should strengthen protection of IPRs, ensure security and safety, and speed up procedures for trade and

investment. Other necessary measures for countries wishing to increase FDI include the development of human capital and physical infrastructure, transparency in legal systems and their implementation, particularly of tax-related regulations, and improvement of industrial relations.

Therefore, it is vital that policies aimed at facilitating SMEs to participate in production networks are synonymous with overall objectives of upgrading technological, finance, and management capacity of SMEs to be more competitive and productive in scaling and moving up to higher value added production.

2. Strategy and Supporting Measures for SME Development in Myanmar

2.1 *Strategy for SME Development*

The strategies propose some specific activities for immediate action which are based on: (a) resource and capacity of the government; (b) urgency and crosscutting nature of the problems and solutions; and (c) international good practices³².

The following proposed strategies are arranged on these bases. They include (1) improve regulatory and institutional framework, (2) improve access to information and support services, (3) facilitate the access to finance, (4) improve technology and innovation capabilities, (5) improve access to international market, and (6) enhance human resource development.

³² Mainly based on ERIA's research and project on "ASEAN SME Policy Index", Abe *et al.* "Policy Guidebook for SME Development in Asia and the Pacific" (2012), and Malaysian Third Industrial Master Plan (IMP3) 2006 - 2020.

(1) Improve regulatory and institutional framework

Government's role in SME development is very central, as the government is responsible for constructing a solid "building block" for SMEs to facilitate its growth.

SMEs' growth emanate not only from the internal firm growth process, but also from the external condition that support them. Those external conditions include, among others, clear classification of SMEs within a country, synergy between SME development strategies across government agencies and the agency responsible to implement the strategy.

It is essential that measures are based on a common classification to improve the consistency and effectiveness of the national and regional SMEs development. The standard SME definition across government agencies will make sure that the implementation of SMEs support measures become effective and efficient. Moreover, a common SME definition applied in a country promotes a synergy between SME development strategies across relevant government agencies. The formulation and establishment of a cohesive policy, regulatory and institutional framework, as well as the creation of a conducive business environment, are important in enhancing the performance and contribution of SMEs.

It is important to note that for the SMEs to thrive, they require good rules; rules that establish and clarify property rights and reduce the cost of resolving disputes and rules that increase the predictability of economic interactions and provide contractual partners with certainty and protection against abuse. In general, a set of law and regulations affecting general business and SMEs include: business registration, licensing, labor regulation, property registration, credit regulation, corporate governance, tax administration, trade and investment, contract enforcement, dispute settlement, production and environment standards, competition, procurement and public

governance.

Improvements in the registration process will most likely increase company creation. By formalizing its business, private sector can reap the benefits of having access to business services, finance or government procurement, thus increasing the chances for productivity improvements. Improved business registration procedures can help improve overall business environment for the private sectors and raise the standard of government services.

After an enterprise is formalized, it will face various regulatory burdens. These burdens affect SMEs disproportionately because the capacity of SMEs to tackle, understand and comply with complex regulation is limited. Simplifying the regulation and making it more transparent is integral to the development of SMEs as it supports entrepreneurship and market entry.

Although laws and regulations exist and there are several agencies involved in SME-related programmers in different functional areas, directed at specific target groups. However, inadequate specialized talents and technical expertise of the government agencies concerned in providing advisory services, limit the effectiveness and outreach of some of these programs. Therefore, priority measures should be given to:

- **Create a regulatory and business-friendly environment for SMEs** by: (i) providing for relative ease of entry and exit of small firms, particularly for new start-up; (ii) streamlining bureaucratic rules and procedures (including online services); (iii) assessing the costs and benefits of specific regulations and eradicating the hurdles, designing a fair and transparent legal and regulatory regime for SMEs, (iv) simplifying import-export procedures by paying adequate attention to trade facilitation measures.
- **Promoting greater inter-agency coordination** to make development programs on SMEs more effective through complementarities of efforts and sharing of

knowledge. Priority should be given to formulate and implement SME development policy and strategy.

- **Strengthening the role of the Central Committee and Working Committee for Development of Small and Medium Enterprises** to include coordinating functions between national and state governments, as well as regional authorities, with a dedicated leading and coordination agency or secretariat.
- **Institutionalizing the collaboration between the government, entrepreneurs, industry associations, researchers, academia, financiers and venture capitalists.** This will be an avenue for policy discourse, and technical and advisory consultations, trouble shooting, including financial requirements, to mobilize resources and synergies for the overall development and growth of SMEs.
- **Adopting performance appraisal and monitoring mechanisms**, as well as enhancing the advisory capacity of the implementing government agencies, to improve the efficiency of the delivery and outreach of the support programs for SMEs.

(2) Improve Access to Information and Support Services

It is known that lack of information hamper SMEs' identification of other resource factors. The lack of information can be either because SMEs do not have the tools to gain the information they need, or there are only limited information providers. In most countries SMEs suffer from inadequacies in the provision of business information that is available only from stand-alone institutions, is often slow and cumbersome to access, is limited in scope, and is not provided in an integrated manner.

Moreover, SMEs need capacity-building support to enhance the performance of an individual business, increase access to markets, and improve their competitiveness and profitability. The business development services (BDS) include a wide range of non-financial support services.

- **Establish one-stop-shop information and service centers and improve SME**

Portal as information entry-point and make it more user friendly and interactive, including the possibility for companies to make online communication on rules and procedures. Information relevant to SMEs is about business related aspects such as market opportunities, sources of materials, taxation, price development, relevant standards and specifications, international best practices, related legal requirements and procedures, training opportunities, trade fairs, exhibitions etc.

- **Develop a public-private partnerships framework for BDS**, with personalized services and quality assurance for SMEs, such as: training, counseling and advice, technology development and transfer, information, business linkage and networking, and alternative financing mechanisms as well as business incubation.

There is a tendency that governments act more as a facilitator rather than as a provider. BDS represents a prime opportunity for public-private partnerships, as the private sector is generally the repository of the expertise that SMEs need. Incentives should be given to private providers of business development services (BDS).

In the early stage of development, resources and technical supports from donors can be used with a clear phase out plan. More emphasis should be put on information provision, business advisory and training e.g. management, business plan, book keeping and accounting, financial literacy and network promotion. With more experiences, capacity, and resources, the government can then provide other costly supports in technological upgrading and incubating services.

(3) Facilitate the Access to Finance

The opportunity to access small amounts of finance can be an important catalyst for small businesses to get access to the resources they need to gain a foothold in the market. This is particularly critical for micro-enterprises. Many SMEs lack awareness of financing resources and programs available from commercial banks and other private

sector and government sources, and have difficulty defining and articulating their financing needs.

ERIA's research project on SMEs Access to Finance (Harvie, *et al.*, 2011) provides practical insights on SMEs access to finance. *First*, although a significant number of SMEs still rely on their internal resources for start-up and business expansion, external finance is important for aspiring smaller domestically owned companies in less developed economies. Moreover, the size of these firms and the stage of the country's development (reflecting the financial market conditions) also affect the diversity of choices of financial institutions and financial products that SMEs can get access.

Second, there is potential for credit rationing or high risk premiums, exercised by the financial institutions for SMEs. Firm size and the stage of country development (financial market development) do affect the conditions of external finance offered to SMEs, i.e., larger SMEs in more developed economies tend to get bigger loans, with longer terms, and at a lower interest rate than otherwise.

Third, the results suggest that the owners' net worth, collateral, business plan, financial statement, and cash flow are critical for financial institutions in devising the financial conditions they extend to SMEs. In other words, financial institutions seem to assign higher risk premium on opaque SMEs by offering less favorable financial conditions.

Most importantly, the results suggests that financial access has a significant impact on SMEs' innovation capability and participation in the export market. SMEs with access to larger loans with longer terms and at a lower interest rate are more capable of conducting innovation and exporting activity, since these external finances with favorable conditions would provide SMEs enough time and resources to innovate and enter foreign markets.

Therefore, some of the best practices that should be considered by Myanmar are as below:

- **Develop regulatory framework to deepen financial sector and diversify financial products.** Policy measures are required to deepen and broaden financial markets with the aim of encouraging greater competition in terms of financial resource providers (more non-bank institutions such as venture capitals, equity funds) reducing the cost of borrowing, and stimulating greater provision of finance that will enhance the provision of diversified products and services more in line with meeting the needs of the SMEs. Adequate attention should also be given to the provisions of creditors' rights by introducing a suitable set of laws that protect lenders from non-payment.
- **Promote less collateral-based lending system by introducing credit guarantee schemes, credit ratings, credit information, and collateral registry systems.** These mechanisms are important to broaden base of collaterals such as account receivables, movable assets (machinery and automobiles) etc., since very often SMEs have limited assets to be used as collaterals required by most commercial banks. A more developed system would gradually build confidence towards a collateral free lending practice.
- **Promote alternative sources of risk capital finance to innovative SMEs.** The establishment of capital market will complement traditional sources of funding for SMEs. Innovative financing instruments should be introduced for knowledge-intensive as well as technology-intensive start-up enterprises, using intangible collaterals, such as ideas, knowledge and expertise as their principal assets to source funds from the capital market.

SMEs should be encouraged to utilize alternative sources of financing, including equity financing and venture capital, as well as other financial instruments (leasing, factoring). Therefore, the creation of more angel investors, venture capitals and equity funds should be encouraged. Moreover, collaboration between research institutes, business incubators, entrepreneurs and venture capitalists should be strengthened to create wider networking and funding opportunities.

- **Provide capacity-building to financial institutions and financial literacy to SMEs.** Normally, banks tend to charge SMEs higher interest rates and demand collateral due to the lack of transparency and creditworthiness of SMEs. SMEs should be encouraged to seek BDS providers, including various business associations such as chambers of commerce and federations of industries, and to work with banks to build their capacity in basic financial management and book keeping, and to encourage more financial institutions to develop innovative financial products suitable to SMEs, such as mobile finance.

In the absence of credit ratings and credit information system, BDS providers can be a reference points for financial institutions to identify potential clients, ascertaining their creditworthiness, imparting professional financial and accounting techniques and other services. This complementary nature between BDS providers and financial services helps to minimize both the risk and transaction costs to creditors and investors, and makes access to credit and equity less costly and cumbersome for SMEs.

(4) Improve Technology and Innovation Capabilities

One major obstacle that prevents firms from doing innovations and building up absorptive capacity (information, finance, human resources) is their perception of the costs and risks being too high (Intarakumnerd and Ueki, 2010). Another obstacle for innovation is the lack of technological facilities like testing, quality assurance, and calibration centers. These facilities require a lot of investment, and market mechanism alone may not provide them sufficiently.

Strengthening the ‘absorptive capacity’ of local firms is a key success factor in gaining benefits both from within- and across-agglomeration linkages. Governments can help firms mitigate this obstacle through several policy options, ranging from tax incentives to technical support for the provision of technical infrastructure (e.g., internet broadband, science and technology parks).

The improvement of innovation capability of local firms in the region depends on how successfully they have leveraged their internal and external resources. Firms have

improved their innovation capabilities through the university-industry linkages locally available to them. The external resources from universities, public research institutes, industrial associations, governmental and private-sector intermediaries and others can help local firms develop innovative capabilities, through a variety of technology transfer and knowledge sharing activities.

The focus on technology dissemination should require policy governance on at least training, standards testing and certification, and technology transfer instruments. The first is important to offer SMEs the institutional framework to seek training. The second is critical for SMEs to solve collective action problems on having their products and services certified to especially penetrate export markets. The third is the cornerstone of technology transfer from foreign to local firms.

To ensure that the ‘rules of game’ facing firms are fair, legal statutes must be enacted and strengthened to protect intellectual property and develop national innovation systems to ensure that it acts as an inducement rather than a deterrent in both the development and dissemination of new technology.

In line with global trends and technological advancements, growth in future businesses will be mainly driven by technology and innovation. The emergences of new technologies and products, as well as the introduction of advanced applications and processes in the markets, have influenced ways of doing business. For SMEs to be able to respond to this development, measures should include:

- **Conform to standards and quality regulations.** SMEs should be encouraged to conform to standards and quality regulations to demonstrate their technological ability and product quality. Conformance to standards and certification is essential for SMEs to build trust and sustain both domestic and export market shares. Moreover, adoption of quality management systems should be promoted, not only to provide assurance to consumers, but also the competitive advantage to SMEs. The government should accelerate the formulation and adoption of standards for

products, establish and strengthen standards and certification, quality testing and accreditation centers, in line with international standards. Measures and incentives such as capacity building for quality management system, easy access and reasonable cost to testing facilities are required to facilitate SMEs in conforming to the required standards and regulations.

- **Promote adoption and application of advanced technologies.** The adoption and application of advanced technologies, including ICT, will contribute towards the creation of SMEs which are competitive and able to respond in a timely manner to market demands and changes. Government, in collaboration with technology-based institutions, should maintain database on technology and provide information and advice on best prospects for technology commercialization for SMEs. The role of incubation centers, run by both public and private research institutions, to support the development of start-up companies should also be strengthened. Incentives can be important to encourage SMEs to access training and skill upgrading, to commercialize potentially viable R&D results, and to buy or license technologies or intellectual properties, by providing financial incentives, such as grants, loans and tax breaks. However, stringent vetting, monitoring and appraisal ex post are critical to ensure that the implicit subsidies these rents create are not dissipated.
- **Closer collaboration with MNCs, specialized government research institutes and universities, SME support organizations and financial institutions to promote R&D activities.** To overcome resource constraints faced by SMEs in undertaking R&D activities, closer and proactive collaboration between SMEs and research institutes and universities should be undertaken to take advantage of opportunities arising from the dissemination and commercialization of research findings on technologies and products. Measures towards more effective collaboration include: making R&D programs of these research institutes and universities more market-driven to meet specific needs of SMEs, with emphasis on innovation; and upgrading resource and institutional capacities of these research institutes and universities to enable the provision of more effective advisory services and the commercialization of more research findings. Specific programs (matching) should be implemented to nurture local SMEs as R&D partners to tap the opportunities of R&D outsourcing by MNCs. Measures should also be undertaken to encourage collaborative ventures among MNCs and SMEs to facilitate technology transfers and skills development. Building networking between financial, R&D institutions, international agencies, MNCs as well as SME support

organizations, and government departments is also important to forge links with MNCs, between and among SMEs, to mobilize and effectively utilize resources in promoting exchanges in information and knowledge, and joint efforts in large scale R&D activities.

(5) Improve access to international market

In efforts to gain access to export markets, SMEs face challenges to produce quality products, at competitive prices, as well as meeting delivery schedules. Increasing costs of production and freight charges, as well as the need to overcome non-tariff barriers, also exert pressures on SMEs wanting to export. Greater coordination among relevant agencies will further strengthen the implementation and improve the effectiveness of market development programs. Programs on capacity building, especially in marketing skills, need to be further strengthened to enable SMEs to expand and diversify their market coverage.

Exporting SMEs in most countries suggest that poor knowledge of potential markets hinders their export activities. Marketing knowledge is dependent on the relevance and depth of marketing information available to the firm. Firms that use relevant, accurate and timely information are in a better position to respond to export problems. Information about exporting and more specifically market information were mentioned as the most serious problem of manufacturing firms, especially SMEs.

- **Access to market intelligence and export promotion services.** The basic support from the government is to provide advice and high value information of the international market such as product features, prices, buyers, distributors, relevant standards and specifications, international best practices, preferential treatments, standard, and related legal requirements and procedures. Marketing support should include: market information, marketing research, brand promotion, bid intervention, facilitating participation in trade fairs and exhibitions, strengthening of marketing channels and distribution, organizing buyer-seller matching, logistics systems, preparation of publicity literature, assessing creditworthiness of importers, business

matching, and providing marketing outlet and consortia formation. SMEs should be encouraged to gather market intelligence to facilitate entry into new markets through undertaking specific market studies by themselves or accessing secondary sources of information. This will, among others, enhance their awareness on new and emerging aspects of business operations and practices, such as innovation, advertising and the changing medium of communication, to strengthen local brands and build market share.

- **Provide capacity building for potential exporting SMEs.** To compete effectively in the international market, SMEs should be encouraged to equip themselves with knowledge and skills in areas such as financial management and marketing. These skills will enable SMEs to respond to new market trends and requirements of the different market segments, leverage upon their core competencies to create and develop market niches. To improve SMEs' marketing capacity, training modules should focus on areas such as negotiation skills, product planning, merchandising, pricing, brand building and consumer behavior, logistic management to enable SMEs to keep pace with new market trends and requirements. Moreover, it is important to train SMEs to develop best business and management practices, such as supply chain management, customer relationship management and enterprise resource planning, to gain competitive edge. They should also be encouraged to benchmark against their peers and competitors to improve performance. Training programs should be designed, in collaboration with industry associations and chambers of commerce, to encourage the participation of SMEs in benchmarking programs, in exploring their export potentials.
- **Financial facilities for SMEs to export.** It is particularly important given the bank-dominated financial systems that constrain available financing for new ventures by small firms. Therefore, policy initiatives can play an important role in providing access to financing for internationalization either directly (e.g. export finance programs), or by reducing the perceived risks of commercial lenders and investors. In this context, familiarizing SME managers with different forms of export-related financing is particularly important (e.g. letters of credit, factoring, leasing, trade insurance).
- **Promote inter-firm linkages and clusters.** Increased outsourcing and off-shoring activities by large firms and MNCs provide opportunities for the greater participation of SMEs in the global market. Inter-firm linkages among SMEs and

between SMEs and large corporations, as well as MNCs, should be intensified and strengthened to enable SMEs to become reliable and competitive suppliers. Enterprise clusters, networks and alliances can play a particularly important role supporting the internationalization of SMEs. Policy initiatives can support strengthening business and industry associations essential for the formation and operations of enterprise clusters; and facilitate the participation of both small and large firms in enterprise clusters and networks, including helping to initiate horizontal and vertical collaboration in various forms.

- **Enhancing the role of industry associations in facilitating market access for SMEs.** Industry associations should be encouraged to assume a more proactive role in facilitating market access for their members among the SMEs. This includes undertaking bulk breaking of imported raw materials and components, and the provision of common facilities, such as warehousing and cold-room and testing facilities. Assistance should be provided to industry associations which undertake these activities. In addition, industry associations should be encouraged to establish a specialized training entity to provide relevant and requisite training, specifically in the areas of technology adoption and resource management. This effort will further support and improve the business efficiency and operational, exporting capabilities of SMEs.

(6) Enhance human resource development

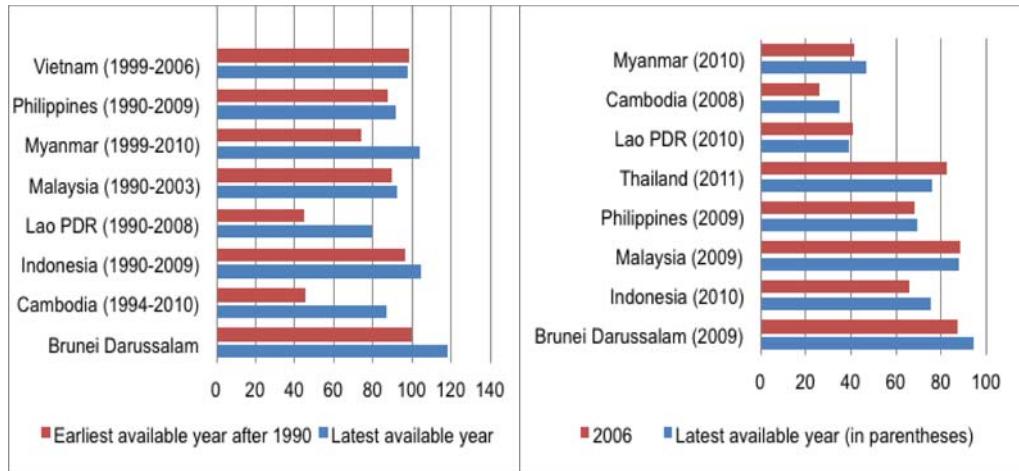
Like other developing countries, Myanmar is facing many challenges in human resource development. There is existence of labor market skill demand-supply mismatches, weak link between vocational skill training and industry, skills standards and certification system, shortage of qualified vocational instructors, effective legal framework for skill development system, strategy for training need analysis, and curriculum development and vocational training system.

It has been widely recognized that the principal method of attaining industrialization must be internalization of skills and technology embodied in the human capital of domestic citizens.

Upgrading the quality of education and guaranteeing opportunities for getting

access to good quality education by everybody are essential. Figures 4-3 presents the completion rate of primary education and the graduation rate of lower secondary education in Myanmar and other ASEAN member states (AMSSs).

**Figure 4-3: Primary (left) and Lower secondary (right) graduation rate in ASEAN
(% of relevant group age)**



Notes: There is no couple of years such as values are available for all the countries for both years, hence different years are compared. No data available for Singapore. Only one value available for Thailand (87.6% for 1999). It represents the number of graduates regardless of age in all primary education programs expressed as a percentage of the population at the theoretical graduation age for primary education. Figures can exceed 100% when the system allows for skipping grades or repeating years.

Source: World Bank - World Development Indicators (WDI), themselves from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.

The figure shows significant improvements in the completion rates in the primary school in Myanmar as compared to Cambodia and Lao. However, there remains significant space for improving basic education participation and performance in Myanmar.

Table 4-5: The Quality of Education System in ASEAN Member States and Other Selected Countries in 2012

Country	quality of primary education system	quality of the higher education system	Quality of math and science education	quality of management schools	internet access in school	availability of research and training services	extent of staff training
Brunei	5.1	4.7	4.9	4.3	5.3	3.5	4.1
Cambodia	3.4	3.9	3.7	3.8	3.8	4	3.9
Indonesia	4.1	4.1	4.4	4.2	4.5	4.3	4.3
Malaysia	4.9	5.1	5	5	5.1	5.4	5.2
Philippines	3.5	4.1	3.6	4.7	4.1	4.3	4.6
Singapore	6.1	5.8	6.3	5.7	6.3	5.4	5.3
Thailand	3.5	3.5	4.1	4.3	4.3	4.2	4.2
Vietnam	3.5	3.6	4.1	3.2	5	3.1	3.3
Brazil	2.5	3	2.6	4.4	3.7	4.8	4.4
China	4.5	3.9	4.6	4.2	5.4	4.4	4.2
India	3.5	4.4	4.7	4.9	4	4.3	4.1
Mexico	2.8	3.2	2.8	4.4	3.8	4.6	4
South Korea	5.5	4.1	5.5	4.7	6.2	4.8	4.3

Notes: values are on a 1-to-7 scale, with 7 being the most desirable outcome

Source: Schwab (2012).

Investment in human capital and ensuring the effective utilization of human talent are central to avoiding or moving out of a middle-income trap.

Table 4-5 presents other indicators of the quality of education especially at the higher education level. It is worth noting that the two countries in the sample that have avoided the middle income trap; i.e., Singapore and South Korea, have much better indicators of quality of primary education and higher education than the other AMSSs. The table also suggests that CLMV countries have a lot of work to do to substantially improve the quality of education. Other AMSSs stand in the middle with Malaysia at quality indicators closer to countries like South Korea. It is worth noting the low quality indicators for primary education in both Brazil and Mexico, which have experienced the middle income trap for a relatively long period of time.

ASEAN has depended heavily on multinationals for R&D resources. Indeed, the

ratio of R&D expenditure to GDP in ASEAN (except Singapore) has been extremely low (Table 4-6). More serious attention should be given to raise R&D capacity in the region. Effective technology transfer and adaptation involves investment in R & D itself.

Table 4-6: Research and development expenditure (% of GDP) in ASEAN

Indonesia (2001)	Malaysia (2002)	Singapore (2002)	Thailand (2002)	Philippines (2002)	Brunei D. (2002)	Cambodia (2002)	Lao PDR (2002)	Myanmar (2002)	Vietnam (2002)
0.048	0.653	2.153	0.244	0.146	0.016	0.0450	0.036	0.162	0.193

Notes: Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.

Source: World Bank - World Development Indicators (WDI), themselves from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.

Developing human resources is vital in driving growth through technology and innovation, as well as enabling SMEs to move up the value chain. To bridge the gaps in the human resource development of SMEs, existing programs on skills upgrading and the acquisition of core competencies and specialized knowledge should be continued and enhanced. Training modules for SMEs should be re-oriented to reflect changing market requirements and technology advancements to create the supply of skilled and knowledge workers, both in technical and managerial fields.

Enhancing labor productivity through education, training, and technological development can both raise living standard and facilitate international competitiveness, as similar labor-intensive exporting economies may have lower wages. When the country starts to diversify its production base and exports, a broader range of industrial and commercial skills are required.

- **Enhance the institutional capacity for human resource management, planning and development.** Establish mechanism for communication and coordination

among government agencies involved in skills development and national human resource development, especially in integrated, multi-sectoral economic planning and forecasts, labor market surveys and data collection, to ensure skill matching, enhance employability and productivity of workforces. Tripartite mechanism (employers (industry, business associations), public institutions, employees (unions)) should be established and strengthened to address human development issues such as job re-creation, skills training and upgrading of the workforce, promotion of fair employment practices, a flexible wage system, and ensure stability of the labor market (avoid skill shortages, brain drain, and destructive turnovers of skilled labor, etc.).

- **Enhance the capacity of public sector institutions of training and higher learning to provide pre-employment training for school leavers and during employment training of the workforce.** There is a need to establish accreditation system, skill standards and national qualification framework to ensure quality assurance of the training institutions. Routine actions should be taken to review curricula, to invest in building necessary facility and equipments, and to build and upgrade capacity of teaching staffs in scientific, technological and business orientation programs.
- **Promote entrepreneurship and skills upgrading.** In order to nurture a vibrant entrepreneurial and innovative community, entrepreneur related programs should be incorporated at secondary school and tertiary levels, and promotes creativity and innovation among students at an early stage. This will develop and enhance innovative and entrepreneurial talents. Creating awareness and acquiring such capabilities will facilitate the change in mindsets, as well as inculcate positive business values and discipline. Entrepreneurship programs, including advisory and outreach services, should be expanded to equip SMEs with new and improved management and business practices and methods in production, quality improvement, marketing and distribution to raise productivity, efficiency and profitability, as well as commercialize and market innovative ideas. Young students should be encouraged to enter into businesses by providing start-up facilities and incentives, such as start-up grants, business incubating centers, networks of angel investors, venture capitalists, and equity funds. Funds should be established and mobilized for skill development (similar to Singapore's Skill Development Fund, contributed by employers) to provide grants to companies that send their workers for on-the-job training and other skill upgrading, life-long learning schemes.

- **Strengthen collaboration in HRD among the industry, public and private sector organizations and the academia.** Business-to-university cooperation can be in various forms: building training facilities and state-of-the-art equipments (for example – Penang Skills Development Centre), business managers/engineers to teach at universities; business sector to involve in research, piloting and development of curriculum, business sector cooperates in student projects, hosts interns and university staff placements. University-to-business cooperation can be undertaken by academic staff getting directly involved in business activities. Universities are provided with resources to invest in businesses, sell patents and technology licensing, customized education and training services to businesses, undertake applied research, and provide support structures (e.g., technology incubators, technology transfer centers, centers for entrepreneurship). Incentives should also be given to foreign investors to collaborate with the government in establishing in-house training centers and promote skills and technology transfers from MNCs to SMEs.
- **Supply a critical mass of local experts in scientific and engineering fields to meet future R&D requirements.** In the short run, in order to fill the immediate skill gaps, the government should encourage Myanmar Diasporas abroad with high knowledge and skills to return, and encourage foreign experts and professionals to work in the country through simplification of immigration procedures. In the long run, measures to promote enrollments in science and engineering require investment in R&D, increase in public expenditure targeted to the education of scientists and engineers. Incentives should be properly provided to attract and retain human resources with specialized skills and to support the best talents in the education system.

2.2 Supporting Measures for SME Development

In order to accomplish the strategy, implementation measures need to be listed with appropriate timeframe. Some measures can be achieved within short period of time but some need to take time. In this regard, Table 4-7 recommends relevant supporting measures to be carried out in different period of time: short-term to 2015, medium-term from 2015 to 2020 and long-term from 2020 to 2030.

Table 4-7: Matrix of Supporting Measures for SME Development

Policy measures	Short (2013 – 2015)	Medium (2015-2020)	Long-term (2020 – 2030)
(A) Improve Regulatory and Institutional Framework			
<i>Create a regulatory and business-friendly environment for SMEs</i>	<ul style="list-style-type: none"> • Designing a fair and transparent legal and regulatory regime for SMEs • Providing for relative ease of entry and exit of small firms, particularly for new start-up • Simplifying import-export procedures by paying adequate attention to trade facilitation measures 	<ul style="list-style-type: none"> • Assessing the costs and benefits of specific regulations and eradicating the hurdles • Streamlining bureaucratic rules and procedures • Providing online and one-stop-shop (OSS) services to SMEs (registration, tax, pension, procurement etc.) 	<ul style="list-style-type: none"> • Provide interactive online services to SMEs • Aiming for top-20 ranking for ‘Ease of Doing Business’
<i>Promoting greater inter-agency coordination, and Strengthening the role of the Central Committee and Working Committee for Development of Small and Medium Enterprises</i>	<ul style="list-style-type: none"> • Establish or designate a dedicated leading and coordination agency or secretariat to formulate and systematic implementation of SME development policy and strategy. • Ensure sufficient resources (both human and finance) for implementing agencies to undertake reforms and execute specific plan of actions with key performance indicators and targets • Strengthen coordinating functions between national and state governments, as well as regional authorities. 		
<i>Institutionalizing the collaboration between the government, entrepreneurs, industry associations, researchers,</i>	<ul style="list-style-type: none"> • Develop framework for consultation process and forum for policy discourse, and technical and advisory consultations, trouble shooting, including financial requirements, to mobilize resources and synergies for the overall development and growth of SMEs. 		

<i>academia, financiers and venture capitalists.</i>	
<i>Adopting performance appraisal and monitoring mechanisms</i>	<ul style="list-style-type: none"> Establish regular reporting, auditing, and independent evaluation and monitoring system for implementing government agencies, to improve the efficiency of the delivery and outreach of the support programs for SMEs.
(B) Improve Access to Information and Support Services	
<i>Establish one-stop-shop information and service centers and improve SME Portal</i>	<ul style="list-style-type: none"> Promote usage and access to national SME Portal Establish one-stop-shop (OSS) information and service centers at least in main regions Strengthen capacity and improve services quality of OSSs Rollover OSSs nationwide Establish OSSs as “Centres of Excellence”
<i>Develop a public-private partnerships framework for business development services (BDS)</i>	<ul style="list-style-type: none"> Develop public-private partnerships framework for BDS Mobilize resources and technical supports from donors for BDS with a clear phase out plan. Provide basic BDS services such as information, business advisory and training e.g. management, business plan, book keeping and accounting, financial literacy and network promotion Provide incentives and supports to private providers of BDS Provide supports in technological upgrading and incubating services, and specific financial services Establish comprehensive, self-sustained and high quality BDS
(C) Facilitate the Access to Finance	
<i>Develop regulatory</i>	<ul style="list-style-type: none"> Deepen and broaden financial markets with Encourage more financial products such Well developed financial markets with

<i>framework to deepen financial sector and diversify financial products.</i>	the aim of encouraging greater competition in terms of financial resource providers (more non-bank institutions such as microfinance, venture capitals, equity funds)	as equity financing and venture capital, as well as other financial instruments (leasing, factoring).	diversified financial products
<i>Promote less collateral-based lending system by introducing credit guarantee schemes, credit ratings, credit information, and collateral registry systems.</i>	<ul style="list-style-type: none"> • Broaden base of collaterals such as account receivables, movable assets (machinery and automobiles) etc., • Introducing a suitable set of laws that protect lenders from non-payment. • Develop cadastre and collateral registry system 	<ul style="list-style-type: none"> • Introduce credit guarantee schemes, credit ratings and credit information system 	<ul style="list-style-type: none"> • Intangible collaterals, such as ideas, knowledge and expertise can be used as principal assets to source funds
<i>Promote alternative sources of risk capital finance to innovative SMEs.</i>	<ul style="list-style-type: none"> • Establish capital market – stock market • Promote the creation of more angel investors, venture capitals and equity funds • Promote financing collaboration between research institutes, business incubators, entrepreneurs and venture capitalists 		
<i>Provide capacity-building to financial institutions and financial literacy to SMEs</i>	<ul style="list-style-type: none"> • Build SMEs capacity in basic financial management and book keeping as part of BDS • Encourage more financial institutions to develop innovative financial products suitable to SMEs, such as mobile finance. 		
(D) Improve Technology and Innovation Capabilities			
<i>Conform to standards and quality regulations.</i>	<ul style="list-style-type: none"> • Accelerate the formulation and adoption of standards for products • Establish and strengthen standards and certification, quality testing and accreditation centers, in line with international standards. • Adopt and give incentives such as capacity building for quality management 		

	<p>system</p> <ul style="list-style-type: none"> • Easy access and reasonable cost to testing facilities are required to facilitate SMEs in conforming to the required standards and regulations.
<i>Promote adoption and application of advanced technologies.</i>	<ul style="list-style-type: none"> • Establish strategic plan and innovation policy • Establish national innovation system • Maintain database on technology and provide information and advice on best prospects for technology commercialization • Strengthen technological incubation centers • Supports SMEs to access to training and skill upgrading, to commercialize potentially viable R&D results, and to buy or license technologies or intellectual properties with stringent vetting, monitoring and appraisal
<i>Closer collaboration with MNCs, specialized government research institutes and universities, SME support organizations and financial institutions to promote R&D activities.</i>	<ul style="list-style-type: none"> • Measures towards more effective collaboration include: making R&D programs of research institutes and universities more market-driven to meet specific needs of SMEs • Upgrading resource and institutional capacities of research institutes and universities to enable the provision of more effective advisory services and the commercialization of more research findings. • Specific programs (matching) should be implemented to nurture local SMEs as R&D partners to tap the opportunities of R&D outsourcing by MNCs. • Encourage collaborative ventures among MNCs and SMEs to facilitate technology transfers and skills development. • Building networking between financial, R&D institutions, international agencies, MNCs as well as SME support organizations, and government departments to mobilize and effective utilize resources in promoting exchanges in information and knowledge, and joint efforts in large scale R&D activities.
(E) Improve access to international market	
<i>Access to market intelligence and export promotion services</i>	<ul style="list-style-type: none"> • Provide advice and high value information of the international market such as product features, prices, buyers, distributors, relevant standards and specifications, international best practices, preferential treatments, standard, and related legal requirements and procedures. • Enhance awareness on new and emerging aspects of business operations and practices, such as innovation, advertising and the changing medium of communication, to strengthen local brands and build market share. • Provide supports for market information, marketing research, brand promotion, bid intervention, facilitating participation in trade fairs and exhibitions, strengthening of marketing channels and distribution, organizing buyer-seller

	matching, logistics systems, preparation of publicity literature, assessing creditworthiness of importers, business matching, and providing marketing outlet and consortia formation.
<i>Provide capacity-building for potential exporting SMEs.</i>	<ul style="list-style-type: none"> • Provide training to improve knowledge and skills in areas such as financial management and marketing to create and develop market niches. • Improve SMEs' marketing capacity focus on areas such as negotiation skills, product planning, merchandising, pricing, brand building and logistics management • Develop best business and management practices, such as supply chain management, customer relationship management and enterprise resource planning, to gain competitive edge.
<i>Financial facilities for SMEs to export</i>	<ul style="list-style-type: none"> • Providing access to financing for internationalization either directly (e.g. export finance programs), or by reducing the perceived risks of commercial lenders and investors (export guarantee etc.) • Familiarizing SME managers with different forms of export-related financing is particularly important (e.g. letters of credit, factoring, leasing, trade insurance)
<i>Promote inter-firm linkages and clusters.</i>	<ul style="list-style-type: none"> • Promote inter-firm linkages among SMEs and between SMEs and large corporations, as well as MNCs, and make SMEs to become reliable and competitive suppliers. • Strengthening business and industry associations essential for the formation and operations of enterprise clusters • Facilitate the participation of both small and large firms in enterprise clusters and networks, including helping to initiate horizontal and vertical collaboration in various forms.
<i>Enhancing the role of industry associations in facilitating market access for SMEs.</i>	<ul style="list-style-type: none"> • Support industry associations to undertake bulk breaking of imported raw materials and components, and the provision of common facilities, such as warehousing and cold-room and testing facilities. • Support industry associations to establish a specialized training entity to provide relevant and requisite training, specifically in the areas of technology adoption and resource management to improve the business efficiency and operational, exporting capabilities of SMEs.
(F) Enhance human resource development	
<i>Enhance the institutional capacity for human resource management,</i>	<ul style="list-style-type: none"> • Establish mechanism for communication and coordination among government agencies involved in skills development and national human resource development, especially in integrated, multi-sectoral economic planning and forecasts, labor market surveys and data collection, to ensure skill matching, enhance employability and productivity of workforces.

<i>planning and development.</i>	<ul style="list-style-type: none"> Establish tripartite mechanism (employers (industry, business associations), public institutions, employees (unions)) to address human development issues such as job re-creation, skills training and upgrading of the workforce, promotion of fair employment practices, a flexible wage system, and ensure stability of the labor market (avoid skill shortages, brain drain, and destructive turnovers of skilled labor, etc.).
<i>Enhance the capacity of public sector institutions of training and higher learning</i>	<ul style="list-style-type: none"> Establish accreditation system, skill standards and national qualification framework to ensure quality assurance of the training institutions. Routine review curricula and invest in building necessary facility and equipments, and to build and upgrade capacity of teaching staffs in scientific, technological and business orientation programs. Provide equitable access to pre-employment training for school leavers and during employment training of the workforce.
<i>Promote entrepreneurship and skills upgrading.</i>	<ul style="list-style-type: none"> Incorporate entrepreneur related programs at secondary school and tertiary levels, and promotes creativity and innovation among students at an early stage. Establish entrepreneurship programs, including advisory and outreach services, should be expanded to equip SMEs with new and improved management and business practices and methods in production, quality improvement, marketing and distribution to raise productivity, efficiency and profitability, as well as commercialize and market innovative ideas. Encourage young students to enter into businesses by providing start-up facilities and incentives, such as start-up grants, business incubating centers, networks of angel investors, venture capitalists, and equity funds. Establish and mobilize fund for skill development (similar to Singapore's Skill Development Fund, contribute by employers) to provide grants to companies that send their workers for on-the-job training and other skill upgrading, life-long learning schemes.
<i>Strengthen collaboration in HRD among the industry, public and private sector organizations and the academia.</i>	<ul style="list-style-type: none"> Promote business-to-university cooperation: building training facilities and state-of-the-art equipments (for example – Penang Skills Development Centre), business managers/engineers to teach at universities; business sector to involve in research, piloting and development of curriculum, business sector cooperates in student projects, hosts interns and university staff placements. University-to-business cooperation: academic staff directly involved in business activities, universities invest in businesses, sell patents and technology licensing, customized education and training services to businesses, undertake applied research, and provide support structures (e.g., technology incubators, technology

	<p>transfer centers, centers for entrepreneurship).</p> <ul style="list-style-type: none"> • Incentives to (foreign) investors to collaborate with the government in establishing in-house training centers and promote skills and technology transfers from MNCs to SMEs.
<i>Supply a critical mass of local experts in scientific and engineering fields to meet future R&D requirements.</i>	<ul style="list-style-type: none"> • Encourage Myanmar diasporas abroad with high knowledge and skills to return • Encourage foreign experts and professionals to work in the country through simplification of immigration procedures. • Promote enrolments in science and engineering, • Invest more in R&D and increase in public expenditure targeted to the education of scientists and engineers • Provide incentives to attract and retain human resources with specialized skills and to support the best talents in the education system.

Source: ERIA.

The supporting measures are distinguished in different time frame because some measures have sequences to improve toward the next step. Some measures of preceding step support to accomplish the next step. For example, in the policy measure to create a regulatory and business-friendly environment for SMEs, short-term measures such as fair and transparent legal regime, relative ease of entry and exit of small firms, and simplifying import-export procedures are necessary to achieve streamlining bureaucratic rules in medium-term. Some measures are to be carried out all the time but degree of accomplishment may be varied from time to time. Although these measures are differentiated in term of implementation period, it is flexible to speed up and slow down their function in accordance with internal capabilities and external atmosphere.

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CHAPTER 5

Rural development and Poverty Reduction

1. Current Situation of Rural Development and Poverty Reduction

1.1. Context of rural development and poverty reduction in Myanmar

Poverty eradication and food security will remain a basic challenge to rural development in Asia in the twenty-first century. Myanmar is one of the poorest countries in Asia currently undergoing significant political changes and socio-economic development process. These changes provide a case for studying and understanding its rural poverty situation. The comprehensive study for preparing strategies to reduce poverty at national and sub-national levels is very essential for Myanmar as there is widespread rural poverty in all regions and states. The gaps between rural and urban are persistent in access to social services (health, education, etc.), infrastructure, communication, electrification, and market information, etc. Moreover, eradication of poverty with a focus on gender remains a challenge for Myanmar to achieve the target of Millennium Development Goals 3 in 2015-2016.

According to the Agricultural Census in 2010³³, about 32 percent of total farming households owned less than 3 acres of land (which is considered as minimum requirement for subsistence farming) and they can be represented as the ‘hardcore poor’. In addition, landless laborers constituted 24 to 40 percent of total rural population in various regions and states. The average area per holding of farm households is

³³ Settlement and Land Records Department, Report on Myanmar Census of Agriculture in 2010, MOAI

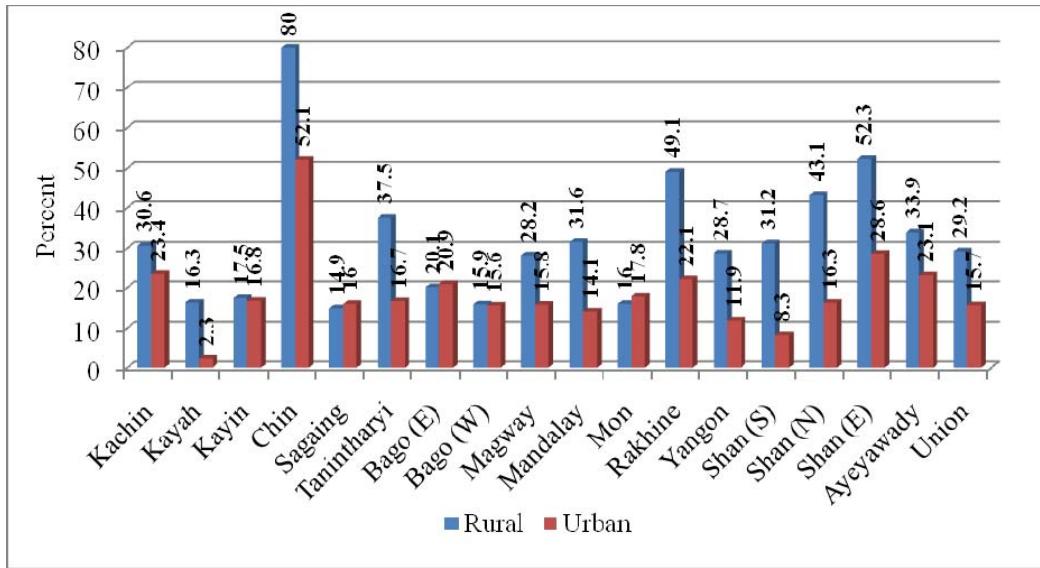
unchanged (which is approximately 6.34 acres or 2.57 hectares) in Agricultural Census in 2003 and in 2010. Therefore pro-poor agricultural growth strategy is a vital ingredient for enhancement of agriculture and poverty reduction in Myanmar.

1.2. Poverty incidence in Myanmar

The Cost of Basic Needs (CBN) method was used in constructing the national poverty line in Myanmar. The actual values of food poverty and poverty lines per adult equivalent per year in 2010 were Kyats 274,990 and 376,151, respectively (UNDP and MNPED 2011a). According to the reports of Integrated Household Living Conditions Assessment (IHLCA) of 2004-2005 and 2009-2010 jointly conducted by UNDP and Ministry of National Planning and Economic Development (MNPED), poverty incidence in Myanmar was around twice as high in rural than urban areas at 29 percent and 15 percent respectively as of 2010. Rural areas account for almost 85 percent of total poverty in Myanmar. Food poverty incidence was more than twice as high in rural than urban areas, at 5.6 percent and 2.5 percent, respectively.

The total population of Myanmar was estimated at 60.384 million in 2011-12, and rural population represented about 70 percent of total. Therefore poverty afflicted around 25 percent of the total population which are largely found in rural area. The IHLCA studies concluded that there is an improvement in basic consumption for the poorest 30 percent of the population in Myanmar with remaining gaps between States/Regions and in particular, between rural and urban areas. For example, the highest rural poverty incidence in 2010 was found in Chin state and it was followed by Shan (East) (Figure 5-1).

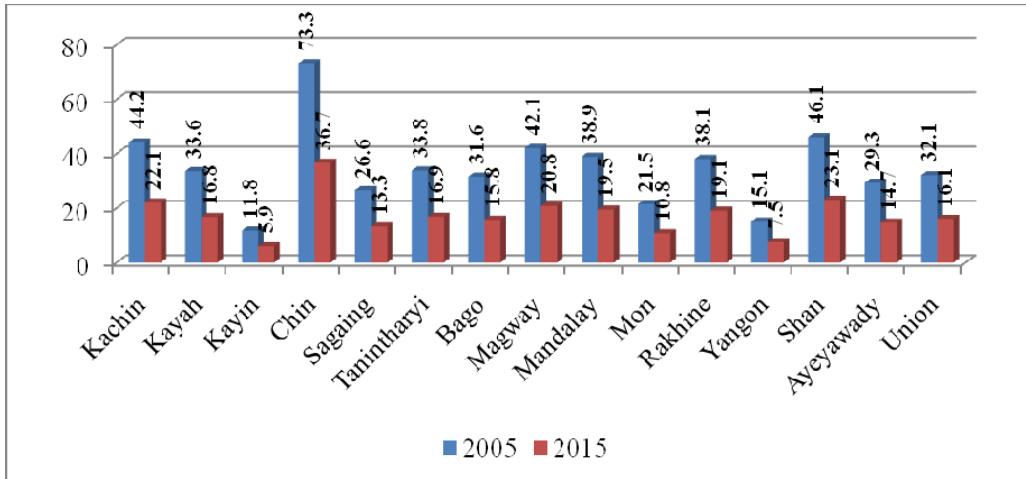
Figure 5-1: Rural & Urban Poverty Incidence in 2010



Source: UNDP and MNPED (2011a).

Not only agriculture but integrated rural and regional development strategies are also used in Myanmar to improve the well-being of rural people and to meet the Millennium Development Goal 1 of reducing the proportion of people with income less than USD 1.25 (PPP) a day by half in 2015. Therefore the government plans to reduce the national poverty incidence from 32 percent in 2005 to 16 percent in 2015 (Figure 5-2).

Figure 5-2: Poverty Incidence in 2005 and 2015 target



Source: MNPED (2012).

1.3. Poor and non-poor regions/states based on IHLCA 2010 and estimated per capita GDP in 2011-12 (PA)

The regions and states can be categorized into poor and non-poor groups according with the average household expenditure and the IHLCA's national poverty line in 2010. There are nine non-poor regions and states (such as Kayin, Kayah, Yangon, Mon, Sagaing, Mandalay, Bago, Magway and Naypyitaw) and six poor regions and states (such as Kachin, Tanintharyi, Ayeyarwady, Shan, Rakhine and Chin). The estimated per capita GDP in 2011/12 (PA) from MN PED (2012) for those poor and non-poor regions and states are presented in the following table (Table 5-1).

It is noted that Yangon region possesses the highest per capita GDP (1,383,358 Kyats) while Chin state receives the lowest per capita GDP (255,961 Kyats) in 2011-2012. The average per capita GDP for the poor group is about 698,395 Kyats, and for non-poor group is 804,545 Kyats in 2011/12 (PA). All poor regions and states (except Chin) in 2010 have the potential to escape from poverty due to receiving higher per capita GDP in 2011/12.

It is noted that per capita GDP values of Kayin and Kayah States from the non-poor

group are lower than the average per capita GDP of the poor group in 2011/12 (PA). The lowest and low level of per caput GDP in 2011/12 (PA) are especially found in the states (Chin, Rakhine, Kayin, Kayah & Shan) which are located at the border areas (except Kachin and Mon). Hence the strategy for border areas development is complementary to the two-polar growth strategy and the economic corridors development in Myanmar Comprehensive Development Vision.

The UNDP's background paper for the development policy options (2011) also criticized that there is substantial reduction in poverty intensity (more than 30%) in Magway, Mandalay, Kachin, Bago (East), Bago (West), Shan (South), Sagaing and Kayah during 2005 and 2010.

Table 5-1. Per capita GDP by poor and non-poor regions/states in 2011/12 (PA)

Non-poor region/state*	Per capita GDP** (Kyats/year)	Poor region/state*	Per capita GDP** (Kyats/year)
1.Kayin	420,212	1.Kachin	700,424
2. Kayah	442,566	2.Tanintharyi	1,525,070
3.Yangon	1,383,358	3.Ayeyarwady	726,921
4.Mon	616,237	4.Rakhine	526,275
5.Sagaing	748,875	5. Shan	550,729
6.Mandalay	663,423	6. Chin	255,961
7.Bago	615,143		
8.Magway	772,395		
8. Naypyitaw	651,210		
Ave. per capita GDP	804,545	Ave. per capita GDP	698,395

Source: * UNDP and MNPED (2011), ** MNPED (2012).

The IHLCA applied two indicators for measuring inequality: (i) relative inequality—consumption share of the poorest 20 percent; and (ii) absolute inequality—consumption gap (difference between) the richest and poorest 20 percent.

The survey data suggested that

- The consumption share of the bottom 20 percent has increased slightly from 11.1 percent to 12 percent between 2005 and 2010, with this trend being similar across all states/regions.
- The consumption gap between the richest and the poorest 20 percent has fallen around 8 percent between 2005 and 2010, with this trend being similar in most states/regions.
- Both relative and absolute inequality declined between 2005 and 2010, implying that lower income groups have increased their consumption faster than the higher income groups across the whole consumption spectrum.

The IHCLA could not provide disaggregated data by ethnic groups; hence, detailed assessment of “horizontal inequalities”, i.e., among socio-cultural groups, cannot be made. However, the higher poverty incidence in Chin, Rakhine and Shan where most ethnic groups reside suggests that income distribution is skewed against these groups and the people in the rural areas of eastern Myanmar where local conflicts have prevailed for many years.

Low income households are usually the most vulnerable because while they are faced with a wide range of risks, they have very limited means to deal with such risks. Thus, people who are just above the poverty line could readily fall into poverty due to natural disasters or changes in economic conditions (higher prices, unemployment, lower levels of public services, etc.). To shed light on this phenomenon, the IHCLA examines changes in the poverty status of households over time and differentiates among households which (i) remain poor (chronically poor); (ii) enter into or escape from poverty (transitory poor); and (iii) remain non-poor. It found that transitory poverty (28%) is a significant aspect of poverty in Myanmar, being nearly three times higher than chronic poverty (10%).

1.4. Characteristics of the Poor Households in Myanmar

According to the findings based on IHLCA data, the characteristics of poor households are identified by the demographic characteristics, economic activities of household members, access to land, water supply, housing and sanitation, health and nutrition, and education. Therefore poor households tend to be larger than non-poor households and they have more economically active members but causal labors with low returns. Poor households have smaller farm size (4.4 acre) than non-poor households (7.3 acres). Landlessness is much higher among poor households (34%) than non-poor households (19%).

Poor households have less access to housing (32% vs. 59%), safe drinking water (62% vs. 72%), sanitation (72% vs. 82%), and electricity (28% vs. 55%) compared to non-poor households. Children of poor households tend to have less immunization coverage (76% vs. 86%) than non-poor households. Access to maternal health care of poor households (77% vs. 86%) is less than non-poor households.

The heads of poor households are less literate than non-poor households (84% vs. 93%). They have lower educational attainment than non-poor households, with only around 22 percent of poor household heads completed middle school or higher, compared to 40 percent of non-poor household heads. In rural areas where most of the poor live, 75 percent of household heads have only a primary education compared to 37 percent in urban areas.

1.5. Women in rural development

The impact of poverty is particularly severe on women and children, who are especially vulnerable to the cycle of poverty or suffer more from malnutrition, poor maternal care and high mortality. The country possessed the higher infant and under

five years old mortality rates and maternal mortality rate among ASEAN countries. The maternal mortality rate of rural area is higher than urban area due to lack of health service, poor health service quality in rural area, unlikely to get health services on time, and more likely to deliver children at home under less than ideal sanitary conditions.

Due to lack of gender disaggregated data, women are hardly mentioned in previous rural development and poverty reduction in Myanmar. It is of increasing concerns for the collection of disaggregated data for promoting women in development at both macro and micro levels. In addition, women in rural development for achieving MDG 3 (equality between men and women is crucial to reducing poverty) should be focused in Myanmar.

The gender-notion of poverty demands for the investigation of gender differences in poverty such as differences in access to, and control over resources of ‘individual’ woman and man. The study therefore will emphasize on gender gaps in well-being, related to opportunity, capability, and empowerment of the rural women and men.

According to Maxwell (1999), the determinants of poverty would be macro, sector-specific, community, household and individual level characteristics. Hence the poverty analysis should focus not only on household deprivation indicators but also on community and individual (women and men) indicators, which can be collected from the survey. There are a variety of community (village level) indicators that may be associated with the poverty of rural households.

To formulate an effective rural development programs, it is important to identify the backward rural areas. Rural areas embrace 13,628 village tracts and 64,346 villages in 14 regions and states in Myanmar. The village profile in selected regions and states, covering 7 sectors: (1) infrastructure, (2) employment, (3) health, (4) education, (5) water & energy, (6) natural resources, and (7) institutions/organizations, can guide the

policy makers in categorizing the villages into backward, moderate and progressive, and in identifying the priorities sectors for those villages. Furthermore, the monitoring on implemented rural development programs can be efficient and effective by using the village level database system.

2. Strategic framework for rural development and poverty reduction in Myanmar

2.1. Vision and Objectives of the Rural Development with Poverty Reduction

The President U Thein Sein's speech on 20 June 2012 emphasized on "Comprehensive Development Plan" through the following plans:

- Rural development and poverty alleviation plan;
- Human resources development plan;
- Investment plan;
- Trade sector development plan;
- Industrial development plan;
- Financial sector development plan;
- Regional development plans; and
- Sector-wise development plans.

The president urged the Union Ministers and Region and State Governments to give high priority to people-centered development approach for promoting socio-economic development through systematic schemes. The officials from various ministries and some initiative private companies conducted poverty alleviation programs by injecting loans, credits and advanced payments to the rural poor. Addressing rural poverty and development require sound approach and coordination of various organizations.

The "Myanmar Comprehensive Development Vision" is being prepared to

complement the Myanmar government's Comprehensive Development Plan. The MCDV considers all critical aspects of the country's socio-economic needs, priorities, goals and targets, for it is the synergy of all development action plans of the MCDP and FESR. Moreover, it encourages the development planners to consider Yangon and Mandalay as two driving forces or two-polar growth strategies for quick-win industrial development which can contribute to reduce poverty for more than half of the country's poor population in their hinterlands (Ayeyarwady, Yangon, Mandalay and Magway Regions).

The vision for the rural development with poverty reduction in the Strategic Framework of MCDV is "**To reduce rural poverty and rural-urban disparities/gaps by means of increased access to basic needs (food, water, shelter, sanitation, literacy, etc.), social services, infrastructure, microfinance, job opportunities (or diversification of rural economy) for rural poor and to achieve equitable and sustainable development in the targeted rural areas”**

The objectives (for both medium and long terms) of the strategic paper on rural development and poverty reduction are as follows:

- To establish the database for categorizing the rural areas into backward, moderate and progressive, and to analyze the pattern of growth and emerging situation of employment, and factors of backward and forward linkages influencing the agriculture productivity, agro-based industry and non-farm sector development;
- To increase equity and to reduce rural poverty in rural areas by assisting the rural poor in meeting their basic needs (food, clean water, shelter, sanitation, literacy, etc.) and in access to social services and public infrastructure;
- To expand the job opportunities for rural poor by producing value-added agricultural products, and integrating the *supply bases or rural clusters* to the network of *agro-based industries* operating in the hinterlands of the small towns or secondary cities;

- To promote participation of local community as fundamental role in natural resources management, biodiversity and environmental conservation to support sustainable livelihoods and income of poor rural households.

It is noted that specific goals and targets will be required at sectoral and sub-national levels to meet the poor people's different needs. But at the national level, the following goals and targets should be focused for achieving MDGs in 2015-2016.

Targets on Rural Development and Poverty Alleviation in Myanmar are set as follows.

- Eradication of hunger and hard-core poverty by half in 2015
- Increase net enrolment rate at secondary education level from 46.4 percent in 2010 to 70 percent in 2015
- Reduce the rate of under 5 child mortality from 66 per 1,000 live births in 2010 to 38.5 in 2015
- Reduce the rate of infant mortality from 50 per 1,000 live births in 2010 to 28.3 in 2015
- Reduce the rate of maternal mortality from 200 per 100,000 live births in 2010 to half (or 105 per 100,000 live births) in 2015
- Increase the share of women in wage employment in the non-agricultural sector from 35.7 percent in 1998 to 55 percent in 2020
- Reduce the incidence of malaria from 7,943 per 100,000 in 2008 to half in 2020
- Increase access to clean water in rural areas from 78 percent in 2010 to 90 percent in 2015
- Increase forest coverage from 48.3 percent in 2010 to 68 percent in 2020

2.2. Focus on Effective Poverty Reduction Strategy: Provision of Basic Needs and Safety-net Programs

The dissatisfaction of basic needs, like the incidence of poverty, is much higher in the rural sector. In general, there has been a strong urban bias in the provision of public goods and services, with less access to health, education, and social services in

rural areas. Safety-net programs assist households to cope with risk from short-term income fluctuations as well as long-term risk from chronic poverty. Key social safety net programs include cash transfer program, insurance (crop and health), labor market interventions, public works, food subsidies and food transfer. Unfortunately, social safety net programs are difficult and expensive to implement in rural areas because of high transaction costs as well as large share of the population to be reached.

The most common interventions in rural areas have been “public work programs”, “food security initiatives” and “cash transfers”. Public work programs provide a fast cash or food injection among the rural households, and create rural infrastructure. These programs can be operated on a continual basis or in response to natural calamities. Therefore low-income households face with natural disasters or poor climate conditions can seek employment accord with their needs.

Food security initiatives are critical instruments of risk management for both rural and urban areas. The low-income countries governments have sought to support the rural sector for ensuring food security through rice reserve program (buying rice with a higher price) and trade promotion (eg. export tax exemption). Cash transfer programs have greater transfer efficiency, as they have lower administrative cost, the potential for few leakages and low transaction cost for poor households. These programs offer efficiency and fiscal gains compared with subsidies. Also, the programs do not affect the market signals and provide more predictable expenses as opposed to price and trade interventions.

Poor countries and poor people suffer from a multiplicity of deprivations which translate into levels of *ill health* that far exceed the population average. Most obviously, they lack the financial resources to pay for health services, food, clean water, good sanitation, and the other key inputs to producing good health. It is not just lack

of income that causes the high levels of ill health among poor people, however, the health facilities serving them are often dilapidated, inaccessible, inadequately stocked with basic medicines and run by poorly trained staffs. Furthermore, the poor are also disadvantaged by a lack of knowledge about prevention and when to seek health care. They also tend to live in communities that have weak institutions and have social norms that are not conducive to good health. In short, poor people are caught in the vicious cycle: their poverty breeds ill health and this in turn conspires to keep them poor.

Health, along with education, is seen as one of the key ultimate goals of development, and increasingly is seen as a dimension of poverty in its own right. Government can do much to improve the health of their populations and especially of the poor. They can mitigate the effects of low income on health outcomes by reducing the price poor people pay for health and other key goods and services, through health insurance, fee waivers, and targeted food subsidies.

Government can also reduce the non-income disadvantages faced by poor people: they can (1) improve poor people's access to and knowledge of health services; (2) improve the quality of services that poor people use, both in technical terms and by making them more user-friendly; and (3) get services more focused on the interventions that are relevant to the health profile of poor people. Improving the health of poor people means contemplating actions on several fronts.

The determinant of health sector outcomes is firstly the level of government's national budget. Here the major concern is the amount of resources allocated to better health, but an important secondary concern is the possible reallocations of budgets to reach poor people better. The second level is the health system, where the concern is to put together reforms and improve incentives to get the system to function better for poor people. The third level is the microeconomic or service delivery level, where the

focus should be on how to implement specific activities to reach poor people. Work at these three levels is interdependent; those working at the project or service delivery level cannot succeed without cooperation and assistance of those at the systems and spending levels.

Community institutions such as blood donation group and oxygen donation group are formed in most of the townships to help especially for vulnerable people. Community groups manage to mobilize community action and resources for better health outcomes; they can also play an important role in the oversight of health service, improving social accountability and enabling decisions to better linked to community needs. The activities of community groups can inform the poor where they can obtain services and drugs at what cost, and provide institutional support to community management, financing and planning together and build the capacity of local organization,

Failure to provide *basic education* seriously compromises a country's effort to reduce poverty. A large body of research points to the catalytic role of basic education for those individuals in society who are most likely to be poor – that is, girls, ethnic minorities, orphans, people with disabilities and people living in rural areas. Basic education or literacy training is crucial to equipping disadvantaged individuals with the means to contribute to and benefit from economic growth. Education is one of the most powerful instruments societies have for reducing deprivation and vulnerability: it helps lift earnings potential, expands labor mobility, promotes the health of parents and children, reduces fertility and child mortality, and encourages participation in society.

Education investments are also crucial for the sustained economic growth that low-income countries are seeking to stimulate and without which long-term poverty reduction is impossible. Education directly contributes to labor productivity and it can

promote better natural resource management and more rapid technological adaption and innovation. It is fundamental to the creation of a competitive knowledge-based economy.

Adult literacy programs are also important in poverty reduction strategies. While the universalization of primary education for children should eventually eradicate adult illiteracy, countries with high illiteracy rate cannot afford to wait a generation for the beneficial impact on incomes and poverty that literacy brings. Non-formal programs that impact literacy and other basic skills to adults and out-of-school youths can directly improve family income generation and have strong positive impacts on family health status, children's educational attainment and the sustainable management of local natural resources.

Adult basic education is important on equity grounds because it tends to be self-targeted to the most impoverished groups. It is especially important from a gender perspective, because women outnumber men in most adult basic education programs, sometimes by wide margins. In short, as an interim strategy until universal primary education is achieved, non-formal education programs can equip the poor for economic development and social participation and can thereby promote the development of a broad-based and more equitable society.

Public education typically absorbs 2 to 5 percent of GDP and society devotes huge resources to formal education system. System performance varies widely across States/Regions in terms of quality, coverage and efficiency. Provision of incentive on teacher's salary will attract the teachers to go to remote rural areas of the country.

It is required to focus on non-formal education services, such as community-based early child development programs, literacy and basic education programs for out-of-school youths and adults as well as health and nutrition interventions aimed at

school-aged children that have very strong complementary impacts on outcomes in the formal education system.

2.3. Development of Rural Infrastructure

Providing reliable and affordable access to rural infrastructure services dramatically increases rural people's access to market and social services (mainly education and health), which are essential for rural poverty reduction in Myanmar. Rural transport interventions are usually undertaken by a wide range of actors, including national ministries, regional governments, NGOs, and communities. For example, the national government and union ministries give priorities in constructing and upgrading the union highways for strengthening transport linkages among the ASEAN and GMS regions. It is essential to support the development of the major GMS corridors as economic corridors. Easier movement of goods and people through improvements in the software of transport and trade facilitation is also required. The strategic papers on infrastructure development and economic corridors have insight views on these issues.

Poor communities are isolated for extended periods because they lack reliable all-season road accessibility. In order to reduce rural-urban gaps in access to market, social services and non-farm employment opportunities, the strategic framework for rural infrastructure development is an integral part of the rural development and poverty reduction program in Myanmar.

Lack of road access in rural areas is often a result of construction of low type roadways and inadequate maintenance due to limited fund, poor coordination between regional/local development committee and rural communities, and wills of the rural people to participate in community-driven development program. There are alternative ways such as contracting with the private sector, and joining with

neighboring townships service committees for promoting rural people's mobility and accessibility to livelihoods and basic needs.

The transport and construction industries are the major source of employment for poor people because it requires massive amount of unskilled labor. Many other transport-related services, such as repair of vehicle and motorcycle, cargo handling, roadside food services, also require labors. Because of labor-intensive technology is mostly used in the country, the infrastructure development projects could employ many unskilled workers of both rural poor men and women.

The transport sector policy should contribute to poverty reduction by focusing the transport needs of poor people and poor areas; addressing both efficiency and equity concerns, and promoting participation throughout the process of all stakeholders. Developing rural infrastructure can open up opportunities for remote areas, and it can catalyze socio-economic development of poor rural households. Both production and consumption of the rural households are influenced by the need for and the availability of infrastructure services. The critical role of the government in pro-poor infrastructure development strategy is to ensure that services are available and delivered to poor rural households.

Lack of access to information and communication technologies is clearly not an element of poverty in the way that insufficient food and nutrition is, but ICTs are increasingly important to support the opportunities for livelihood activities (eg. decisions regarding production, marketing and trade, production and post-harvest technology, etc.), employment, education, etc. especially for the rural households. ICTs include not only telecommunication but also the household's expenditure on radio and television.

The recent econometric studies have found increasing evidence of causal link

between telecommunication development and economic development, social development and cost saving for industry. There is a highly significant and positive relationship exists between the number of telephone per capita and literacy rate. Moreover, ICTs can have a major role in reducing the impact of natural disasters on the poor households because it can provide the update information on cyclone, storms, floods, etc. efficiently.

According to World Economic Outlook (2011), Myanmar has lower number of users in both auto telephone (10 per 1000 persons) and cellular phone (10 per 1000 persons) than Laos (17 and 646 per 1000 persons) and Cambodia (25 and 566 per 1000 persons) in 2010. Therefore the target of the government's 5-year development plan to increase the users of telephone in 2015-16 is 513 per 1000 persons.

The establishment of public library in both urban and rural areas is essential to increase the awareness and knowledge of the people concerning daily news, health issues, environmental issues and changes in both national and international prices and markets, etc. The pro-poor poverty reduction plan should emphasize in implementing the public library and increased access to library of the rural people especially in the short-term. In the medium and long-term, the rural people access to ICTs should be emphasized to gain the “inclusive development” of the country.

2.4. Strengthen Agricultural Productivities and Agribusiness Activities for Rural Development

Rural development for poverty reduction and equity cannot be effective without dynamic growth in the region to create employment and investment opportunities for the rural poor. Successful rural development in different States/Regions requires an engine of growth which implies identifying the regional comparative advantages in

attracting private investment. In most cases, this will be agriculture, and therefore the promotion of agriculture sector development should be a top priority to support rural development, particularly high value added crops, fisheries, wood-based products, etc. produced for agro-based industries.

About 70 percent of rural population in Myanmar engages in agriculture sector as their major livelihood activities. The underinvestment in R & D of agriculture sector has resulted low level of production, poor quality, less competitiveness and low price received. Therefore promoting land and labor productivity in agriculture sector should be given a high priority so to provide food and livelihood security for rural people, especially landless labor and small land holders.

As both low and high quality rice prices were substantially increased, the rice wage (the amount of rice which can be purchased by daily wages) of agricultural labourers declined from about 9 kg in 1970s and 1980s to 4-5 kg after 2000 (Fujita and Okamoto, 2009). There is evidence of significantly increased numbers of rural migrant laborers to the neighboring countries. Even under such condition, the race wage rate for daily labourers has decreased to around 2 kg in the late 2000s.

The **main objective** of agricultural development policy is the attainment of food security through self-sufficiency and price stability. For achieving food security at the national level, **six key factors** are currently adopted; (i) creating profitable and sustainable market for farmers; (ii) utilizing of good quality seeds to produce quality products with higher price; (iii) adoption of good agricultural practices; (iv) application of agricultural inputs such as irrigation water, chemical and natural fertilizer efficiently and timely; (v) reduction of transactional cost in marketing; and (vi) encouragement agrobased industries to produce value-added products from raw materials of agricultural produces.

It is required to analyze the price trends and protection levels of exportable food crops (rice and pulses) which are the main crops and sources of income for the majority of farm households in Myanmar.

2.5. Encourage the Diversification of Rural Households Economy

Industrialization is one of the main factors that helped diversify the rural households economy in terms of employment and income and helped reduce rural poverty. Therefore the current policy of the new government is to promote development of agro-based industries together with increased productivity of agricultural commodities. There are several agro-based industries, such as rice mill, oil mill, sugar mill, cotton, rubber, jute, farm machineries and implements, and canning plants, mostly owned by the private sector. The contributions of food and beverages industries, farm equipment, fertilizers, and farm machineries in total registered industries are 63.8 percent, 0.15 percent, 0.28 percent, and 0.05 percent, respectively (as of 31 March 2012).

Industrialization is considered as a development policy that increases incomes of small farmers and develops more employment opportunities. The creation of off-farm job opportunities contributes to an increase in rural households' income and narrows the income gap between rural and urban households and also between farm and non-farm households in rural areas.

For the achievement of balanced growth among States/Regions of the country, support for the development of local small and medium-size industry should be emphasized to promote non-farm sector employment for the poor rural households. The comprehensive support programs, including the provision of industrial sites and electricity, favorable subsidies and loans, tax reduction and simplification of regulatory

and administrative procedures are the key to the success of rural industrialization program.

Soon after Myanmar established the market economic policy, a score of business related laws have been promulgated and prominent among them are: “The Union of Myanmar Foreign Investment Law (1989)”; “States Economic Enterprises Law (1990)”; “Private Industrial Enterprise Law (1990)”; “Promotion of Cottage Industrial Law (1991)”; “Myanmar Citizens Investment Law (1994)” etc. Despite the fact that such laws appear to be encouraging factors for the development of agribusiness sector, legislations similar to “Small and Medium Enterprises Law”, which is commonly practiced in neighboring countries to promote the development of small and medium enterprises (SMEs), are yet to be developed. SME law is normally regarded as of great importance to encourage the development of small businesses particularly for transitional countries like Myanmar.

Currently, *low progress* in the development of industrial zones in some States/Regions has resulted from inefficient resource allocation (delaying sale of land for getting high price in future), and insufficient support programs. All private factories (93 per cent of 43,000 private industries in 2005), however, are not set up within the industrial zones delimitated by the authorities (Guy Lubeigt). Of the 82,000 industries officially existing in the country, only 8,463 are believed to be located within the prescribed industrial zones (Ministry of Information 2006). Most of these enterprises, except garment sector, are small in scale and many could be classified as cottage industries.

With the expansion of the industrial sector, rural youth workers can find more permanent employment in factories in suburb, the service sector and commercial firms. Others find new sources of income in self-employed jobs such as home-based

enterprises, food vendors, retailers, etc. In addition, overseas remittances have become a major source of income for rural families since 1990s.

The strategic framework for diversification of rural economy should recognize increasing availability and needs of non-farm credit, technology and basic infrastructure to promote agro-processing and rural agri-business in cottage-based, small- and medium-scale enterprises³⁴. Provision of differential incentives for new enterprises in different agro-ecological areas is also essential. Training in off-farm occupations, including food processing, food preservation, handicrafts at the household and enterprise levels should be provided.

2.6. Promote Access to Finance for Rural Development

The rural finance can be categorized into three sectors: a formal sector, semi-informal sector and informal sector. Myanmar Agricultural Development Bank (MADB) and Myanmar Livestock and Fishery Development Bank are the state-owned banks which are the only two legally authorized institutions in rural areas until before the recent enactment of micro-credit law.

Farmers have no opportunity to mortgage the land for their working capital. At present, the newly elected government has announced the “Farmland law in 2012” which allows farmers to sell or rent farmland leases. All land is owned by the Union, but farmland leases will be held in perpetuity and, under the terms of the law, can now be traded or rented. This will allow farmland to be taken as collateral and hence potentially improve farmers’ access to finance, particularly through the Myanma Agricultural Development Bank. This is expected to underpin increased productivity of the major

³⁴ the notification No. 11/2013 was issued by the President Office to form the Central Committee and Work Committee for Development of Small and Medium Enterprises on 9 January 2013

crops (paddy, maize, groundnut, sesame, black gram, green gram, etc.) with utilization of HYVs and hybrid varieties. Credit for paddy occupies about 88 percent of total credit in 2011-12 (Table 5-2). The seasonal credit amount was increased from 5000 Ks per acre in 2005-06 to 40000 Ks per acre in 2011-12. It was further increased to Ks. 50,000 per acre for monsoon paddy and Ks. 80,000 per acre for summer paddy in 2012-2013.

Table 5-2. Provision of Agricultural Loans by Crops (Kyat millions)

Crop	1995/96	2005/06	2009/10	2010/11	2011/12
Paddy		29292.05	76124.72	156494.46	311530.22
Loan rate: Rainy	6605.71	5000	10000	20000	40000
Paddy	500 Ks/acre	Ks/acre	Ks/acre	Ks/acre	Ks/acre
		5000	10000	20000	40000
Summer Paddy		Ks/acre	Ks/acre	Ks/acre	Ks/acre
Maize	65.81	73.28	644.97	1042.05	1167.64
	200 Ks/acre	2000	6000	10000	10000
		Ks/acre	Ks/acre	Ks/acre	Ks/acre
Pulses	233.66	1342.44	6543.99	14229.20	18971.32
	200 Ks/acre	2000	6000	10000	10000
		Ks/acre	Ks/acre	Ks/acre	Ks/acre
Groundnut	855.59	1752.42	3881.83	7101.94	7623.56
	300 Ks/acre	2000	6000	10000	10000
		Ks/acre	Ks/acre	Ks/acre	Ks/acre
Sesame	850.89	1562.13	5665.10	10059.67	11400.85
	70 Ks/acre	2000	6000	10000	10000
		Ks/acre	Ks/acre	Ks/acre	Ks/acre
TOTAL	9013.79	34390.26	93489.30	190679.89	352721.75

Source: Myanma Agricultural Development Bank, 2012.

The Myanmar financial sector is small relative to other comparable Asian developing countries. It is noted that the development of financial services is held back by restrictive regulatory requirements. Key obstacles are the deposit-to-capital ratio, onerous collateral requirements, administratively set interest rates, and different financing systems and financing laws³⁵. Public provision of financing services is

³⁵ The new Microfinance Law of November 2011, the Cooperative Society Law of 1992, the

limited and several attempts have been made to initiate institutional microfinance of the country. Currently, there are seven organizations such as International Non-Governmental Organizations (INGOs) - GRET (Group de Recherches et d'Echange Technologiques), Save the Children, PACT Myanmar, and Vision Fund; the Myanmar Agricultural Development Bank (MADB), UNDP's Self Reliance Groups (SRGs), and Credit Cooperative, and several ministries (Ministry of Finance, Ministry of Cooperatives, Ministry of Agriculture and Irrigation) are involved with the overall supervision of those MFIs.

The semi-formal sector is composed of local NGO-MFIs (micro-finance institutions) and INGO-MFIs (including INGO supported by UNDP). Microfinance was first introduced to Myanmar in 1997 by the pilot project of UNDP's Human Development Initiatives. As part of HDI and poverty alleviation intervention, a number of microfinance initiatives are being implemented through various INGOs in the delta, dry zone and Shan State. The microfinance sector has provided services to more than 385,000 clients (of whom at least 90% are women) with a total portfolio of around 27 million USD. PACT is serving 92 percent of these clients and holding 93 percent of the total portfolio (Microfinance Industry Report Myanmar, ACTED 2010).

The INGO-lead institutional microfinance programs in Myanmar started with the "solidarity group methodology" using models derived from the Grameen approach. Some are using village centers and 2-2-1 lending, others are operating with village credit organizations or through a group model approach. The large majority of group products include a compulsory mobilization of savings by members before credit is provided. The average loan value differs from one program to another. Save the

Financial Institutions Law of 1990, the Agricultural and Rural Development Bank Law of 1990 and New Farmland Law of 2012

Children's is USD 50, GRET's is USD 100, PACT's is USD 150, and Vision Fund's is USD 179. The vast majority of loans are solely for productive purposes.

Until 2012, despite their sound development approaches, the activities of INGOs working in the remote rural areas often encountered restrictions imposed by the regional authorities. The performances of INGOs have not reached their full potential. Broadly speaking, they could have prevented the poor of their target areas from falling deeper into poverty. Few successful projects could be however observed in generation of the re-investable surplus or sustainability of the self-reliance communities in the rural areas. According to a media comment in August 2011, only 10 percent of the total demand for micro-credit is met and the UNDP Microfinance Project was providing about 80 percent of the micro-credit through PACT Myanmar. The need for credit in rural economy is substantial; UNDP's estimated as USD 400 to 600 million.

Starting in 1995, PACT has now grown to become the largest MFI giving its credit services for 5,697 villages in 25 townships of Ks 44,443 million (USD 53 million) as outstanding loan portfolio (as of June 2012). Loans are without collateral, focusing on women and poor and offer multiple types of loans such as regular income generation loan, agricultural loan, micro-enterprises loan, health care loan, vulnerable loan, beneficiary welfare fund, etc. Most micro-finance institutions in Myanmar have injected rural community empowerment activities such as ensuring democratic participation, enhancing women's role in decision making, promoting good governance at the community level and creating community leadership.

The Cooperative Law states that primary societies may join Township Syndicates, Syndicates may join State Unions and the Syndicates and Unions may join the Central Cooperative Society (CCS). Under the auspices of the CCS a microfinance program has been initiated in the urban areas with 71,000 members. The intention is that the

MFIs are transformed into credit cooperatives after one year. The organizations which wish to implement microfinance have to have a Memorandum of Understanding (MOU) with the Ministry of Cooperatives. No savings culture is being promoted, as the savings/loan ratio is only 14.4 percent. The CCS borrows from the Cooperative Bank and lends to the MFIs. Loan repayments are daily and total repayment is due in 60 days. The cooperative member can borrow Ks 45,000 for the first loan. Then, after 2 months Ks 60,000 can be borrowed, after 4 months Ks. 90,000 can be borrowed and after 6 months Ks 120,000 can be borrowed.

The Microfinance Law was passed in November of 2011. It creates a Microfinance Supervisory Bureau which is under the Ministry of Finance. The “Supervisory Committee”, to which the Bureau reports, consists of the Minister of Finance, the Manager of the Bureau and other suitable persons. The Supervisory Committee sets policies and directives, along with rules and regulations. The Ministry of Finance, with the approval of the government, issues orders, directives and procedures pertaining to microfinance.

There are several players in the informal microfinance sector. These are money lenders, land lords, paddy lenders, input suppliers, brokers, traders, groceries, and savings groups. The money lenders lend to all either with gold as collateral or without collateral. In the first instance, interest is generally 5 percent per month (60% per year). In the second, it can be up to 300 percent per year.

It is noted that savings is critical to the development of a sustainable microfinance system. The current programs rely upon external funding and the rural population perceps that outside money is “cold” and it is not critical that it be repaid. Reasonable repayments are only ensured by very expensive monitoring and systems which require costly daily repayments. If local savings are used for lending, as shown by the UNDP

SRG project, borrowers have a greater sense of ownership in the process and are much more likely to repay on time.

Given the lack of access to financial services for the poor, microfinance should be a major component in any poverty alleviation development program, particularly in rural areas. One of the key constraints is low population density and weak/poor physical infrastructure, which raises the transaction cost of providing and obtaining rural financial services. The rural population has varying needs for credit. If a microfinance system only allows loans for productive purposes, the members will fabricate borrowing purpose or they will be driven to usurious money lenders. There is a need for financial literacy among villagers, as well as education as to their rights and responsibilities in a saving and credit group. The main challenge for the sector's development is the lack of a specific legal environment. Under current circumstance, transformation from microfinance programs into MFIs could not happen and the growth of existing actors will be limited by their reliance on grants and their incapacity to collect voluntary savings or to contract loans.

2.7. Conserve Natural Resources and Environment of Rural Communities

Myanmar is rich in biodiversity because of diverse ecosystems and of different elevations from sea level to high mountainous region. It has a long coastline covering almost the entire east coast of the Bay of Bengal. Myanmar is also a country prone to floods, droughts, cyclones, landslides, and earthquakes threatening the country's natural resources and environment. Environmental Performance Assessment in 2009-2010 indicated that the priority concerns of environment activities, especially in rural areas are; (1) forest resource degradation, (2) land degradation, (3) water resource and quality status, (4) threat to biodiversity, (5) inadequate solid waste management, (6)

climate change, and (7) impacts of mining industry on environment.

Myanmar is endowed with an extensive biodiversity and richness of natural resources which have recently been threatened by unsustainable resource usage along with infrastructure development, population pressure and other driving forces. Both environmental stability and sustainable livelihood are under mounting pressure from unsustainable environmental practices in relation to deforestation, mining, and constructions of large dams, agricultural land expansion and concessions, shifting agricultural practices, legal and illegal logging and changing climate variability. Myanmar has a large resource-based economy where production and export from mining sector is significantly large. Consequently, the increasing negative impacts of mining sector on forest, soil, water, natural landscape and biodiversity are significant.

Poverty-environment linkages are dynamic and changing with the specific context reflecting from geographic location, economic, social and cultural characteristics of individuals, households, and social groups. Even though there may exist a trade-off, poverty-environment mainstreaming aims at achieving the best balance between environmental preservation and poverty reduction for the benefit of the poor and long-term environmental concern in forestry, fisheries, agriculture and rearing livestock sectors and adaption to climate change and so on.

As the livelihoods of the poor and non-poor depend on the ecosystem that provides a wide variety of both goods and services, the poverty environment linkages can be linked with MDGs in reducing extreme poverty and hunger, achieving universal primary education, gender empowerment which are based on better environmental management and healthy ecosystem. It is noted that poor rural households often have insecure rights to land, water and natural resources and inadequate access to information, markets and rights to participate in decisions that affect their resource access and use,

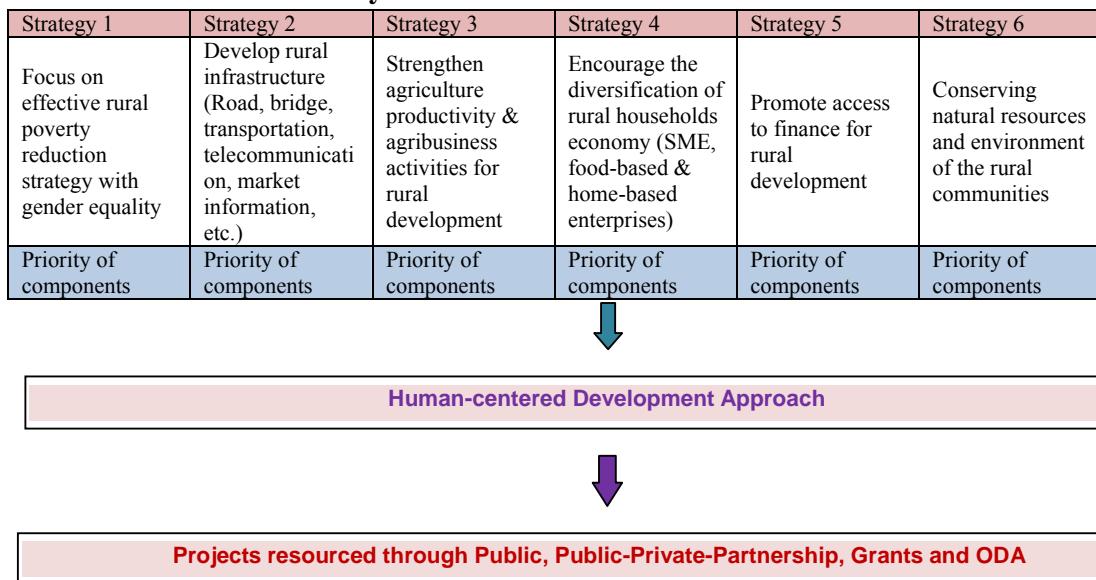
thus limiting their capability to use environmental resources sustainably.

The major trend during this period is to ensure that natural resources utilization should become the wealth the poor need to lift themselves out of poverty. To achieve millennium development goals (MDG) and targets, there is also a growing consensus to examine the links between sound, equitable environmental management and poverty reduction. Environment contributes to poverty alleviation and human well-being in terms of MDG goals, for instance, food security, livelihoods and income of the poor rural household largely depends on the ecosystem, health, services and productivities that can align with eradicating extreme hunger and poverty. Often, the poor households lack access to and control over resources, inadequate access to information and market, lack of empowerment which all limits their capability to use environmental resources sustainably. Natural calamities like droughts and floods have a huge impact mostly on vulnerable people whose livelihoods are undermined and become difficult to lift out of the poverty. The environmental degradation also effects gender, education and health of the poor rural households in terms of increasing burden on collection of water, firewood which in turn reduce the time for education and income generating activities. Water- and sanitation-related diseases derived from environmental degradation are the main causes of child mortality and woman illness. For gender equity, women often have limited roles in decision-making, from the community level to national policymaking, which prevents their voices from being effectively heard, particularly with respect to their environmental concerns.

Uncontrolled exploitation of resources or investments in natural resources not only damages the environment but also threatens the livelihoods of local communities who depend on the surrounding environmental resources. Coordination and cooperation among the civil society organizations, community based organizations, national and

international development organizations to engage and tackle environmental related conservation and sustainable development activities are essential. To achieve economic growth of community and environmental sustainability, community based development activities, secure tree/land tenure, and poverty reduction should be paid particular attention in combination with special focus on provision of awareness training, advocacy and networking on environmental issues.

Figure 5-3: Proposed Strategic Framework for Rural Development and Poverty Reduction in Myanmar



3. Development of Green Economy with Inclusive and Sustainable Development

To further develop green economy with inclusive and sustainable growth for reducing rural poverty, facilities and enabling environment for increased farm and non-farm production along with increasing job opportunities and income should be provided. Although based on different geographical conditions, growth patterns and

agro-ecological zones, effective poverty reduction programs with gender dimension have to be provided to meet the basic needs and social services. Emerging civil society should be encouraged to facilitate and manage the community development programs.

The social safety net programs including cash transfer program, insurance (such as crop or weather-index insurance for farmers and health insurance for both vulnerable farm and non-farm labors, etc.), labor market interventions, public works, food subsidies and food transfer, should be provided. Unfortunately, social safety net programs are expensive and therefore community based organizations should actively participate in social mobilization of rural areas. To strengthen coordination and cooperation of government organizations at the field level with other development organizations and/or community based organizations, MCDV should cover some core areas of region and state government's capacity development through provision of trainings, investments to strengthen the public service by establishing and implementing a robust regulatory framework and by undergoing mindset change and building project management capacity.

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CHAPTER 6

Infrastructure and Energy

1. Infrastructure

1.1. *Current Situation and Challenges*

Myanmar's aspiration to high and balanced growth could not be achieved without having proper development of public infrastructure. Indeed, infrastructure is a driving force to the economic growth since there is a positive and statistically significant correlation between investment in infrastructure and economic performance (Aschauer 1990). Although there is no empirical analysis, the observers noted that absence of reliable infrastructure such as poor transportation, energy shortage and low-grade communication is great bottleneck not only to harness its growth potentials but also to fulfill obligation to ASEAN Economic Community in the near future. As well, the IMF's 2012 report argued for industrial development citing that Myanmar has an advantage of lower wages but the manufacturing sector remains stifle by poor infrastructure amongst the others. Therefore, immediate implementation of infrastructure development becomes very crucial in recent days of economic liberalization and reception to global investments.

In order to determine major obstruction in infrastructure sector and to find the way to overcome, it is important to see the present status. Table 6-1 tabulates connectivity related indicators in ASEAN compiled by UNESCAP. Myanmar has all the data in the list. However, this table explains the seriousness of the current situation of

infrastructure and infrastructure usage in Myanmar. Myanmar is far behind other ASEAN countries in road density per 100 km². It had more than half of below class III level road sections of the Asian highway network in ASEAN. Paved road in Myanmar was 11.9 percent³⁶, which was better than Cambodia and the Philippines but still very low³⁷. The number of passenger cars per 1,000 persons was only 5. Port container freight was comparable with Brunei despite the huge difference in population. Only railway density, 5.1 km per 1,000 km², was relatively higher in ASEAN countries. The number was lower than Singapore³⁸, Thailand and Vietnam but better than other countries. Of course, it does not necessarily mean that Myanmar has better railway system when we think of the quality of the services and technology.

Table 6-1: Connectivity Related Indicators in ASEAN³⁹

	Railway density	Road density	Paved road	Passenger cars	Air passengers carried	Port container freight	Asian Highway	
	(2010)	(2010)	(2010)	(2010)	(2010)	(2010)	Total (2010)	Below class III (2010)
Brunei	-	564	77.2	485	1,263	0.09	-	-
Cambodia	3.7	216.7	6.3	18	455	0.22	1,347	0
Indonesia	1.9	262.9	59.1	45	52,283	8.37	4,091	0
Lao PDR	n.a.	171.4	13.5	2	555	-	2,857	306
Malaysia	5.1	300.5	82.8	313	30,997	18.25	1,673	0

³⁶ By now, it increases to 21.7 percent

³⁷ According to the ministry of construction, paved roads reached 21.7% for whole country in March 2012.

³⁸ Data was not available for Singapore.

³⁹ According to Myanmar official data, Railway density is 8.6 (Myanmar Railways), Road density is 203.3 (Public Works), Paved road is 20.89% (Public Works), Passenger car is 5 (Dept. of Road Transport Administration), Air passengers carried is 2074 (Dept. of Civil Aviation) and Port container freight is 0.3034 (Myanmar Port Authority)

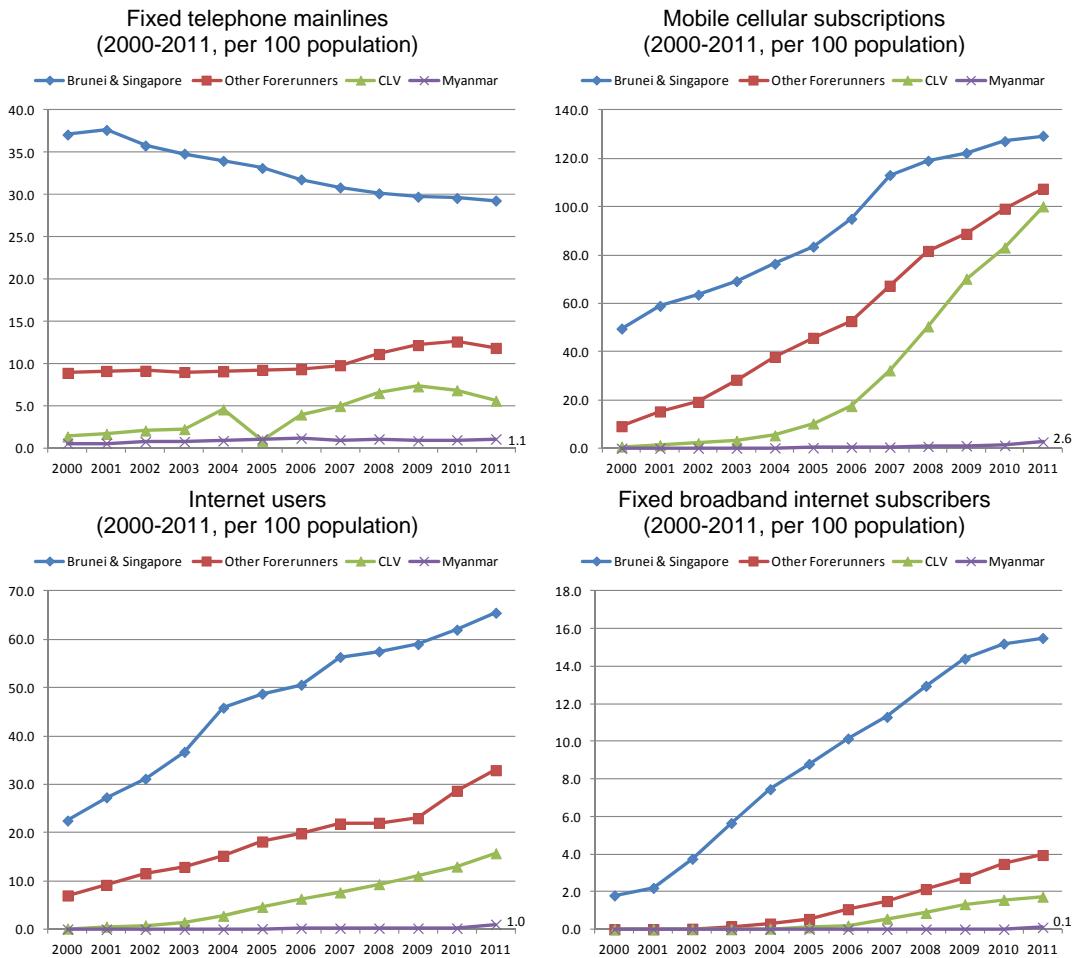
Myanmar	5.1	41.3	11.9	5	396	0.17	3,009	1,064
Philippines	1.6	470.9	9.9	8	21,024	4.95	3,367	451
Singapore	n.a.	4794.3	100	121	26,709	29.18	19	0
Thailand	8.7	352.4	98.5	57	27,162	6.65	5,111	2
Viet Nam	7.6	516.3	47.6	13	14,407	5.98	2,597	264

Unit	per 1000 km ²	per 1000 km ²	%	per 1,000 population	1,000	million TEU	km	km
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Source: UNESCAP (2012) and database on the UNESCAP website

The data on telecommunications shows much serious backwardness. Figure 6-1 depicts the ICT related indicators in ASEAN countries. Given the different development stages, we divided ASEAN countries in to 4 groups, that is, (1) Brunei and Singapore (small and advanced countries), (2) Other forerunner countries, (3) Cambodia, Lao PDR and Vietnam (CLV), and (4) Myanmar. Myanmar has a long way to go to catch up with even CLV countries. In the other ASEAN countries, we saw rapid increase of mobile cellular subscriptions and declining trend in fixed telephone mainlines. In fact, the indicators on mobile cellular subscriptions per 100 population of the 3 groups exceeded 100, which meant that people have more than 1 mobile phone on average. On the other hand, mobile cellular subscriptions per 100 population in Myanmar were only 2.6 and fixed telephone mainlines were 1.1 in 2011. Myanmar has not experienced the downward trend in fixed or even upward trend. The figures for internet users and fixed broadband internet subscribers showed the same backwardness. For the internet users in 100 population, Brunei and Singapore reached 65.5, other forerunners got 32.9, and CLV countries also had 15.7 while Myanmar had only 1.0 in 2011.

Figure 6-1: ICT related Indicators in ASEAN (2000-2011)



Source: ITU website.

We could say that Myanmar had 10 years of delay in getting internet users to the average of Cambodia, Laos and Vietnam. Fixed broadband internet subscribers in 100 population showed relatively lower figures in other countries, while Myanmar's figures are evidently lower than the others. Telecommunication service costs were extremely high due to monopoly of Myanmar Post and Telecommunication (MPT), a state-owned enterprise, which has monopolized license for 2G and 3G and this created a great challenge for telecommunication sector to grow in Myanmar. The situation is now

changing after the reform. The government has started inviting private sector to invest in the country.

Table 6-2 and Table 6-3 indicate access to improved water sources and sanitation in ASEAN countries. Access to improved water resource in Myanmar is the 2nd lowest in both of rural area and urban area in 2008. The percentage in the urban area had dropped from 87 percent to 1990 to 75 percent in 2008. It seems to imply that development of water supply infrastructure could not catch up with the speed of urban development.

Table 6-2: Access to Improved Water Sources (% of population)

	Rural				Urban				Total				Unit: %
	1990	2000	2005	2008	1990	2000	2005	2008	1990	2000	2005	2008	
Myanmar	47	60	69	69	87	80	75	75	57	66	71	71	
Vietnam	51	74	85	92	88	94	97	99	58	79	88	94	
Cambodia	33	42	51	56	52	64	75	81	35	46	56	61	
Lao PDR	-	40	47	51	-	77	74	72	-	48	54	57	
Thailand	89	95	97	98	97	98	99	99	91	96	98	98	
Malaysia	82	93	99	99	94	99	100	100	88	97	100	100	

Source: Statistical Yearbook for Asia and the Pacific 2011

Table 6-3: Access to Sanitation (% of population)

	Rural				Urban				Total				Unit: %
	1990	2000	2005	2008	1990	2000	2005	2008	1990	2000	2005	2008	
Myanmar	15	59	79	79	47	81	86	86	23	65	81	81	
Vietnam	29	50	61	67	61	79	88	94	35	57	68	75	
Cambodia	5	10	15	18	38	50	60	67	9	17	24	29	
Lao PDR	-	16	30	38	-	62	77	86	-	26	43	53	
Thailand	74	92	96	96	93	94	95	95	80	93	96	96	
Malaysia	81	90	95	95	88	94	96	96	84	92	96	96	

Source: Statistical Yearbook for Asia and the Pacific 2011

Access to sanitation is better than water supply as indicated in the Table 6-3. The percentage has improved significantly during 1990 and 2000, and the result of the total (81%) ranked Myanmar at top in the CLMV countries.

1.2. Key strategies

(1) Need for prioritization

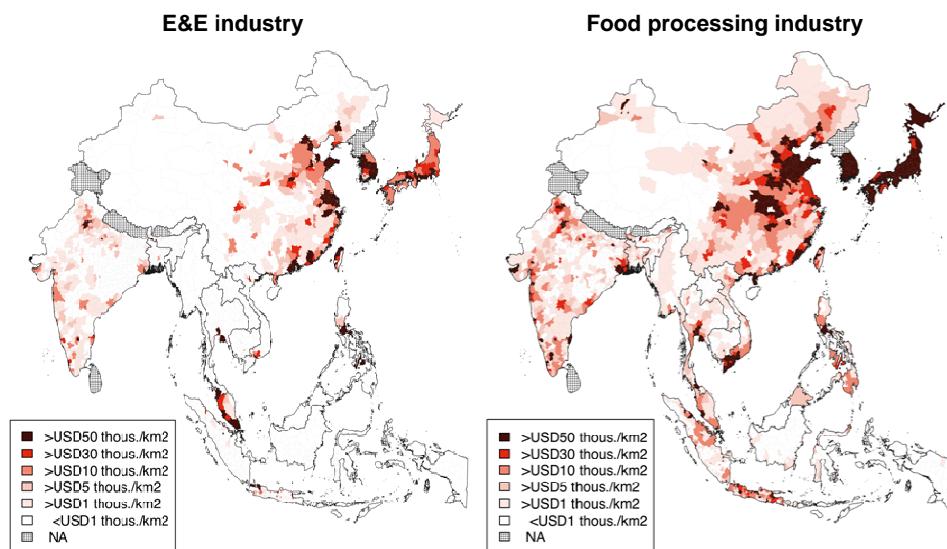
Given the circumstances, Myanmar needs all-round reforms. We need new roads, and existing roads need to be paved and upgraded. Passenger and commercial cars will increase and it will require new roads. There is a need to reduce road traffic deaths. Ports and airports need to be upgraded. Railway needs rehabilitation. Myanmar needs to catch up with increasing ICT demand of people and industries. We must tackle various MDG issues. At the same time, Myanmar needs to provide internationally comparable data and improve data quality.

Obviously these cannot be achieved at once, even though Myanmar is now addressing them all in parallel. Finance and human resources are limited and infrastructure projects take time. Therefore, *we must have clear objective and strategy to prioritize the infrastructure projects.*

One practical way to prioritize the projects is taking the same way as the other ASEAN countries have taken. ASEAN forerunners and Vietnam have long pursued the trade and FDI driven industrialization. Fragmentation theory and the concept of ‘2nd unbundling’ clearly explain what we have seen in those countries. ASEAN forerunners and Vietnam have successfully attracted some production processes and tasks in the production networks developed by multinational enterprises (MNEs). The East Asian countries including ASEAN forerunners and MNEs were main drivers to promote international division of labor in terms of production processes and tasks and created the most sophisticated production networks in the world. Moreover, ASEAN forerunners have expanded the variety of the processes and tasks as they raised their capacity.

Those countries initiated trade and FDI driven industrialization from their primary cities. In ASEAN, most production processes in automotive industry and electronics and electric appliances (E&E) industry are located in limited areas near the big cities. Figure 6-2 illustrates the agglomeration of E&E and food processing industries based on the industrial value added divided by area. There is more uneven distribution of E&E industry, when compared with food processing industry. E&E industry is located near the big cities and only a few other regions can attract the industry. Malaysia succeeded in dispersing the electronics industry to the states along the Strait of Malacca, but for Thailand, Indonesia, the Philippines and Vietnam, agglomerations in production can be seen in limited areas. It implies that even though ASEAN forerunners and Vietnam could attract FDI and some production processes, it is still a long way for them to disperse the industry to other regions in the countries.

Figure 6-2: Agglomeration of E&E and food processing industries (2005, USD per km²)



Source: IDE-GSM team. NA for some countries and regions due to data availability.

The Comprehensive Asia Development Plan (CADP, ERIA 2010) emphasized the

interactions among the regions in different development stages. The report classified the regions to three tiers, that is, existing industrial agglomerations such as Singapore, Bangkok and Chennai (Tier 1), potential growth nodes to be linked with production networks (Tier 2) and other regions (Tier 3). In the report, Yangon, Mandalay and Dawei are mentioned as possible Tier 2 regions to be involved with the production networks. Realistically, Yangon, Mandalay and Dawei have great opportunity to be connected with production networks.

(2) Development of Yangon with international standardized infrastructure

Myanmar's primary city is Yangon and its primary port is Yangon port. As there is going to be a gradual shift of the primary port from Yangon port to Thilawa port, so both the ports are discussed in this section. There is a need to think of upgrading infrastructure, providing new infrastructure, and providing international standard infrastructure. Especially, as international infrastructure requires higher costs and technical assistance from other countries, there is a need to identify which infrastructure projects should be of international standard.

Table 6-4: Strategy for Yangon (target years for partial operation)

		Urban	Industrial
Up 2015	to Thilawa Port Yangon to Thilawa access road Rehabilitation and upgrading the roads		Thilawa SEZ Upgrading current Industrial Zones
2016-2020	Ring road (Yangon) Urban railway (Rehabilitation) Hanthawaddy International Airport		Thilawa and suburban Yangon
2021-2025	Urban Railway (New in Yangon) Airport Link to Hanthawaddy		
2026-2030	Urban Expressway		

Note: Bold text items require international standard and/or technical assistance

Source: ERIA.

As far as infrastructure is concerned, international standard infrastructure is needed for industrial estates/SEZ, primary ports, and access roads between them in the Greater Yangon area. Thilawa SEZ and Thilawa port upgrading will be a model case of international standard infrastructure in Yangon and Myanmar. International standard SEZ should be with stable electricity, internet and water supply, wastewater treatment facility, international standard customs office, international standard freight forwarders, transparent labor/SEZ laws and regulations, and various incentives to the investors. One stop center of trade and investment can be established in SEZ as in Cambodia so that firms can get all information and all import, export and investment related documents, and consult with the staff of the center on any kind of difficulties in trade and investment.

Living condition should also be improved to attract foreign investors. High-standard hotels, residents, service apartments, hospitals, supermarkets, international schools, and even golf courses or other entertainment facilities are necessary for the visitors, managers and their families. Although those amenities are provided by private companies, Myanmar government can give incentives and facilitation measures to attract these companies and enhance living condition for the investors.

Mitigating the traffic jams in Yangon must be a long-term effort as in all other countries. Because economic development must induce the inflow of households and firms into the primary city, we can say the population of Yangon, including suburban areas, can exceed 10 million⁴⁰. There should be continued upgrading of current roads and urban railways, build new bridges, plan for new urban railways such as subways,

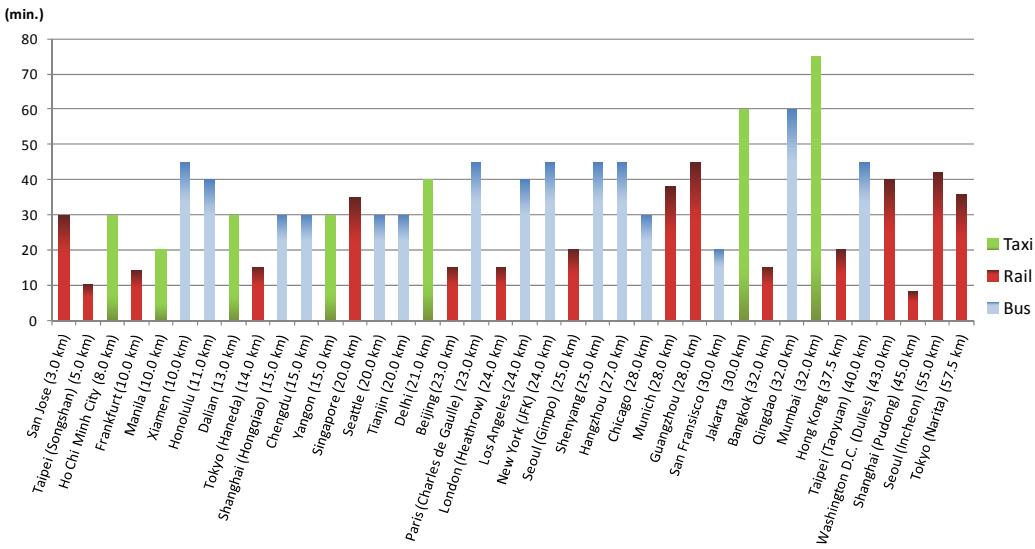
⁴⁰ Both JICA study on Master Plan for the Greater Yangon and IDE/ERIA-GSM analysis estimated that the Greater Yangon will have more than 10 million populations.

and develop a ring road. And the territory of Yangon City should be expanded so that urban functions work smoothly.

Myanmar needs to upgrade the current industrial estates. New industrial estates in suburban areas of Yangon, especially north-eastern area of Yangon along national roads should be planned. Better access from these areas to the Thilawa port will be critical.

Yangon will have new Hanthawaddy International Airport and start its construction very soon. Current handling capacity of the Yangon International Airport is 2.7 million passengers. The Yangon Airport already exceeded 3 million passengers in 2012 and forecast tells that traffic will be 5.4 million in 2015, so the development of the new port is an urgent matter. *Better access to the Hanthawaddy International Airport will also be a key in the global competition, especially in electronics sector and services industry.* As shown in Figure 6-3, many airports have access times less than 45 minutes. Especially, airports in distant place have railway access from/to the city, e.g., Bangkok, Hong Kong, Shanghai (Pudong), Seoul (Incheon) and Tokyo (Narita). Given the 80 km road distance between Hanthawaddy International Airport and Yangon city center, better rail link between the two is essential.

Figure 6-3: Shortest Time between The Cities and The Airports



Note: Need to choose a better mode between “Rail” and “Bus”.

Source: ANA (Japanese airline’s magazine).

(3) Mandalay and Yangon-Mandalay link

Mandalay is the second largest city in Myanmar and is a logistics hub connecting northern cities. Yangon-Mandalay link is the most important link within Myanmar. Infrastructure development in Mandalay is crucial because it should be the first step to industrial dispersion in Myanmar. If some industries are successfully dispersed to Mandalay, the geographical coverage to other cities, regions and states could also be expanded. Otherwise, inclusive growth and high economic growth cannot be achieved simultaneously.

**Table 6-5: Strategy for Mandalay and Yangon-Mandalay link
(target years for partial operation)**

		Urban	Industrial	Intercity
Up to 2015	Rehabilitation and upgrading Incentive in Mandalay airport		Upgrading current Industrial Zones	Rehabilitation and utilization of existing infrastructure, incl. Yangon-Mandalay Expressway
2016-2020		Mandalay area		Further upgrading of Yangon-Mandalay link, incl. rehabilitation of railway Upgrading inland waterways
2021-2025	Ring road (Mandalay)			
2026-2030	Urban Expressway			

Note: Bold text items require international standard and/or technical assistance

Source: ERIA.

The issues in Yangon-Mandalay link can be divided by two stages. First is *enhancing the capacity of current expressway running between Yangon and Mandalay via Nay Pyi Taw to allow freight transport.* Currently, there is an expressway with 4 lanes between Yangon and Mandalay, which has enough space to be upgraded to 8 lanes. However, trucks are not allowed to run on this road till the full pavement width of expressway is finished. Most freights are shipped through narrow National Road No.1. For better accessibility between Yangon and Mandalay, upgrading the current expressway to allow freight transport is important. Second is *planning and forecasting better modal mix among National road No.1, expressway, railway and inland waterway.* Rehabilitation of railway and inland waterway can be assisted by other countries or international organizations. *Collection of quality data, especially in terms of usage of those modes, is essential to discuss the current and future modal mix.* Also, we should consider the gradual modal shift of passenger and cargo transport from inland waterway to road as industries and people become more time-sensitive.

Mandalay can be a growth pole as well as an international hub in terms of air-cargo. Based on other countries' experience, Myanmar needs to have an international logistics company in Myanmar. Also, landing fee should be lowered. Malaysia and Thailand have lower landing fees for Kuala Lumpur International Airport and Suvarnabhumi Airport, respectively. Myanmar can consider better incentive schemes to the air carriers as well as to the logistics companies.

(4) Dawei and Kyaukphyu as development node

Dawei and Kyaukphyu, which have SEZ plans, can be a milestone to disperse the international production networks to other cities in Myanmar. First of all, Dawei and Kyaukphyu have different characteristics in that they will be the gateways for Thailand and China, respectively. To develop these cities, connectivity enhancement to Thailand and China is required. For China, Kyaukphyu will be a strategic project to get a gateway to Indian Ocean as well as disperse the industries from coastal areas of China to western areas (Isono, Kumagai and Kimura, 2012). For Myanmar, Kyaukphyu project must be accompanied with domestic road/railway improvement. For Thailand and other Mekong countries, Dawei will create large economic impacts, as we discuss in the next section. If we provide good gateways for China or Thailand, SEZ and other industrial development near the SEZ sites can be considered. Upgrading Dawei airport into an international airport will provide a better access from Bangkok or other cities.

(5) Fulfilling the basic needs

Yangon development is essential for the economic development of Myanmar, though it does not ensure inclusive growth. Yangon development will attract people

and firms which will lead to increased traffic congestion. *Upgrading of current infrastructure outside Yangon should be undertaken simultaneously either with ODA or through Myanmar's own budget.*

However, two facts must be borne on mind. First, Yangon development together with institutional development benefits real per capita GRDP growth in northern regions, despite the outflow of households and firms from those areas. People in northern regions and states can increase their sales and purchase to/from Yangon and increase exports and their imports to/from other countries, through efficient port or airport of Yangon. For example, agricultural sector can benefit from better access in Yangon area, because deregulation and better access from Yangon port to other countries will induce relocation of the distribution center function of agricultural goods to areas closer to Yangon city (Kudo, Gokan and Kuroiwa). It also applies to ICT. Better internet connectivity is a primary requirement, and ensuring better internet access in Yangon city should be pursued continuously despite the rapid increase in demand. Second, just because Yangon's congestion is too severe, building of other industrial estates and SEZs outside Yangon should not be considered. Industries, especially FDI driven development cannot be dispersed without better infrastructure in the primary city. Building other industrial estates and SEZs in other regions without tackling the congestion in Yangon cannot attract foreign firms to another industrial estate. It will also lessen the economic impact and long-term economic growth will slow down.

Better decentralization mechanism is a key to provide basic infrastructures in rural areas. Local governments should have better knowledge about their regions and elected local governments must think of voter's preferences. We can learn from Indonesia, which has experienced drastic change toward decentralization and has a lot of literature in both qualitative and quantitative analyses. Some key findings are as

follows:

- A statistical analysis revealed that decentralization has increased infrastructure provision in rural areas (Chowdhury, 2009). Moreover, villages with lower average income acquired infrastructure provision more than pre-decentralization era and the decentralization has narrowed the infrastructure gaps between higher income villages and lower income villages.
- Another statistical analysis showed that corruption increased the local government expenditure significantly (Murwito, *et al.*, 2012). The study suggested that we need an e-procurement system as well as a monitoring mechanism by third-party outside the local government.
- The law No. 22/1999 in 1999 eliminated the decision hierarchy between provincial and district governments for the decentralization. Since districts had started to have similar projects of new port construction or new bus station development without any direction or coordination, the law No. 32/2004 in 2004 restored the decision hierarchy and required approvals from provincial governors for districts' spatial planning (Okamoto, 2010).

1.3. *Domestic Corridors Utilizing International Initiatives*

The principle infrastructure to facilitate smooth transportation along economic corridors should be upgraded. Transport infrastructure in all modes of transport related facilities and services should be improved for domestic transport, overseas trade and border trade. Potential investment projects in road and logistic facilitation subsectors are needed.

Table 6-6: Strategies for Investment on Infrastructure Development

Area of focus	Short-term strategy	Medium-term strategy	Long-term strategy
Road Infrastructure	<ul style="list-style-type: none"> ● Construction of major trade routes ● Upgrading existing roads 	<ul style="list-style-type: none"> ● Improve all Union Highway road status to meet at least ASEAN Highway Standard Class III 	<ul style="list-style-type: none"> ● Improve all Union Highway road status to meet at least ASEAN Highway Standard Class II
Road	<ul style="list-style-type: none"> ● State-owned 	<ul style="list-style-type: none"> ● Expand Intra and 	<ul style="list-style-type: none"> ● Implementation of

transportation services	transportation services should be further privatized • Efficient public transport	Intercity transport • Extend network in the international and regional cooperation programmes • Construction of roads and bridges	the Intelligent Transport System in Nay Pyi Taw and Yangon • Implementation of international road Safety standard
Railway transportation services	• Encourage investment to improve Yangon –Mandalay railroad to meet the travel time of 12 hours. • Cooperation with private sectors to improve the effectiveness of Yangon circular railway system • Improve cargo trains for cargo transport	• Construction of Muse- Kyauk Phyu rail line and Dawei-Kanchanaburi rail line which connects neighbouring countries by BOT system • Change railroad in line with ASEAN gauge in main railroads	• Change railroad in line with ASEAN gauge to all railroads
Air transport services	• Construction of new Hanthawaddy International Airport • Allow private sectors to operate the airports • Upgrading airline services	• Operation of four International Airports in full swing • Upgrading the existing domestic airports • Expansion of domestic and international airlines and air routes	• Upgrading the existing domestic airports to international airports such as Bagan, Dawei and Kyauk Phyu
Port Infrastructure	• Upgrading existing port facilities especially in Yangon •	• Implementation of deep seaports projects in Dawei and Kyauk Phyu • Implementation of other seaports projects in Sittwe , Pathein, Myeik and Kaw Thaung • Construction of 6 ports: Bhamaw port, Mandalay port, Pakokku port, Magway port, Monywa port, Kalaywa port	• Myanmar ports to be on the international sea routes •
Inland water and maritime	• Upgrading existing ports facilities	• Improve shipping lines	• Upgrade all shipyards of the

transport	<p>along the Yangon river</p> <ul style="list-style-type: none"> • Improve inland water transportation especially Yangon-Mandalay-Bhamaw route • Formulation of the national integrated transport master plan 	<ul style="list-style-type: none"> • Extend cargo ships for inland water transport • Introduce routes to connect international maritime routes • Implementation of the national integrated transport master plan 	<p>inland water transport</p> <ul style="list-style-type: none"> • Implementation of the national integrated transport master plan • Construction of new international port terminal in mouth of Yangon River to approach Regular mother vessels routes
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Source: ERIA.

Among them, many sections have been designated as international economic corridors by ADB GMS, ESCAP, ASEAN or other organizations and initiatives. Yangon-Mandalay, Myawaddy-Paan-Yangon and Mandalay-Monywa-Tamu sections are part of Asian Highway No.1 as well as ASEAN Highway No.1. A part of the expressway between Yangon and Mandalay is a part of India-Myanmar-Thailand Trilateral Highway. Muse-Mandalay section is Asian Highway No.14. Myanmar can ask for assistance for these infrastructure developments, starting from repairing current pavement and reduce missing links. Myanmar can gradually extend the sections at international standard with clear prioritization.

As domestic corridors are part of international corridors, trade and transport facilitation at the borders are indispensable. As an ASEAN member state, Myanmar has a responsibility to take part in the ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT) signed in 1998⁴¹, the ASEAN Framework Agreement on Multimodal Transport (AFAMT) signed in 2005, and the ASEAN Framework Agreement on Facilitation of Interstate Transport (AFAFIST) signed in

⁴¹ There are 9 Protocols. Five were ratified. Protocol 2 & 7 are to be signed and 1 & 6 are to be ratified.

2009. Myanmar has acceded to the GMS cross border transport agreement (CBTA) in 2003⁴² so that it can fully utilize the agreement should it want to.

2. Integrated Energy Development

2.1. *Energy situation and policy of Myanmar*

(1) General condition

While the development of a comprehensive integrated energy strategy requires attention to both the sourcing of primary power inputs as well as distribution, perhaps no challenge is as important as Myanmar's ability to electrify its domestic economy. This is due to the massive scale and scope of the initiative needed, and capital required, to maintain, repair, expand and supplement existing infrastructure. In addition there are many technical, social, political, financial and other issues that need to be addressed. Furthermore, without adequate power, Myanmar cannot industrialize as it will not be able to create competitive manufacturing facilities. Nor will it be able to upgrade its telecommunications, technology and overall capacity to deliver necessary services to businesses and consumers.

Until these issues can be resolved, the nation is experiencing increased blackouts, even during the rainy season when hydropower plants operate at high capacity. Rapid growth in electricity consumption—averaging 14.7 percent per year between 2008 and 2011⁴³—is placing further strains on capacity and increasing generator failure⁴⁴.

⁴² There are 20 Annexes and Protocols. All except Annex 5, 13 (a), 13 (b) & Protocol 3 have been sent to other GMS members and ADB.

⁴³ According to the Dept. of Electric Power, household electrification rates (% of households) are 21, 23, 24, 25 and 27 for the years 2008/09 to 2011/12 respectively.

Efforts to improve electrification have also come under literal and figurative attacks. After insurgents bombed transmission lines linking Shweli hydropower station to the national grid, generator capacity was reduced by 200 MW. People in Myanmar have also organized protests and accused the government of diverting electricity to neighboring countries. Projects funded by Chinese and Thai companies have been suspended or cancelled and last year a government official declared all future natural gas finds reserved for domestic purposes⁴⁵.

Myanmar's size, as well as its lack of development and large rural population, necessitates an integrated and comprehensive approach to energy, including electricity. It is not a question of addressing selective deficiencies within largely functional infrastructure but rather building on a rudimentary and largely antiquated system almost from scratch. Further, it requires an in-depth understanding of political, social and economic issues.

(2) Supply and Demand of Energy

Supply and Demand of Energy

Myanmar possesses substantial energy resources. The country's natural gas reserves are the 10th largest in the world; its vast water supply provides the country with rich hydropower capacity; and forests and abundant arable land contribute to a sizeable potential for renewable energy including geothermal. It is no coincidence that Myanmar's energy industry has been the country's leading recipient of foreign

⁴⁴ David Dapice, [Electricity in Myanmar: The Missing Prerequisite to Development](#), Harvard University, May 31, 2012

⁴⁵ Patrick Winn, [Myanmar's Real Power Struggle? Keeping on the Lights](#), *Global Post*, June 23, 2012

investment.

Given Myanmar's underdeveloped state, its Ministry of Energy introduced a diversification strategy emphasizing exploration and production to generate export revenues and meet domestic demand. The country's total energy mix is comprised of 61 percent biomass, 11 percent natural gas, 11.5 percent oil, 14.5 percent hydropower, and 2 percent coal.⁴⁶

Of total electricity generation in 2009, production from hydroelectricity climbed to 72 percent, from 62 percent in 2008 and 57 percent in 2007.⁴⁷ Production from oil, gas and coal declined to 29 percent, from 39 percent in 2008 and 43 percent in 2007.⁴⁸ Natural gas produced 1,146 million kWh in 2009, or 20 percent, down from 29 percent in 2008 and 30 percent in 2007.⁴⁹ Production from crude oil and petroleum decreased to 523 million kWh in 2009, or 9 percent, down from 10 percent the year prior and 14 percent in 2007. Renewable sources, including solar, wind and biofuel, are being explored to meet rural household needs.

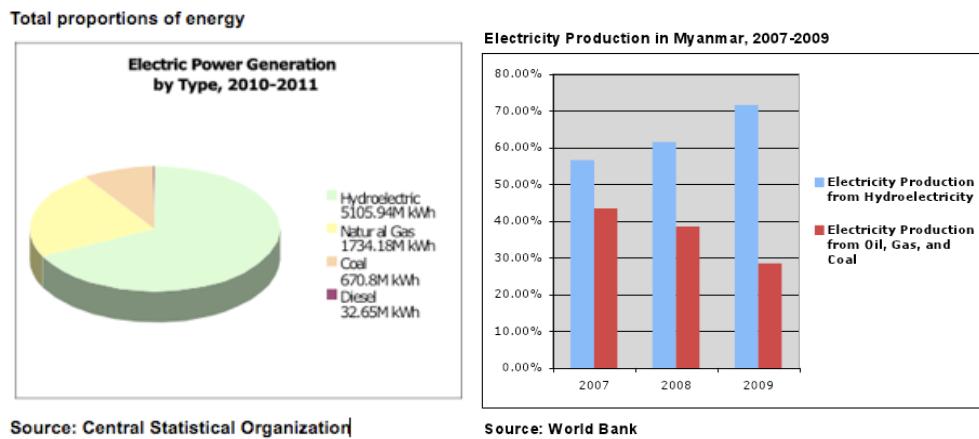
⁴⁶ Wah Wah Thaung, Oil and Gas Sector in Myanmar: The energy related issues and challenges from the perspective of Ministry of Energy, Myanma Oil and Gas Enterprise, Ministry of Energy, Republic of the Union of Myanmar. Presented at "Energy challenges in ASEAN: Implications for Myanmar" workshop, February 2013

⁴⁷ [Electricity Production from Hydroelectric Sources \(% of total\)](#), The World Bank Group, accessed: June 29, 2012

⁴⁸ [Electricity Production from Oil, Gas and Coal Sources \(% of total\)](#), The World Bank Group, accessed: June 29, 2012

⁴⁹ [Electricity Production from Oil Sources \(% of total\)](#), The World Bank Group, accessed: June 29, 2012

Figure 6-4: Power generation in recent years



Oil and Gas: Myanmar has about 150 million barrels of future recoverable oil reserves and 11.197 Trillion cubic feet of natural gas reserves as of April 2012. It produces over 17,000 barrels of Crude Oil and nearly 1300 MMCF of Natural Gas per day.⁵⁰ Of natural gas produced, more than 80 percent is exported to Thailand.⁵¹ Given public demand to utilize this resource domestically, a contract with Thailand has been renegotiated to allocate more natural gas for domestic use in Myanmar.⁵²

Myanmar's electricity production from natural gas sources reached a peak of 70.6 percent of total electricity production in 1998 and declined to 19.6 percent of total production in 2009, according to the International Energy Agency.

More than 90 percent of Myanmar's natural gas production comes from the Yadana and Yetagun offshore fields in the Andaman Sea. These primarily supply Thailand though some gas from Yadana is used for domestic supply. Gas from Nyaungdon, Myanmar's largest onshore gas field, located roughly 55 km off the coast of Yangon,

⁵⁰ Nicky Black, "The Myanmar Oil and Gas Industry," in Blood Money: A Grounded Theory of Corporate Citizenship: Myanmar (Burma) as a Case in Point (University of Waikato, 2009)

⁵¹ [Myanmar's Power Struggle Endangers Economic Boom, *op.cit.*](#)

⁵² [Thailand to Supply More Gas to Meet High Demand in Myanmar](#), Arakon Oil Watch, June 21, 2012

supplies state and privately owned factories as well as Yangon. Thai company PTTEP has made discoveries in M-9 and M-7 blocks which include Zawtika, Gawthika, Shweypyihtay, Kakona and Zatila. Shwe, an offshore field near Sittway was discovered in 2004, and will deliver gas to China. Production in Shwe and Zawtika, both scheduled to begin in 2013, is anticipated to bring Myanmar's total gas output to roughly 2.2 billion cubic feet a day by 2015⁵³. The country's gas exports are expected to reach a record USD4 billion for 2012-2013⁵⁴. A new discovery, block M-3, will be entirely used for domestic supply⁵⁵.

To meet the challenge of increasing domestic demand, Myanmar will step up exploration for natural gas by 25 percent in FY2013-14, according to the National Planning Bill approved by parliament in March 2013. Myanmar has also relaxed its policy on the import of crude oil and petroleum products and welcomed joint venture operations with foreign companies for domestic oil exploration and production.

As of June 2013, 11 foreign companies were exploring for oil at 20 offshore sites, and 13 foreign companies, in addition to 18 joint ventures with Myanmar firms, were exploring in 18 onshore fields.⁵⁶ Myanmar is reported to have more than one hundred exploration blocks, 60 of which are open for investment. Of those, 29 are onshore, 12 in shallow and 19 in deep water.⁵⁷

Companies operating in Myanmar's oil and gas sector include Hong Kong's EPI Holdings, India's Jubilant Energy, Switzerland's Geopetro International Holding,

⁵³ Jacob Gronholt-Pedersen, [Myanmar to Launch Offshore Oil, Gas Bidding Round in April](#), Dow Jones, Mar. 4, 2013

⁵⁴ [Myanmar Gas Export May Touch \\$4bn](#), Natural Gas Asia, March 27, 2013.

⁵⁵ Wah Wah Thaung, *op.cit.*

⁵⁶ [Foreign oil companies ink exploration deals](#), Agence France Presse, June 21, 2012

⁵⁷ Daniel Ten Kate, [Myanmar Oil Veteran Rebuffs Suu Kyi a Shell](#), Chevron Weigh Bids, Bloomberg, Sept. 18, 2012

Malaysia's Petronas, Thailand's PTT Exploration and Production, South Korea's Daewoo, Indonesia's Istech Energy, and U.S.-based Chevron, which is operating in Myanmar under a grandfather clause. Australia's Woodside Petroleum and France's Total SA are also operating through partnerships.

The country held its first international bidding round for 18 onshore blocks in August 2011, and 8 blocks were awarded to 6 companies. A second international bidding round for another 18 onshore blocks was announced in January 2013, but it is unlikely decisions will be finalized before November 2013. Some onshore blocks will be kept as reserves by state-owned Myanma Oil and Gas Enterprise (MOGE).

Offshore oil and gas blocks tend to be seen as having more potential and therefore generate more interest from foreign firms. Myanmar announced first international bidding round on 30 offshore blocks on April 10, 2013 and in a new development has allowed foreign companies to bid for full control without mandating the companies take a local partner as in the past⁵⁸. Bidding firms are, however, required to enter a production-sharing agreement with MOGE⁵⁹.

It is also noted that the pipelines for natural gas and oil connecting the coast of the Western Myanmar with China will be completed in 2013.

Coal: Myanmar produced an average 416 thousand tons of coal per year between 1988 and January 2009⁶⁰. The country has 36 major coal deposits with total estimated reserves of over 519.21 million tons, mostly in the north. Higher quality coal deposits, consisting of lignite to sub-bituminous coal, are primarily found in Sagaing Division, Magwe Division, and Tanintharyi Division, while lower quality coal is found in Shan

⁵⁸ [Myanmar open to foreign energy bids](#), Bangkok Post, March 6, 2013

⁵⁹ [Myanmar opens keenly awaited oil and gas auction](#), Agence France Presse, April 10, 2013

⁶⁰ Myanmar Energy Sector Assessment, Asian Development Bank, October 2012.

State. Coal accounts for roughly 8 percent of electricity production. It is mainly used for power generation, cement production, steel production and industrial zones or for export to Thailand and, to a lesser extent, China. There is growing concern, however, over coal's environmental and societal impact, as evidenced by the recent cancellation of the Dawei coal-fired plant.

Nevertheless, Myanmar's Ministry of Mines is emphasizing exploration—with coal production scheduled to increase by 6 percent annually up to FY2031—to allow expanded use for both power generation and non-power-related uses. There are currently ten mining companies involved in coal production in Myanmar: Htun Thwin Mining, Geo Asia Industry and Mining, Myanmar Economic Corporation, Yangon City Development Committee, AAA Cement Int'l Co., Ltd., U.E Export & Import Co., Ltd., Mine Htet Co., Ltd., Ngwe Yee Pale Mining Co., Ltd., and the Max Myanmar Group. Myanmar's membership in the ASEAN Forum on Coal (AFOC) has opened additional opportunities for coal investment, including as a means to promote rural electrification. Myanmar is also introducing clean coal technology.

Hydropower: Myanmar has a high potential for renewables that provide a low-cost alternative to diesel. The largest source is hydropower, which grew in importance after the World Bank conducted a 1995 study that predicted Myanmar had a potential production capacity of 108,000 MW⁶¹.

In 2006, Myanmar announced plans to wean the country off gas to make hydropower the sole electricity source by 2030. Twenty-four hydropower plants would be developed, varying in output from 48 MW to 7,100 MW, with a projected 23,300 MW of electricity by 2030.⁶² Certain hydropower resources are earmarked for

⁶¹ [Harnessing Energy from the Clouds](#), *The Myanmar Times*, August 20-26, 2007

⁶² [Government Will Prioritize Hydropower Projects Over Gas](#), *The Myanmar Times*, July 10, 2006

export, while gas would be directed to fertilizer production and other projects.

Several power plants are currently under construction in Mandalay, Magway, and Bago divisions as well as Rakhine state and the Chindwin River Valley. Additional projects are located in Upper Paunglaung, Nacho, Shwegen, Htamanthi, Pyuchaung, Kunchaung and Thahtaychaung. Feasibility studies are also underway in Thanlwin and Tarhsan.

Although hydropower is a sound long-term option, it requires long lead-time, a significant amount of investment and environmental consideration. This must come from foreign companies, and Myanmar would prefer not to rely on external entities for basic power needs. Hydropower also suffers shortages during dry season, requiring back-up. Therefore, even though hydro capacity should be expanded, the nation must remain diversified so it will not be reliant on any one energy source.

Gas can plug short-term gaps and be stored during times of low demand for use in maximum demand periods. For base-load, however, hydropower, geothermal and tidal energy are preferable. Natural gas can be used as a feedstock to increase added-value of Myanmar's consumer products and exports. Liquefied petroleum gas (LPG) and compressed natural gas can also be diverted for domestic use. This would reduce carbon emissions and help to develop the gas industry.

Other Renewables: Traditional biomass is, and will remain, the primary energy source in Myanmar for many years to come. In addition to hydropower, Myanmar is working to develop other renewable energy sources, including wind, solar, geothermal, and biomass, consisting of fuel wood, charcoal, agricultural waste, and animal residue.

Table 6-7: Biomass Resources in Myanmar

Type	Quantity
Rice Husk	4.392M ton/year

Lumber Waste	1.5M ton/year
Bagasse	2.126M ton/year
Molasses	240M ton/year
Livestock Waste	34.421M ton/year

Source: Myanmar Engineering Society.

While it is difficult to obtain accurate data given unreported logging, more than 50 percent of Myanmar's total land area is reported to be forest. This represents approximately 344,232 square kilometers. Myanmar's potential annual yield of fuel wood could be as high as 23.5 million hoppus tons. According to the data from the Ministry of Environmental Conservation and Forestry, fuel wood and charcoal represent about 70 percent in 2010 of the country's primary energy supply and will have a 58 percent share in 2020. Consumption is directly proportional to population growth and indirectly proportional to availability of other energy sources⁶³.

To preserve forests, Myanmar's government has undertaken initiatives to substitute use of fuel wood with other biofuels or, in areas near oil and gas fields, LPG. Efforts are also being made to introduce more efficient stoves and appliances to rural households. These measures are expected to decrease dependence on fuel wood by 46 percent over a 30-year period.

Per year, Myanmar also has 4.392 million tons of rice husk resources, 1.5 million tons of lumber waste, 240,000 tons of molasses, 2.126 million tons of bagasse, and 34.421 million tons of livestock waste. All of these sources can be used for biomass gasification⁶⁴. As of 2008, 428 biomass gasification plants were operating in Myanmar. Cost savings makes biomass especially attractive for Myanmar's rural population. Nevertheless, as one analyst interviewed noted, "Use of in-country biomass is only

⁶³ [Renewable Energy Sector](#), Myanmar Ministry of Energy, accessed: June 29, 2012

⁶⁴ [ASEAN Countries' Presentation on Renewable Energy Projects and Business Opportunities \(Myanmar\)](#), Myanmar Engineering Society

attractive if it substitutes for imported oil. It will not replace hydro for base-load generation.”

Solar energy also holds promise. Myanmar's Ministry of Electric Power reports available solar energy is about 51,974 tTWh per year.⁶⁵ Solar energy is abundantly available in central Myanmar with a radiation intensity of 5 kWh per square meter per day during the dry season. At present it is only being used on an individual scale, primarily through photovoltaic cells. Solar panels have been a source of electricity for certain monasteries and schools in Myanmar and were provided to villages in Myanmar's Ayeyarwady Delta following power interruptions due to Cyclone Nargis⁶⁶. Despite the savings over diesel fuel when viewed over a long timeframe, solar electricity has a relatively high start-up cost.

Myanmar's wind energy potential is 365 terawatt hours per year, according to government data, and the country has identified 93 geothermal locations.

The potential for tidal electricity generation may also be great due to 1,700+ miles of coastline and expansive delta areas. Two tidal-powered hydroelectric facilities were completed in 2005, in Ngapudaw Township, Ayeyarwady Division⁶⁷.

(3) Structure of electricity industry

Myanmar's electricity system is centralized under government and state-owned enterprises with some private sector involvement in the generation, distribution, sale and service of electricity. The industry is regulated by the Electricity Act of 1948 (as amended in 1967), the Myanmar Electricity Law of 1984 and the Electricity Rules of

⁶⁵ Mercedita A. Sombilla, Urooj S. Malik, A.K. Mahfuz Ahmed, and Sarah L. Cueno, [Integrating Biofuel and Rural Renewable Energy Production in Agriculture for Poverty Reduction in the Greater Mekong Subregion](#), Asian Development Bank, 2009.

⁶⁶ [Electricity in Myanmar](#), *op.cit.*

⁶⁷ Delta Holds Great Potential for Tidal Power Generation, *Voice Weekly*, February 13, 2006

1985.

The Ministry of Electric Power, established in 1997, was restructured in 2006 and divided into two separate ministries: the Ministry of Electric Power 1 (MOEP-1), which was responsible for the development and maintenance of hydropower and coal-fired power plants; MOEP-1 was comprised of the Department of Hydropower Planning (DHPP), Department of Hydropower Implementation (DHPI) and Hydropower Generation Enterprise (HPGE). The Ministry of Electric Power 2 (MOEP-2) was responsible for the development, operation and maintenance of gas and combined power plants, transmission and distribution system. MOEP-2 was comprised of the Department of Electric Power (DEP), Myanmar Electric Power Enterprise (MEPE), Electricity Supply Enterprise (ESE) and Yangon City Electricity Supply Board (YESB). In September 2012, these two ministries were reorganized into a single ministry, Ministry of Electric Power (MOEP).

MEPE, established in 1997, is a state-owned, state-run utility. It operates and maintains Myanmar's gas turbine power stations and combined cycle power plants, and is charged with financing, constructing, and operating the country's transmission lines. MEPE also constructs distribution lines as well as substations. It is charged with distributing electricity through the national grid to five of Myanmar's seven states and six of seven divisions.

Distribution of electricity was managed under a state monopoly until 1994, when, to meet increasing demand for power, the government invited the private sector to invest in Myanmar's electricity sector⁶⁸. Low returns, coupled with international sanctions against the country, however, have been a challenge to commercialization.

YESB was formed and tasked with approving small businesses to generate and sell

⁶⁸ Burma Eyes Private Power Producer, *Nation (Bangkok)*, February 13, 1996

power to consumers in Yangon division. HPGE and MEPE supply power to local consumers, but only Shweli Hydropower Company (JV Company of HPGE and YUPD) exports electricity to other countries. Off-grid power is supplied by the Electricity Supply Enterprise⁶⁹.

(4) Decision-making structure of Ministry of Electric Power

Independent Power Providers (IPP) still cannot own transmission lines and large plants remain under government control. What constitutes an IPP in Myanmar is in a state of flux⁷⁰. In rural areas, small-scale hydro and bio-fuel projects generate and distribute electricity under local or commercial auspices. Commercial captive-power producers also supply some larger towns and suburban areas.

Industrial parks and other captive-power producers have their own transmission systems. State utilities are unlikely to allow sale of captive power to independent buyers in other locations. However, there is insufficient clarity regarding connectivity and power purchase agreements of IPPs.

On a larger scale, the Myanmar government has signed contracts with commercial interests on a Build-Operate-Transfer (BOT) basis. Electricity generated under a BOT contract is sold to MEPE, which then transmits and re-sells the electricity to consumers. The generating facilities are to be transferred to the government, generally after 20 to 40 years. Myanmar's largest power plants have been developed under BOT contracts with foreign power companies, including China's Yunnan Joint Power Development Co. and Thailand's Italian-Thai Industrial Company. The majority of electricity generated is

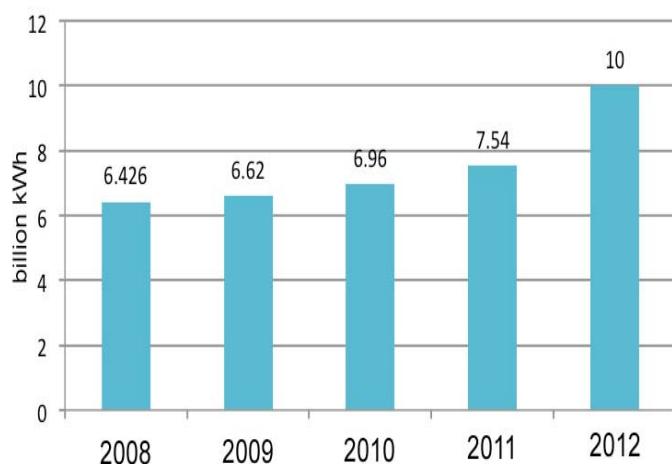
⁶⁹ Myanmar: Summary of Asian Development Bank's Initial Sector Assessments, Asian Development Bank, June 2012

⁷⁰ [Electric Industry in Burma/Myanmar](#), Online Compendium, Burma Library, accessed: June 28, 2012

exported.

State agencies produce electricity for their own use and industrial zones are known to establish their own electrical substations, transformers, transmission lines and stand-by generators. Captive-power transmission systems could account for the transmission of up to 66 kV, but more likely are less than 33 kV.

Figure 6-5: Electricity Generation in Myanmar



Source: CSO, 2012.

Electrical Capacity: Myanmar produced roughly 10 billion kWh of electricity, consisting of hydroelectricity, gas, coal, and diesel in 2011-2012⁷¹. Myanmar's Central Statistical Organization (CSO) reports that 6.62 billion kWh of power generation in 2008-09, 6.96 billion kWh in 2009-10, and 7.54 billion kWh for 2010-11⁷². This follows an increase in electricity generation from 5.804 billion kWh in 2005 to 6.426 billion kWh in 2008⁷³.

Despite an average 15 percent annual increase in electricity generation between

⁷¹ David Dapice, Electricity Demand and Supply in Myanmar, Proximity Designs, December 2012

⁷² [Electric Power Generated and Sold by the Myanma Electric Power Enterprise](#), *op.cit.*

⁷³ [Country Analysis Brief: Myanmar \(Burma\)](#), U.S. Energy Information Administration

2008-2011, the CSO does not report any additions to installed capacity between 2009 and 2012.⁷⁴ If accurate, this suggests the already inadequate power grid is being worked more intensively, increasing potential generator failure risk and power outages. Blackouts, already a common occurrence in most parts of Myanmar, became even more frequent in Yangon and Mandalay in 2012.

It is possible the CSO has not updated its statistics on installed capacity. Asian Development Bank reports installed capacity in 2011 was 3,361 MW, compared with CSO data that states installed capacity stood at 2,947 MW in 2010, made up of 94.06 MW off the grid capacity and 2,852.94 on the grid⁷⁵. According to CSO, installed capacity on the grid is comprised of 2,013.5 MW of hydroelectricity, 120 MW of coal, 550 MW of gas, 165 MW of steam, and 4.5 MW of diesel. ADB states total installed capacity for 2011 was comprised of 2,520 MW of hydropower capacity, 715 MW of gas-fired capacity, and 120 MW of coal-fired capacity.

Installed capacity may, however, be lower than government statistics suggest. For example, the EIA reports an installed capacity of 1,840 MW in 2008, up from 1,800 MW the year before and 692 MW in 1980.

Either way, installed capacity in the 1,800 MW to 3,500 MW range is far too low for a country of Myanmar's size. In comparison, Thailand, which has a similar population and is Myanmar's largest export partner, has an installed capacity of 28,479 MW, according to the Electricity Generating Authority of Thailand—up to 10 times that of Myanmar⁷⁶.

Myanmar currently has one of the world's lowest per capita electricity consumption

⁷⁴ [Electric Power Generated and Sold by the Myanma Electric Power Enterprise, op.cit.](#)

⁷⁵ The Republic of Union of Myanmar, Country Report, Myanmar Ministry of Agriculture and Irrigation, presented May 26, 2011-July 6, 2011

⁷⁶ [International Energy Statistics](#), U.S. Energy Information Agency

rates. Myanmar consumed 104 kWh per person in 2009, compared to 131 kWh per person in Cambodia, 590 kWh per person in Indonesia and 2,045 kWh per person in Thailand⁷⁷. Only Nepal, Haiti and a handful of sub-Saharan African countries consumed less electricity per capita than Myanmar.

Estimates place Myanmar's present electricity supply at only about half of future demand⁷⁸. ADB, citing the Ministry of Electric Power, estimates individual power consumption will grow from 203.9 kWh in 2012-2013 to 550.13 kWh in 2021-2022⁷⁹. Generally speaking, electricity demand grows at the same rate as GDP, but that assumes those already connected to the grid have adequate power supply. Electricity demand in Myanmar is estimated to be growing at an annual rate of between 10-15 percent⁸⁰. This is twice as fast as GDP growth, which the International Monetary Fund estimates at 5.5 percent in FY 2011-12 and 6.25 percent for FY 2012-13⁸¹. Given the state of Myanmar's power system, the growth rate of electricity demand could be 2.5 times international norms⁸².

Myanmar's Forest Department reports industry accounts for roughly 10 percent of final energy consumption, transportation for just over 6 percent and other users, which likely includes residential users, for 83 percent⁸³. One consulting firm states

⁷⁷ [Electric Power Consumption \(kWh per capita\)](#), The World Bank Group, accessed: June 29, 2012

⁷⁸ Dapice, Electricity in Myanmar: The Missing Prerequisite to Development, *op.cit.*

⁷⁹ Asian Development Bank, Myanmar Energy Sector Assessment, *op.cit.*

⁸⁰ Dapice, [Electricity in Myanmar: The Missing Prerequisite to Development](#), *op.cit.*

⁸¹ [Myanmar Set for Economic Takeoff With Right Policies](#), IMF Growth Survey, May 7, 2012

⁸² By contrast, according to a Harvard University study authored by David Dapice, the government's planned investments over the next five years will add only 617 MW of capacity, representing less than 5% annual growth.⁸² Dapice estimates electricity consumption for 2012 will be roughly 160 kWh per capita.⁸² According to report, annual growth averaged 3.8% over a two-decade period, and electricity consumption rose from 45 kWh per capita in 1987 to 99 kWh per capita in 2008.

⁸³ Myanmar Forest Department, presented at Stakeholders Meeting on March 25, 2012

households account for 70 percent of Myanmar's electricity consumption⁸⁴. An October 2012 ADB report cites 5.4 percent annual growth in energy consumption in Myanmar's commercial sector between 2000 and 2009, 4.8 percent annual growth in the industrial sector, and negative annual growth of 1.9 percent in the transport sector. The residential sector, although it is the largest consumer of energy, experienced only 1.3 percent annual growth between 2000 and 2009⁸⁵.

As mentioned, the government is increasingly looking toward hydroelectricity to address its capacity problem. According to feasibility studies, this can add about 46,300 MW of generating capacity⁸⁶. A May 2012 article in *The Myanmar Times* states Myanmar's hydropower plants have maximum generation capacity of 1,270 MW, which fluctuates in a monsoon climate. During Myanmar's dry season, hydro capacity drops to 1,000 MW due to lower water levels. Citing Ministry figures, *The Myanmar Times* reported peak electricity usage during rainy season averages 1,450 MW, rising to 1,850 MW during dry season.

Hydropower can be supplemented by gas during the dry season. However, U Aung Than Oo, former Deputy Minister for MOEP-2 and current Deputy Minister for the MOEP, noted combined hydro and gas capacity was at least 500 MW below electricity demand. Speaking at a May 2012 press conference, the Deputy Minister emphasized demand was expected to grow by 15 percent in 2012.

Up to 90 percent of electricity produced by certain joint venture operations, such as the China-funded Myitsone Hydroelectric Power project, are earmarked for export. This makes citizens skeptical of foreign investments in the sector. Riots broke out in

⁸⁴ [Electricity in Myanmar](#), Thura Swiss Research, April 12, 2012

⁸⁵ Asian Development Bank, Myanmar Energy Sector Assessment, *op.cit.*

⁸⁶ [Myanmar's Electric Power Generating Capacity Reaches 2,256 mw](#), *Xinhua*, January 1, 2001

2012, and Myanmar citizens accused the government of diverting needed electricity to China. Several Chinese- and Thai-backed investments, including the Myitsone project, were interrupted due to citizen backlash⁸⁷⁸⁸.

In response, the government agreed to dedicate future natural gas finds to domestic use. While an expedient political move, this is problematic as capacity expansion is capital intensive and substantial investment will be required. A pipeline in the Southeast that brings gas from offshore fields to Yangon is reported to have corrosion problems that substantially decrease its capacity⁸⁹. Other pipelines that bring gas to Yangon are already operating at capacity and would need to be upgraded. Without the hard currency revenues that can be generated through export sales, Myanmar may become overly dependent on debt and donor financing. It will also place the government under great pressure to subsidize domestic pricing. Another option is to install a modern combined cycle generator, which, according to David Dapice of Harvard University, would triple the amount of electricity produced using an equal amount of gas as the generators currently used in Myanmar.

Electricity Grid: Myanmar's national grid system connects major electric power stations—consisting of 20 hydropower plants, one coal-fired plant and ten gas-powered plants—to substations and end users using eight types of transmission and distribution lines⁹⁰. The country has 4,793.24 miles of transmission lines, comprised of 39 230 kV, 37 132 kV and 117 66 kV lines.⁹¹ There are 27 23 kV, 24 132 kV, and 108 66 kV

⁸⁷ [Burma to Halt Myitsone Dam Project: Media Reports](#), *Mizzima News*, September 30, 2011

⁸⁸ [Myanmar Scraps Coal-fired Power Plant at Dawei](#), *Reuters*, January 10, 2012

⁸⁹ David Dapice, Electricity Demand and Supply in Myanmar, Proximity Designs, December 2012

⁹⁰ Kan Zaw, Challenges, Prospects and Strategies for CLMV Development: The Case of Myanmar in ERIA Research Project Research 2007 No.4: Development Strategy for CLMV in the Age of Economic integration (Tokyo: IDE-JETRO, 2008)

⁹¹ [The Republic of Union of Myanmar: Country Report](#), *op.cit.*

substations with a total transformation capacity of 5,875.4 megavolt amperes. Transmission losses are high in Myanmar, estimated at 27 percent as of 2011, due to relatively low voltage and antiquated equipment⁹². This is down from about 30 percent between 2003-2009.

Adding to the problem, users sometimes use transmission line voltage regulators, or step-up transformers, which can create supply imbalances and blackouts. Beyond being uncompensated, this creates safety issues. More than one third of fires that broke out in Yangon in 2011 were reportedly caused by improper use of electrical appliances. Transformers are seen as a leading cause. This makes upgrading Myanmar's distribution system imperative.

Expanding the grid system can be the least expensive means to increase connectivity, which in Myanmar is at maximum 26 percent⁹³. The government plans to build 36 additional substations with 5,675 MVA and 6,444 miles of transmission lines using four 500 kV, 41 230 kV, 8 132 kV, and 20 66 kV lines. It is likely most new transmission lines will bring power from northern hydropower and southern gas-fired power plants at 230 kV and 132 kV. One analyst estimated the capital cost could be between USD 13 billion to USD 18 billion.

In terms of rural electrification, simply extending distribution lines will not provide a short- to medium-term solution due to inadequate generation capacity. A 2003 report by Japan International Cooperation Agency estimates if rural electrification were improved 2 percent annually, an optimistic assumption, it would take more than 40 years for networks to reach the majority of Myanmar's towns and villages⁹⁴.

⁹² Asian Development Bank, Myanmar Energy Sector Assessment, *op.cit.*

⁹³ [Addressing the Electricity Access Gap](#), Background Paper for the World Bank Group Energy Sector Strategy, The World Bank Group, June 2010

⁹⁴ [The Study on Introduction of Renewable Energy Sources in Myanmar](#), Japan International

(5) Distribution of electrification rate

According to MOEP data, electricity is distributed to 2,323,467 out of 8,905,674 families, or 26 percent. The electricity covers 220 out of 396 towns and approximately 1,600 of 6,774 villages in the current distribution network. Myanmar has a total 64,346 villages⁹⁵.

World Bank data, however, from 2009 states only 13 percent of Myanmar's population had access to electricity. Based on that rate, a 2012 presentation by the National Energy Institute at the National University of Singapore, says 19 percent of urban and 10 percent of rural populations are connected to the grid⁹⁶. The Integrated Household Living Conditions Survey 2009-10, however, carried out jointly by UNDP and the Myanmar Ministry of National Planning and Economic Development, states overall access to electricity increased from 38 percent to 48 percent in 2005-2010. As emphasized in a strategy paper on Rural Development and Poverty Reduction in Myanmar, large differences exist between the poor, with a 28 percent access rate – up from 20 percent in 2005 – and the non-poor, with 55 percent⁹⁷. The figures stand at 34 percent for rural and 89 percent for urban dwellers.

The discrepancy in data may result from World Bank statistics measuring access to national grid, with UNDP measuring availability from all sources, including generators and independent projects. Typically households in Myanmar derive electricity from

Cooperation Agency, September 2003

⁹⁵ [Electricity Prices to Be Doubled](#), *op.cit.*

⁹⁶ S.K. Chou, [Overview of ASEAN's Energy Needs and Challenges](#), Presented at Energy Policy Roundtable 2012, Todai Policy Alternatives Research Institute, The University of Tokyo, April 20, 2012

⁹⁷ Dr. Dolly Kyaw, Proposal for Rural Development and Poverty Reduction in Myanmar

car batteries, chargers, and inverters—commonly used to convert direct to alternating current—or purchase power from independent generators.

Small independent producers play a key but difficult to measure role in rural environments. For example, a *Reuters* article described an individual in Kya-oh, who provides energy to households using a private generator. The individual charges 3,000 kyat a month per household for 2.5 hours of electricity a night, and an extra 1,500 kyat for a television – nearly a week's income for some villagers⁹⁸.

Rakhine State fared among the worst in a UNDP study concerning electricity and household, water, and sanitation conditions. Access to electricity stood at 26 percent in Rakhine, 30 percent in Ayeyarwaddy, 31 percent in Magwe and 32 percent in Bago⁹⁹. Rakhine State is plagued by ongoing violence and was the site of an uprising that led Myanmar to declare a state of emergency in 2012. Although urban electrification is relatively easier, the government, in its attempt to build a more representative democracy, is becoming more dependent on political buy-in from traditionally marginalized and remote populations. Rural electrification, in addition to helping the country develop and industrialize, is one means of building broader support.

In pursuing rural electrification, the government must balance between connecting rural populations to the national grid and satisfying increased urban and industrial demand. Villagers, understanding the difficulties of relying on government projects, have begun implementing schemes on a self-help basis. In some cases this is done with support of NGOs, donors and SMEs, in parallel with government initiatives. Proximity Designs, for example, a Yangon-based social enterprise, introduced a

⁹⁸ [Myanmar's Power Struggle Endangers Economic Boom](#), *Reuters*, April 16, 2012

⁹⁹ [Integrated Household Living Conditions Survey in Myanmar 2009-2010](#), Poverty Profile Report, UNDP Myanmar, June 2011

solar-powered lantern that sells for about USD 11, compared to a USD 60 Chinese model.¹⁰⁰ A Thai solar power company, SPCG, is also planning to enter Myanmar, with initial plans to establish 2 MW of solar power capacity¹⁰¹.

Although admirable in providing a short-term solution, the sustainability of reliable decentralized power is questionable. Isolated power systems tend to use small-scale renewable sources, including hydroelectricity, as well as biofuel, solar and wind. Isolated systems are suitable options where demand density is low. They do not require large-scale investment or hard currency. While operating and maintenance costs are also low compared to projects involving the national grid, administrative and management costs by donors and other institutions seeking to develop numerous sites can be onerous. That is because individual small projects lack the scale that allows effective amortization in comparison with larger ones.

SMEs that try to deliver to rural areas also face many difficulties, including customers unable or unwilling to purchase or install electrification capacity. Marketing to the rural poor is also a challenge¹⁰². Myanmar's SMEs face numerous additional problems, including a scarcity of capital, obsolete equipment and machinery, a shortage of adequate physical and human resources, an absence of current information on technical, market and legal issues, and a lack of support from the state, especially in technology transfer, credit guarantees and loans. This is an area in which donor assistance or public-private partnerships could prove vital.

Electricity Cost: The need for outside financing is especially apparent when one considers the losses sustained by government through subsidies. Myanmar's electricity

¹⁰⁰ Winn, *op.cit.*

¹⁰¹ Mridul Chadha, [Off-Grid Solar Power Projects For Myanmar](#), Clean Technica, January 13, 2013

¹⁰² [Entrepreneurship Development in Solar Energy Sector for Rural Area in Myanmar](#), ARTES/SESAM Alumni Regional Level Workshop, May 2008

prices are the cheapest among 15 countries in the region, according to Deputy Minister U Aung Than Oo, but vary widely. Costs for electricity from the national grid range from 35 kyat per kWh in Myanmar's capital to 12 times that in Sittwe, the capital of Rakhine State¹⁰³.

In 2012, MOEP-2 was buying hydroelectricity from MOEP-1 at a rate of 20 kyat per kWh and spending 127 kyat per kWh to generate electricity with gas turbines¹⁰⁴. The deputy minister said the ministry was spending more than 60 kyat to distribute one kWh of electricity, but charging 37.40 kyat per kWh, losing over 20 kyat for every unit sold.

The cost of distributing electricity at a loss will total 249.8 billion kyat (roughly USD285.3 million) in 2013. This creates a quandary when attempting to balance the critical upgrades required to accumulate more users and expand the infrastructure needed to promote development and industrialization, with the need to generate hard currency and raise prices to market rates. This problem is likely to be further compounded by government pledges to reserve future natural gas finds for domestic use. It will be difficult to finance new development, processing, and distribution if the output is then subsidized and sold at a loss.

Overcoming this constraint will not be easy. Since revenues gained from resource extraction were used in the past to enrich a narrow group of elites and select institutions, the public is now pushing for Myanmar's energy to be used for the public good, while market pricing and mechanisms, as well as the insidious role of subsidies—are not well understood. In particular, gradual subsidy removal to ensure sustainability of socio-political and national economic growth will be paramount.

¹⁰³ [Myanmar's Power Struggle Endangers Economic Boom, *op.cit.*](#)

¹⁰⁴ [Electricity Prices to Be Doubled, *op.cit.*](#)

One analyst interviewed noted he had been told industrial users and foreigners in Yangon are presently being charged for electricity in dollars, rather than kyats. Asking export-oriented consumers of electricity to make payments in foreign currency is a model that could enable both generation of foreign exchange and industrial development. It could fund industrial park development and other facilities where output is export-oriented. This would allow hard currency funding as well as partial subsidization of distribution, deemed a necessary public good.

The government increased electricity rates in 2012—from 25 to 35 kyat per unit for home use and 50 to 75 kyat per unit for industrial use—with the long-term hope of equalizing costs and revenues. This will enable the country to focus on regularizing electricity supply, maintenance and expansion of new cable lines. According to Harvard's Dapice, cited above, the cost of electricity should be closer to 90 to 100 kyat per kWh, with subsidies covering only the very poor, most of which do not currently have access to electricity¹⁰⁵.

(6) Major energy policies

To meet its goal of tripling per capita GDP in five years and expand national electrification to satisfy growing demand, Myanmar has adopted a diversification strategy to meet both domestic needs and export requirements.

On a political and regulatory level, substantial work must be done to transform resource extraction from an industry that lacks transparency and which enriches only a small elite, to one that addresses a full range of environmental and social concerns and which has all the nation's citizens' best interests in mind.

¹⁰⁵ David Dapice, Electricity Demand and Supply in Myanmar, *op.cit.*

Institutions of Policy: The Ministry of Energy and Ministry of Electric Power are the two main entities tasked with oversight. Oil and gas management falls under Ministry of Energy and MOGE; coal business under the Ministry of Mines; biofuels and micro-hydro (for irrigation use) under Ministry of Agriculture and Irrigation; fuelwood, climate change and environmental safeguards under Ministry of Environmental Conservation and Forestry; renewable energy under Ministry of Science and Technology; and energy efficiency under Ministry of Industry.

To fulfill the people's need to systematically manage the linkage of Energy and Electrical Sectors, **National Energy Management Committee (NEMC)** and **Energy Development Committee (EDC)** was formed according to the Notification No.(12/2013) dated 9th January , 2013 issued by the President Office. For the time being 1st Draft of Energy Policy has already drawn up for short-term and long-term plans.

The Ministry of Education, responsible for vocational and technical training, and the Ministry of Co-operatives, which also has a hand in vocational skills training as well as developing mineral production and electrical goods production under the cooperative sector, also play a role in Myanmar's energy policy.

Basic Policy: The Ministry of Energy's current policy priorities are: To fulfill Domestic Energy Requirement as Priority; To Implement the Status of Sustainable Energy Development; To promote Wider Use of New and Renewable Sources of Energy; To promote Energy Efficiency and Conservation; To promote Use of Alternative Fuels in Household; To Implement Effective Utilization of Discovered Crude Oil and Natural Gas Resources in the Interest of the Entire Nation including the Regions where the Discovery was made; and to promote more Private Participation in Energy Sector. Given Myanmar's power sector is starting from such an

underdeveloped state, the country has a great opportunity to create and adopt efficient and sustainable energy policies. With its current energy mix, Myanmar produces 0.04 percent of global greenhouse gas emissions, compared to 0.9 percent in Thailand and 25.55 percent in China¹⁰⁶.

Carbon dioxide emissions for each kW of electricity produced from coal and oil are twice that from natural gas, according to British Nuclear Industries Forum. Although hydropower schemes emit very little carbon dioxide, methane emissions do rise from rotting vegetation in reservoirs. Hydropower is said to contribute only 4 percent to global warming¹⁰⁷. Black carbon emissions from burning biomass in open fields are the third largest contributor to global warming¹⁰⁸.

In 1997, the government adopted the Myanmar Agenda 21 to integrate sustainability into everyday considerations of individuals, households, communities, corporations and government. It seeks to increase efficiency, reduce waste and promote recycling, encourage new and renewable sources of energy, utilize environmentally sound technologies for sustainable production, decrease wasteful consumption, and raise awareness of sustainability measures.

While Myanmar plans to increase its reliance on hydropower, hydropower production is centered in more remote and mountainous areas such as Kachin and Karen States. These areas have historically been troubled by ethnic tensions and are located far from population centers where demand is focused. This presents a challenge of efficiently transporting the electricity generated.

¹⁰⁶ [Carbon Dioxide Emissions \(CO2\), Thousand Metric Tons of CO2](#), Millennium Development Goals Indicators, United Nations

¹⁰⁷ [Greenhouse Gas Emissions from Dams FAQ](#), International Rivers, May 1, 2007

¹⁰⁸ For more information on the carbon footprint of electricity generation, see: <http://www.parliament.uk/documents/post/postpn268.pdf>

Myanmar's Ministry of Energy also has plans to address its energy pricing system, which presently operates with subsidies. The Ministry intends to introduce a pricing mechanism to not only enhance competitiveness of certain resources, such as coal, but also to increase awareness of energy use with an eye toward promoting efficiency and conservation.

The GOM, in partnership with Japan, has also launched feasibility studies for energy conservation.¹⁰⁹ The government enacted a conservation initiative for government entities, under which government buildings must use daylight for illumination during office hours as much as possible and government vehicles, except those on duty and emergency vehicles, were required to observe two dry days a month. Compliance was monitored by an inspection team.¹¹⁰

The government also engages in partnerships with the private sector, foreign countries and regional agencies, as well as universities. Recent partners include Thailand's Chiang Mai University, which supported a rural electrification project in 2008, and Japan's New Energy and Industrial Technology Development Organization (NEDO), with which the Myanmar government recently signed an agreement on renewable energy and conservation technologies.¹¹¹¹¹²

Additional Policy Concerns: Myanmar needs to carefully consider its options as it determines future policies and plans to plug the "electricity deficit" while balancing a mix of reliable and sustainable energy sources. It must also address the perceived

¹⁰⁹ [Burma Infrastructure > Energy](#), Asia Trade Hub, accessed: June 29, 2012

¹¹⁰ [ASEAN Countries' Presentation on Renewable Energy Projects and Business Opportunities \(Myanmar\)](#), *op.cit.*

¹¹¹ Than Htike Oo, [Villages Near Twante See the Light](#), *The Myanmar Times*, January 14-20, 2008

¹¹² [NEDO and the Government of Myanmar Conclude Letter of Intent for Introduction of Renewable Energy and Energy Conservation Technologies in Myanmar](#), New Energy and Industrial Technology Development Organization, January 17, 2012

inequity of many energy transactions, as well as environmental consequences beyond carbon emissions. All of this is compounded by the newfound ability of citizen's in Myanmar to exercise their democratic right of protest. Two large-scale power projects—the Myitsone dam and Dawei coal-fired plant —have been interrupted since the fall of 2011.

A survey published on *MyanmarAffairs.com* found that 90 percent of 1,059 people interviewed opposed the Myitsone dam for environmental, socioeconomic and cultural reasons.¹¹³ Importantly, the vast majority—up to 90 percent according to some reports—of electricity generated by the project was slated for export to China. The project had initially been given the go ahead without public consultation, despite estimates that 15,000 locals would be displaced.

Hydropower on a large-scale can also threaten ecosystems and local livelihoods, including farming and fishing. Due to a lack of resources, the government has not adequately surveyed dam sites for biodiversity or formalized regulations requiring environmental impact assessments of energy projects. In the case of Myitsone dam, a USD 1.25 million environmental impact assessment that was carried was a source of controversy¹¹⁴.

As coal is the most carbon-rich fossil fuel, villagers near coal sites suffer from pollution as well as noise hazards. For example, an estimated 12,000 people living within a five-mile radius of Myanmar's largest coal mine, Tigyit, are said to be affected with health problems and breathing difficulties as a result of the mine.¹¹⁵ Water

¹¹³ [Opinion Poll on Ayeyawady Myitsone Hydropower Project](#), *MyanmarAffairs.com*, accessed June 28, 2012

¹¹⁴ [The Myitsone Dam on the Irrawaddy River: A Briefing](#), International Rivers, September 28, 2011

¹¹⁵ Poison Clouds, *op.cit.*

contamination also threatens agriculture and ecosystems, while waste can encroach on villages, causing massive mudslides.

Though it burns cleaner than coal, natural gas production and transport carry risks of leakage and gas blowouts. Pipeline routes in Myanmar are highly protected due to so-called "pipeline security operations," with 8,500 soldiers said to be stationed along the Yetagun and Yadana pipeline route. Petroleum Operations in both Onshore and Offshore areas, after signing of Production Sharing Contract and / or Improved Petroleum Recovery , the Contractor have to conduct Environmental Impact Assessment (EIA) , Social Impact Assessment (SIA) and Environmental Management Plan (EMP) reports for MIC's approval during the Preparation Period .

Biomass and other renewable sources bring their own problems, including soil erosion, loss of biodiversity, and deforestation. When burned indoors using certain stoves, biofuels contribute to indoor air pollution and respiratory disease. Production can also divert land from agricultural use, impacting food security.

There are minimal laws regulating energy projects in Myanmar and provisions of international treaties, such as the Convention on Biological Diversity, to which Myanmar is a party, have yet to be codified into domestic legislation.

The government, however, has already taken steps to join the Extractives Industries Transparency Initiative (EITI) through a group created under direction of Myanmar's president to oversee implementation in December 2012. Myanmar's government is expected to submit an application by the end of 2013.¹¹⁶

Accomplishing its new energy policy objectives will also require a repositioning of Myanmar's human resource capacity and expertise, and a clarification of the roles of

¹¹⁶ [US official sees 'real commitment' in Myanmar's EITI efforts](#), *Myanmar Times*, March 4, 2013

ministries involved in energy policy implementation. The country is fortunate to have significant resources and several options, as outlined in Table 6-8.

Table 6-8: Energy Development Strategy for Myanmar

<u>Short-term:</u>	<ul style="list-style-type: none"> • Subject to cost, maintain power plants and distribution system that are already installed • Subsidize diesel for high-speed diesel captive-power in exchange for a percentage of supply to the grid / or consumers • Renegotiate Chinese, Thai and other electricity export contracts to divert higher percentage for national supply • Rent gas (CNG) or marine fuel-oil (MFO) fired reciprocating engines for decentralized power (note these have higher efficiency than gas turbines (GT) and require less infrastructure) • Where gas is available, rent trailer-mounted aero-gas (GT) turbines • Promote energy conservation (e.g. compact fluorescent light bulbs)
Medium-term:	<ul style="list-style-type: none"> • Install open-cycle GTs • Install mini-hydro in rural areas • Install high-voltage transmission to urban and industrial centers • Encourage industry to invest in efficient / reciprocating captive-power plant with a percentage for domestic consumers
Long-term:	<ul style="list-style-type: none"> • Maximize hydropower and coal reserves for base-load • Develop gas pipelines • Optimize use of natural gas resources, primarily for peak-lopping during maximum demand • Minimize imported oil and coal • Evaluate the geothermal opportunity • Promote biofuels and other cost-effective renewables

Source: ERIA.

There are a number of drivers that will influence the way forward. These include availability of project finance, project lead-time, expectations, economic growth requirements, environmental and sociopolitical impact, reliability and supply.

It is important that Myanmar overcome critical short-term demands and plan for the future using medium- and long-term solutions.

2.2. *Policy Implications*

(1) Directions for future energy policy developments

In the course of our research and discussions, we have generally agreed on several important energy policy concerns and issues that should be tackled in the future. These include:

- Recognizing essential importance of formulating an Integrated Energy Policy. Establishment of Energy Management Committee chaired by the Vice President marks definitive progress;
- Initiating comprehensive medium/long-term energy policy planning;
- Enhancing coordination between ministries. For example, optimizing natural gas allocation and development of power generation at political and ministerial level;
- Maximizing human resource development. Capacity building and training also needed.
- Evaluating and optimizing energy prices, tariffs and use of subsidies;
- Developing a framework for public-private partnerships in the electricity sector
- Developing more comprehensive energy statistics immediately. Rectifying inconsistencies in statistical data among the ministries;
- Integrating parallel focus on off-grid areas into policy dialogue and development efforts;
- Introducing additional transparency into policymaking procedures and process;
- Improving potential for expansion and rehabilitation of transmission lines through measures that can better attract necessary investment; and
- Recognizing continuing importance of forestry in energy mix as traditional biofuels remain essential primary energy source.

(2) Three Policy Themes

Better energy access helps to provide the underlying fundamentals that lead to poverty eradication, economic development and political stability. As emphasized throughout this project to facilitate development of an Integrated Energy Strategy in Myanmar, huge additional investments of time, capital and other resources are

necessary to suggest mechanisms to improve, rehabilitate and expand Myanmar's existing energy infrastructure and electricity in particular. This is necessary to provide better access to power in backbone areas including Yangon, Mandalay and Nay Pyi Taw. In addition, as emphasized throughout our first stakeholder's meeting, many other initiatives are needed to address power access in areas that extend beyond the grid, both in the short run until 2015 and longer term. Therefore, while current policy discussion is largely focused on strengthening the main grid to increase power generation, these measures alone cannot achieve broader access. Even if the grid infrastructure were totally renovated and upgraded there would still be a serious lack of transmission and distribution to major portions of the country. For this reason, the following three policy themes have been highlighted as mechanisms that can facilitate broader access to power in Myanmar.

Grid Extension

The first theme is strengthening, extending and expanding the main grid. This strategy is the most efficient on both an economic and technical basis. With economies of scale, the generation cost per unit can be reduced within a larger energy system that has an ability to draw, and integrate distribution, from a range of energy sources. At the same time, this strategy will require massive investment if it is to fulfill the requirements of the nation as a whole. Examined purely on an economic basis, investors are likely to choose urban centers, industrial zones and other areas where demand is high and incomes sufficient to allow positive returns on a commercial basis. This is, however, not likely to improve access in peripheral regions, at least, at the present time. Additionally, from the standpoint of energy security, a centralized energy system could prove problematic in Myanmar, given many energy and natural resources are located in rural areas with long histories of ethnic strife and conflict.

This necessitates the introduction of safeguards against possible disruptions that could potentially hamper energy transmission, adversely impacting the entire energy system.

Regional Integration and International Cooperation

The second theme is enhanced cooperation with bordering nations as well as countries around the world that can provide essential capital, technology and other goods and services. Luckily, Myanmar has substantial energy resources including thermal, hydro, oil, gas and biofuel. This provides the potential to transform the nation into both a valued supplier as well as a consumer of energy products in the region. For example, along the Chinese border, vast potential exists for hydroelectric power, which can flow in both directions. Additionally, along its border with India, there are a number of mining sites including coal. There is also biofuel potential in Myanmar's agricultural heartland and substantial potential for offshore oil and gas development in coastal areas. If these resources are developed for generation and supply, both domestically and for export, this cross-border energy flow is beneficial for Myanmar's neighboring countries and the region. Further, electricity from Myanmar's neighbors is available in certain border towns, but strict regulations hinder its use on the Myanmar side. As noted in the strategic paper, "Border Area Development Strategy," making this electricity available legally and regularly will attract foreign factories to the Myanmar side of the border where international firms can take advantage of Myanmar's competitive wages. The country can also take advantage of capital, technologies and other inputs from its more advanced neighbors¹¹⁷. In this regard, special attention will be paid to border cities – such as Muse and Myawaddy – which have the potential to serve as major conduits to enhance regional integration and Myanmar's trade and

¹¹⁷ Kitti Limskul, Toshihiro Kudo, and Hiroyuki Taguchi, Border Area Development Strategy, Myanmar Comprehensive Development Vision Strategy Paper presented March 25, 2013

economic relations with ASEAN and other neighbors as well as the world at large.

Rural Energy Access

The third theme is driven by the realization it will not be possible to electrify Myanmar as a whole on an economic basis. Some areas, particularly in remote regions will lag behind, and by necessity will have to rely largely on self-help approaches and stand-alone systems if they are to gain access to electricity and power over the short- and possibly intermediate-term. For these areas, we will examine the potential for alternative energy systems such as oil products like LPG, traditional biomass, and mini/pico hydropower systems on an off-grid and/or mini-grid basis. By utilizing intermediate technologies and interim solutions, it is believed these least developed regions can begin to move forward. This could mean a steady step for modernization in these regions—without unnecessarily drawing resources away, and detracting from priority projects and initiatives. By minimizing any potential for diversion, this will also serve to provide more adequate supply and capacity to the urban and industrial areas that will drive Myanmar's economic development. It will also allow demonstrable progress in more remote areas, which can ultimately enhance long-term development in these regions.

These three core themes will be examined through fieldwork, simulation and comparative research in Myanmar and from the viewpoint of neighboring countries and the overall global energy environment. The examinations will lead to the development of actionable strategies and policy recommendations, which will then be fine-tuned through additional stakeholders meetings and an ongoing dialogue with the GOM. This will lead to the formulation of scenarios and policy recommendations and options for the GOM that will provide support for development of a comprehensive integrated energy strategy beyond 2015.

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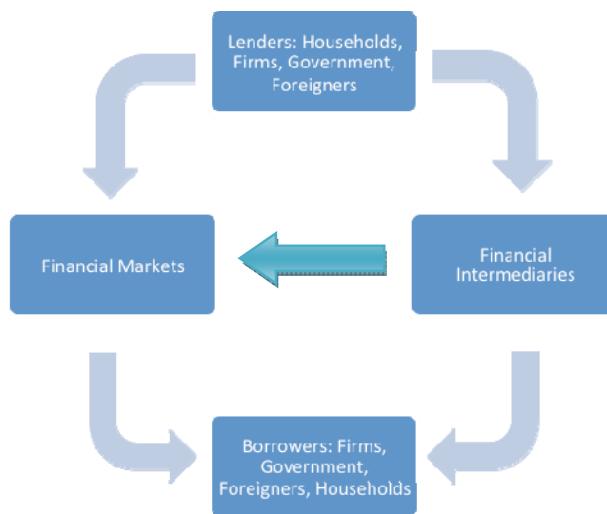
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CHAPTER 7

Financial Sector Development

1. Necessity of Sound Financial Sector

A consensus has been formed in the literature that financial development contributes to economic growth. Financial system mainly consists of financial markets and financial intermediaries. Financial markets function to channel funds from the parties that have excess funds -including households, firms, and government- to be utilized by the parties that need the funds. The main lenders are usually households, while the main borrowers are firms and governments. The system can be illustrated as follows:



Financial markets channel securities from borrowers to be bought by lenders, which is often called as direct financing. Meanwhile financial intermediaries transfer funds

from lenders to the borrowers through the process called financial intermediation. Financial intermediaries consist of several types, including banking system and other depository organizations, insurance organizations, and other financial intermediaries such as stock exchange, brokerage companies, finance companies, etc. It may differ from one country to another.

In most developing countries, the banking system accounts for a dominant position in the formal financial sector. In general, banking system comprises commercial banks and variety of saving-and-loans organizations. In US, mutual savings banks and credit unions are included here; while Indonesia only recognizes two common types of banks:, i.e. commercial banks and rural credit banks. Cooperatives (or credit unions in US) and insurance companies in Indonesia are classified under non-bank finance institutions. In general, even though there are differences in grouping the financial intermediaries, but in substance most countries have similar types of financial institutions.

Banking system is regulated through monetary policy issued by the Central Bank. Central Bank is the authority that issue notes and coins, manage the money supply and set the interest rate. The banking system is crucial to support economic growth through its several functions. First, the banking system provides the payments and settlements system; compared to settlements in cash, payments through the banking system reduces transaction costs, and enables firms to use their working capital more efficiently. Banks also operate in economies of scale, allowing them to run the services at efficient cost. Second, the banking system mobilizes savings and allocates credits to economic activities of higher rates of returns. Such financial intermediation facilitates capital accumulation. Third, a developed banking system serves as a platform for macroeconomic stabilization policies. As Myanmar deepens its integration into the global economy, it will be exposed to external shocks, which calls

for stabilization policies to mitigate macroeconomic fluctuations. The country with well-developed banking system will provide better environment to make monetary policies work.

Nurturing the banking system is synonymous with promoting the above-mentioned three functions of the banking system. These three functions roughly correspond to three stages of the banking system development. The development of settlement and payment system can be situated in the first stage. This is followed by financial intermediation. The development of the interbank money market can be positioned as the most advanced stage.

First of all, this chapter positions the status of the Myanmar banking system in this ladder of the banking system development, and identifies the challenges in Myanmar to upgrade the financial system.

In addition to this, the next section will discuss effective funding strategy for infrastructure projects with focus on foreign commercial financing. *Myanmar should make good use of both public and private financing sources for her sustainable infrastructure development in the mid-term and long term.* Since public funding may be limited to fulfill the infrastructure need, the chapter will elaborate the potential and strategy for utilizing private financing sources. This could be justified by the fact that private financing sources account for the largest share of financial resources which could be potentially available for infrastructure development purposes. Among others, the most important key is to effectively attract foreign commercial financing until her domestic financial markets are sufficient to cover up for her infrastructure provision costs through mobilizing domestic financing sources. Foreign commercial financing is, however, highly dependent on “commercial viability” of infrastructure projects and therefore effective project structuring is of paramount importance to make projects

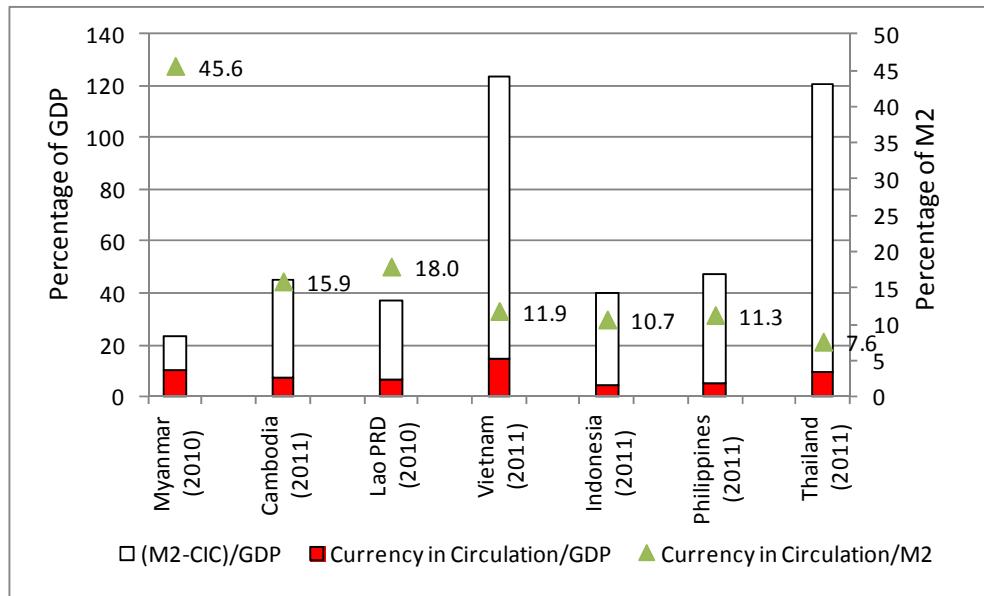
commercially viable. Adequate risk mitigation and incentive designing are required to lure foreign private investors as shown in prior researches on infrastructure financing. For risk mitigation, Project Development Facility would be workable for better project preparation. The government fiscal support is also important to incentivize foreign commercial financing. Setting up some governmental support institutions such as guarantee fund could be a catalyst in the future.

1.1. Settlements and Payments, and Savings Mobilization

The first stage of the banking sector development is to accumulate deposits. The source of funds includes firms' working capital for settlements and payments as well as people's savings.

In terms of settlements and payments, the Myanmar economy is still heavily dependent on cash, and the use of banking services such as promisory notes is not prevalent compared to neighboring countries. Figure 1 summarizes the proportion of cash in broad money as well as broad money in percentage of Gross Domestic Products (GDP) for selected Southeast Asian economies. Broad money is composed of cash and bank deposits. A high proportion of cash in broad money indicates that the economy is dependent on cash transactions. On the other hand, broad money in percentage of GDP is an index of financial development. As shown in Figure 7-1, the proportion of cash in broad money is as high as 45.6 percent in Myanmar, which is by far the highest among Southeast Asian economies.

Figure 7-1: Composition of Broad Money in Selected Southeast Asian countries



Note: CIC stands for Currency in Circulation. M2 means broad money (cash and bank deposits).

Sources: *International Financial Statistics CD-ROM*, IMF; *Key Indicators for Asia and the Pacific 2012*, Asian Development Bank.

The high proportion of cash in broad money is partially due to the low level of deposits. However, it is remarkable that the amount of cash in percentage of GDP is also high in Myanmar compared to other countries. These as a whole indicate not only that the Myanmar people maintain financial assets other than kyat deposits, but also that they use the kyat cash for settlements and payments. The popular financial assets include gold and foreign currency either in the form of foreign banknotes or deposits abroad.

The heavy reliance on cash settlements and payments is usually associated with low trust to banking system in addition to the underdevelopment of the facilities of banks such as branch network and types of services. During the past decade, there were several bank runs. The most severe bank run took place in February 2003, which

resulted in the outflows of approximately a half of the total deposits of the entire banking system. Although formal deposit insurance had been present since in November 2011, another bank run took place in October 2012 which hit the largest private bank. These episodes clearly show the people's distrust in the formal banking system while the authorities fail to maintain banking stability and public confidence.

For the banking system to incorporate firms' working capital, it is indispensable to promote confidence in the banking system. Although the central bank supervises commercial banks with the internationally comparable and rather conservative banking law, people's recognition of banks is still poor. One option to promote people's confidence in banks is to disclose the financial conditions of banks along with the regulation that endorses the central bank to implement prompt corrective actions when necessary. Incorporating firms' working capital into banks as demand deposits adds to accumulation of deposits.

Furthermore, in order to stimulate savings mobilization, it is necessary to promote people's confidence in the kyat denominated assets in addition to their confidence in the banking system. Due to the track record of chronic high inflation, people used to diversify their asset portfolio away from the kyat denominated ones. A major cause of the high inflation has been monetization of fiscal deficits. The Central Bank of Myanmar (CBM) has not been independent from Ministry of Finance and Revenue.

Therefore, the Myanmar government planned the CBM autonomous by promulgating a new law. CBM also plans to support efficient financing of trade and export of manufacturing goods, and consider permitting foreign banks to finance externally-oriented economic activities. Annual fiscal deficits in the 1990s and 2000s were around 3 to 5 percent of GDP, and they were mostly financed by the central bank through printing of money. The excess money supply brought in 20 to 30 percent of

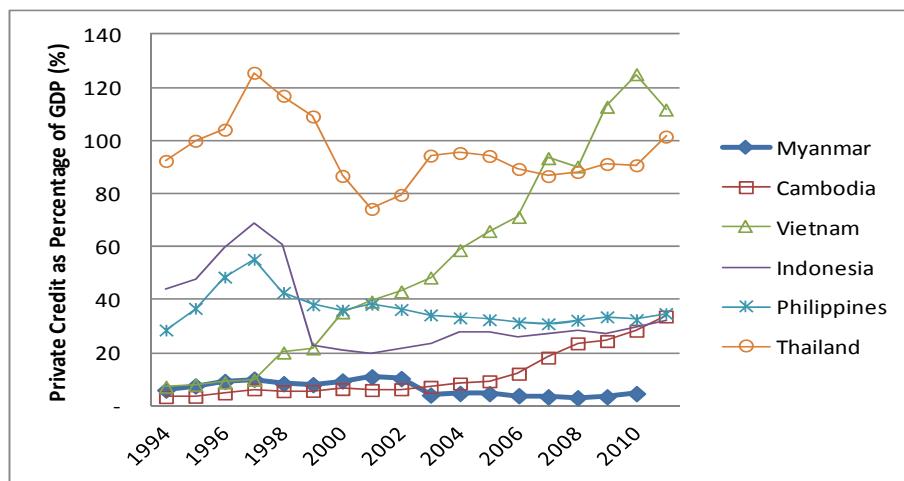
annual inflation on average in the past two decades, which eroded people's confidence in the kyat.

The central bank must cease to be the 'bank for the government', and discontinue monetization of fiscal deficits. In this regard, the amendment of the central bank law in April 2013 to augment its autonomy was a favorable change.

1.2. Financial Intermediation

The second stage of banking system development is to promote financial intermediation. The size of the aggregate credit of the banking system to the private sector in percentage of GDP is a common indicator to measure development of financial intermediation. Figure 7-2 summarizes the trends of private credit for selected Southeast Asian economies. As shown in this figure, the size of private credit is as low as 5 percent in Myanmar, which is the lowest among these countries. The private credit has been shifting to the low level in Myanmar. It deteriorated after the February 2003 banking crisis, and as of 2010 it is yet to recover to the pre-crisis level.

Figure 7-2: Private Credit as Percentage of GDP for Selected Southeast Asian Countries



Source: *Key Indicators for Asia and the Pacific 2012*, Asian Development Bank.

Although the small size of deposits is one of constraints for the banking sector to expand credit, the consolidated balance sheet of the private commercial banks shows a different picture (Table 7-1). The banking system consists of four state owned banks and 20 private commercial banks where the latter has been the major suppliers of credit to the private sector. Nonetheless, the proportion of loans in their total assets was as low as 44 percent in 2008. The prudential regulation usually puts the banks on an expansion of loans in most countries. However, in the case of Myanmar, these commercial banks held the proportion of loans to the assets at a much lower level than prescribed in the regulation, and instead, maintained liquid assets such as cash and Treasury bonds in excess. This balance sheet shows that the low level of deposits was not always a binding constraint on the growth in loans.

Table 7-1: Consolidated Balance Sheet of Private Commercial Banks

as of end 2008	Kyat, million	Percentage of Total Assets
Cash, Deposit with Central Bank	303,951	23%
Treasury Bond	267,051	20%
Loands	586,295	44%
Securities	1,796	0%
Others	172,170	13%
Total Assets	1,331,262	
Demand Deposits	176,026	13%
Fixed and Savings Deposits	752,065	56%
Other Liabilities	259,038	19%
Borrowing from Central Bank	17,100	1%
Total Liabilities	1,204,228	90%
Capital	127,034	10%

Source: *Statistical Yearbook 2010*, Central Statistical Organization, Myanmar

There were several reasons for the private commercial banks to refrain from

expanding loans. One is precaution against liquidity shocks. An interbank market is non-existent as banks are skeptical about the financial soundness of cohorts. Thus, in case of a liquidity shock such as a bank run, individual banks have to rely on their own liquidity. As a result, banks tend to maintain a high proportion of liquid assets in their balance sheets.

More importantly, it could be the case that banks do not have a sufficient pool of creditworthy borrowers. When capital is scarce in the economy, there can be more investment opportunities with a high rate of return. However, borrowers with high yield investments do not always have incentives to repay loans. Under the weak judicial system, creditors' rights are not well protected, so the banks would always face the risk of strategic default of borrowers. In such a circumstance, banks do not lend to firms of arm's length *ex ante*.

In order to promote bank lending to the private sector, a usual prescription is to reduce the credit risk originating from weak creditors' rights. To this end, institutional building in two inter-related areas is essential; one is establishing the well-functioning accounting practice, and the other is commercial laws such as the bankruptcy law and the collateral law and their enforcement. As such institutional building comprises accumulation of human capital (nurturing accountants and legal professionals), it will be a long term challenge for Myanmar. Moreover, each banker's capacity to analyze borrowers should be enhanced. Strategic partnership with international banks will be beneficial for local banks to learn better credit analysis and credit management.

Apart from private credit, the credit to the public sector, namely the state-owned economic enterprises (SEEs), requires a particular attention. Under the rule of the former military government, SEEs had been prohibited from taking loans, and all their expenditure had been allocated from the state budget. As a part of SEEs restructuring,

the new government aims at separating them from the state budget, and plans to fulfill their financial needs with subsidized loans from banks. With reference to experiences in other transition economies, such directed lending to state enterprises could often lead to accumulation of non-performing loans in the banking system and subsequent costly bail-outs by the government. On the one hand, borrowing state enterprises expected that the government would provide financial supports ex-post in the event of distress. On the other hand, banks themselves were also apt to neglect a close examination of credit risk regarding lending to state enterprises because of the implicit loan guarantee from the government and expectation of bail-out. In the end, the bail-out imposes large fiscal burden on the governments of transition economies and triggers precedence. Especially when government has announced ex-ante that it would impose hard budget constraint, but by bailing out the bank-in-crisis later, it would bring down the government's credibility due to inconsistent policy. Another possible threat is cross-lending to the companies owned partly or wholly by the bank's owner. To prevent from such circumstance, the regulation must ensure to have clear indicators of maximum amount of cross-lending allowed.

Finally, supervision of the credit risk of banks becomes more important as banks expand lending. Banks themselves often have incentives to take excessive credit risk for their own profits at the cost of depositors' money. Furthermore, political interventions in banks and directed lending would damage bank assets. To supervise banks effectively and maintain their financial soundness, the regulatory department of the central bank must invest in human resources to upgrade their supervising capacity, which is also a long term challenge.

1.3. Interbank Money Market

A developed interbank money market provides the monetary authority with a platform to conduct monetary policy, especially managing interest rate, reserves, and money supply to maintain macroeconomic stabilization. As the Myanmar economy deepens integration in the global economy, it will be exposed to more external shocks than before. One example of macroeconomic shocks is the recent resource boom that caused a sharp appreciation of the kyat exchange rate. Furthermore, while large inflows of foreign investments and official development assistance are expected, the situation poses challenges for the government to maintain macroeconomic stability. As the need for right monetary policy is increasing, so is the need for the development of money market.

Without a money market, monetary policy would not work. When the central bank aims at stimulating the economy, it injects liquidity to the money market by open market operations. The money market is where banks and other financial institutions buy and sell financial assets as well as lend and borrow with each other. The impact of a monetary easing effect would transmit to the interest rates that retail customers face, which would in turn lead to credit expansion and stimulates the economy. Thus, the money market is the catalysis of monetary policy.

During the former military government period, there had been virtually no monetary and exchange rate policies as applied in open economies in the world. As to monetary policy, the central bank accommodated the fiscal policy by increasing the role of monetization. The exchange rate policy was the fixed exchange rate regime which was incompetent with regard to the prevalent parallel foreign exchange market. Fixed exchange rate regime requires a credible Central Bank and government as well as large foreign reserves.

The government administration has been paving the way for monetary and exchange rate policies. Since April 2012, the central bank has been moving to a managed floating exchange rate regime. As a policy instrument, the central bank initiated price tender auction of foreign exchange with authorized dealer banks. Regarding monetary policy, the policy framework is conjectured to be setting an intermediate target on money supply. To enhance the ability of the central bank to conduct monetary and exchange rate policies, the need for the development of money market is increasing as well.

A primary prerequisite for an interbank money market is an active expansion of lending by the banks. Unless banks extend credits, they do not need to raise liquidity in the money market, so that a transmission channel of monetary policy does not emerge. In fact, private commercial banks in Myanmar are not lending enough and they have a weak link with the money market. Creating environment for banks to contain credit risk and to expand lending is conducive to money market development.

There are several other challenges to overcome for establishment of interbank money market in Myanmar. First, the bond market is limited in Myanmar. While the government issues Treasury bonds, there is no secondary market and those who purchase them usually keep them until maturity. The secondary market of Treasury bonds would serve two functions. One is that the price of Treasury bonds in the secondary market would offer the benchmark interest rate for long term financing. The other is that Treasury bonds could be used as collateral in the interbank market. As mentioned before, under the weak supervision of the central bank, banks are skeptical about the financial conditions of the cohorts. If Treasury bonds are widely traded in the secondary market, they can be used as collateral and enhance lending between banks.

Second, the financial market is segmented not only between the formal and informal markets but also within the formal market. The financial market comprises the capital market (i.e. equity market and bond market, medium/long term) and the interbank money market (short term). If each market in the financial market is unified, interest arbitrage would take place between different segments of market, which provides a transmission channel of monetary policy. However, as banks do not trade financial assets and liquidity with each other, arbitrage does not always take place. As a result, the interest rates they can offer on a financial asset are not necessarily uniform among them. For example, the central bank has initiated deposit auction since September 2012, but only small number of banks have participated in auction. This implies that the auction ended up with producing a small segment of money market, whose interest rate was not necessarily market equilibrium interest rate. A remedy to dissolve market segmentation within the formal financial market is to encourage mutual trade among banks in the long run.

It takes time to develop an interbank money market, and in the meantime the central bank cannot apply an effective market-based monetary policy instruments such as open market operations. For the present, monetary policy instruments available to the central bank are restricted to rule-based ones such as a reserve requirement and a liquidity ratio regulation. However, without an expansion of bank lending, even such rule-based instruments do not serve as compelling monetary policy instruments, either. Moreover, the extensive use of rule-based monetary policy would put pressure on the growth in the banking system. Until the banking system is sufficiently developed, the central bank should refrain from excessive use of rule-based monetary policy instruments.

The roadmap of banking system development can be summarized as in Table 7-2.

The first stage, especially the control on monetization of fiscal deficits, is the most basic step. Without this, further development cannot be expected.

Table 7-2: Roadmap of Banking System Development

Intermediate Objective		Action Plan
First Stage	Payments System	Control on monetization of fiscal deficits
	Savings Mobilization	Disclosure of banks' financial condition along with prompt corrective action
Second Stage	Financial Intermediation	Promoting creditors' rights through
		1) Human resource development of accountants and judicial professions 2) Strengthening regulatory framework
Third Stage	Interbank Money	Continuation of second stage
	Market	Establishment of secondary market of Treasury bond

Source: ERIA.

The new government has more or less succeeded in subduing inflation pressures. According to the official statistics, the year-on-year growth rate in money supply (M1) recorded negative in 2012, indicating the success in stopping monetization of fiscal deficits. However, the central bank is now facing another problem of how to manage money supply with limited policy instruments.

The second and third stages can proceed simultaneously. Human resource development of accountants and judicial professions for institutional building towards creditors' rights establishment will be a long term challenge for Myanmar.

Transition economies such as Vietnam and China have undertaken these stages before developing their banking system in their reforms to a market-oriented economy. Myanmar can learn a lot from their experiences.

2. Funding Strategy for Infrastructure Projects

2.1. Shift of Funding Source

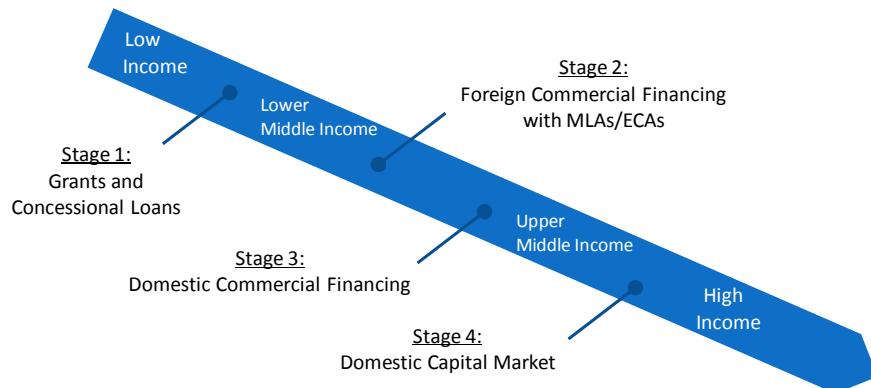
Financing is one of the most important aspects for infrastructure provision¹¹⁸. As the Myanmar economy grows, infrastructure needs will expand and an effective financing scheme will be required accordingly. In reality, there are no magical schemes and tools that can automatically generate and bring necessary financing. Myanmar should stick to basics in terms of financing strategy, not being deluded by a seemingly innovative strategy. Myanmar could learn the path which other ASEAN countries such as Thailand and Vietnam have taken for financing of infrastructure projects. They have utilized external public financing sources including Official Development Assistance (ODA) at the beginning of the economic development stage¹¹⁹. This is inevitable because startup developing countries such as Myanmar generally face a shortage of national budget and it is difficult to create sufficient fiscal space for meeting huge infrastructure demands. Also, those countries are not creditworthy enough to attract necessary foreign commercial funds. No countries, however, can indefinitely rely on ODA as a main funding source. *Funding sources should be gradually shifted from public sources to private sources and from external sources to internal sources as the countries develop from a low income country to middle and high income country as shown in Figure 7-3.* It is desirable that the countries will graduate from ODA at some

¹¹⁸ In this section, infrastructure means economic infrastructure, which is generally defined like necessary infrastructure facilities for day to day economic activity, including utilities and transportation. This section mainly focuses on large scale economic infrastructure.

¹¹⁹ It is often pointed out that some ASEAN low income countries have over depended on foreign aids. As a result, they face high external debt to GDP ratio. Also, they have not effectively made good use of the funds and they have failed to develop strong local private sector. Its project management skills accordingly remain low.

point and finally deal with infrastructure provision by mobilizing domestic resources¹²⁰.

Figure 7-3: Shift of Main Funding Sources



Note: MLAs mean Multilateral Agencies such as the World Bank and the Asia Development Bank.
ECAs stand for Export Credit Agencies like Japan Bank for International Cooperation.

Source: ERIA.

Financing sources for infrastructure development encompasses various types of sources: ODA, host government budget, commercial sources such as bank loan, and equity investment through Foreign Direct Investment (FDI), etc. Main funding sources are different depending on economic development stages. This section roughly divides financing sources into four stages according to economic development stages, which are (i) Stage 1 with focus on external public sources like ODA (i.e. grants and concessional loans) for a low income stage, (ii) Stage 2 with focus on external commercial financing for a lower middle income stage, (iii) Stage 3 with focus on domestic commercial financing mainly sourced from domestic bank loans for a more advanced lower middle income stage, and (iv) Stage 4 with focus on domestic capital markets for an upper middle income stage. The ODA stage is less difficult in terms of

¹²⁰ See the previous section for detailed discussion.

receiving financing, because even less commercial viable projects could be financed by ODA to some extent. No country, however, can indefinitely rely on ODA and it has to graduate from ODA at some point. Myanmar is no exception. The real challenges will come after the ODA stage, where foreign commercial financing should be actively pursued as a main funding source for infrastructure provision. This is because foreign commercial financing is highly dependent on commercial viability of infrastructure projects and therefore Myanmar must design and create the projects with high viability. *Effective project structuring is of paramount importance for her to make projects commercially viable.* The third and fourth stages are much more difficult than the prior two stages because Myanmar needs to develop her own robust financial market.

This section, therefore, focuses on financing strategy for the Stage 2 where foreign commercial financing should be a main funding source for infrastructure provision, and it explores how Myanmar should attract foreign commercial funds and what they need to do from a financers' perspective. This stage could be the "touchstone" for Myanmar to be able to stand on her own feet in terms of funding, and it will be a crucial stage for her future financing¹²¹.

This section mainly consists of five subsections. Firstly, this section reviews funding sources which could be generally available for infrastructure provision and also shows the composition of external capital flows to East Asia and the Pacific region, so that readers could understand that private capitals have played key roles in the region. Secondly, the method in which funding sources generally flow to infrastructure projects is presented with focus on foreign commercial financing. Thirdly, this section explains

¹²¹ In fact, other ASEAN countries such as Thailand and Indonesia are currently active to attract private financing through Public Private Partnership (PPP) scheme for infrastructure provision. However, Myanmar should not jump into PPP scheme at this moment although this section focuses on foreign commercial financing. This is because Myanmar is not ready for PPP scheme in terms of regulatory and legal framework.

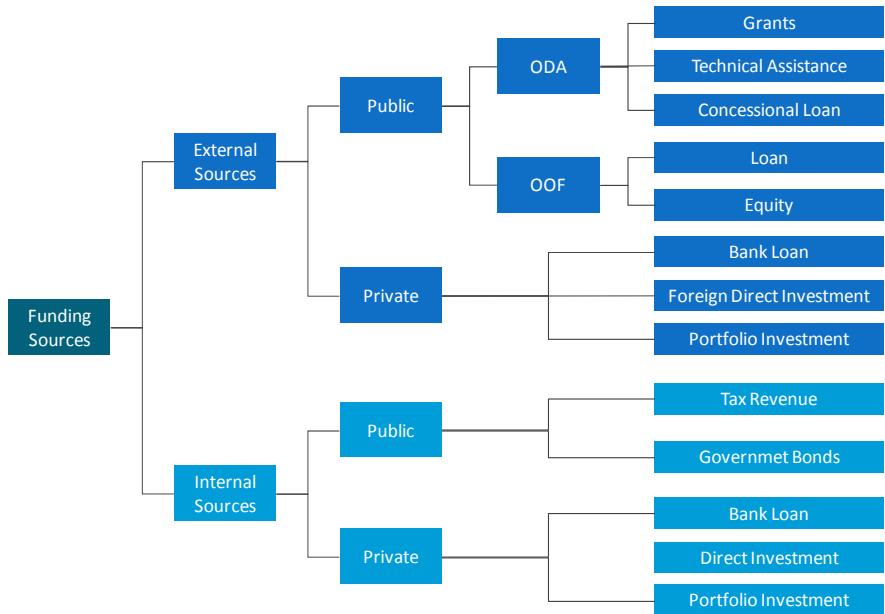
about typical project structure of infrastructure projects which private companies are involved in as sponsors and it points out the importance of risk allocation among project stakeholders, especially between public and private sectors. Finally, the section outlines some recommendations for Myanmar to successfully attract foreign commercial financing in the future from a financers' point of view.

2.2. *Funding Sources and Composition of External Funding in Asia*

There are many kinds of funding sources which could be potentially utilized for infrastructure development in Myanmar as shown in Figure 7-4. Given the present situation that the domestic financial market has not been well developed and domestic funding capacity has been limited in Myanmar, *it needs to rely on external financial sources in order to bridge the gap between infrastructure needs and domestically available sources for the time being*¹²².

¹²² According to Mizuho Research Institute (2013), Myanmar chronically suffers from fiscal deficits and tax basis should be strengthened.

Figure 7-4. Funding Sources Classification



Note: Concessional Loan is a loan with financial terms and conditions that are more favorable to borrowers than those available through financial markets. OOF stands for Other Official Flow such as export financing provided by Export Credit Agencies. Portfolio Investment is financial investments by private individuals, corporations, pension funds, etc. In the case of natural resource-rich countries, internal public sources may include revenues from natural resources.

Source: Author.

Figure 7-5 shows the composition of external financial net inflows into East Asia and the Pacific region in the past two decades, where FDI has been a major source of funding and it way exceeds the inflow of other sources in comparison to portfolio investment, commercial bank lending and international organization lending. This trend is true of neighboring ASEAN countries as well, but reliance on the financial flows other than FDI is slightly different from each other. Figure 7-6, Figure 7-7 and Figure 7-8 describe the trend of external financial net inflows to Vietnam, Indonesia and Thailand respectively. In Vietnam, where it is categorized as a lower middle income country in the income group classified by the World Bank, loans from international

organizations and foreign governments have been major sources along with FDI¹²³. Indonesia, approaching an upper middle income country, has actively received commercial lending as well as FDI in recent years, decreasing reliance on concessional loans. Thailand, as an upper middle income country, has received more inflows from equity securities (other than FDI) and direct purchases of shares in local stock markets by foreign investors, relative to the commercial bank lending, which reflects the domestic capital market is developed. From these three countries, it is observed that a low income country like Vietnam has more reliance on ODA and a lower and upper middle country attracts more funds through commercial banks and capital markets. These external financial flows are for various activities, but it also could be available for infrastructure development purposes. Among others, FDI, which is a part of foreign commercial financing, has historically played a key role in the external financial flow. Foreign commercial financing has huge potential for development purposes. *This could justify that Myanmar should make good use of foreign commercial financing for her sustainable infrastructure development in the mid-term and long term.*

Myanmar is still categorized as a low income country according to the World Bank and it is inevitable for her to rely on ODA from international organizations and foreign governments for now because she was isolated from the rest of the world for decades and has not been creditworthy to attract sufficient foreign investors' fund for long term infrastructure projects. In general, ODA financing has more favorable financial terms and conditions including lower interest rates and longer loan tenors, relative to ones of commercial financing. Myanmar, however, should not overborrow ODA, so that she

¹²³ The World Bank classifies economies according to 2011 GNI per capita, low income country with USD 1,025 or less, lower middle income country with USD 1,026 to USD 4,035, upper middle income country with USD 4,036 to USD 12,475 and high income country with USD 12,476 or more.

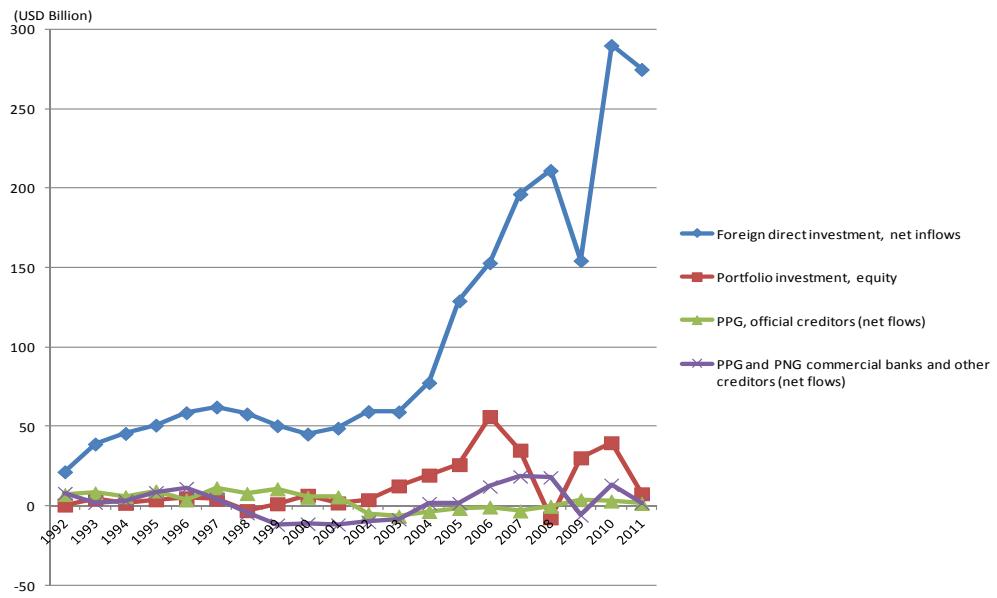
would not fall into a heavily indebted country¹²⁴. Myanmar actually wrote off about USD 6 Billion in January 2013 and sustainable debt management is indispensable not to make it happen again. It is advisable that Myanmar should firstly make use of ODA for rehabilitation of old existing infrastructure as Vietnam did.

Sooner or later, Myanmar will face two difficulties in terms of financing, which will occur (i) when main funding sources are shifted from ODA to foreign commercial bank loan and (ii) when they are shifted from indirect financing (i.e. commercial bank loan) to direct financing (i.e. bonds and equity financing in capital markets). Vietnam is just facing the former difficulty and Indonesia is attempting to transit to a direct financing stage¹²⁵. It is beneficial for Myanmar as a late comer to study the transition of forerunners' financing. The ODA stage (Stage 1) is less difficult in terms of financing because even less commercially viable projects could be financed by ODA to some extent. *The challenge is, however, how to shift to the next stage (Stage 2) to attract foreign commercial financing as the main and sustainable funding source, which is the main topic of this section.* The following subsection spotlights the nature of foreign commercial financing and shows how foreign commercial financing flows to infrastructure projects and what aspects are necessary for foreign commercial financing.

¹²⁴ Borrowing debt itself is not a problem as long as the debt is effectively utilized and the borrower repays the debt as scheduled.

¹²⁵ The Jakarta Post (March 21st, 2013) “ADB warns Indonesia of over-reliance on banks”

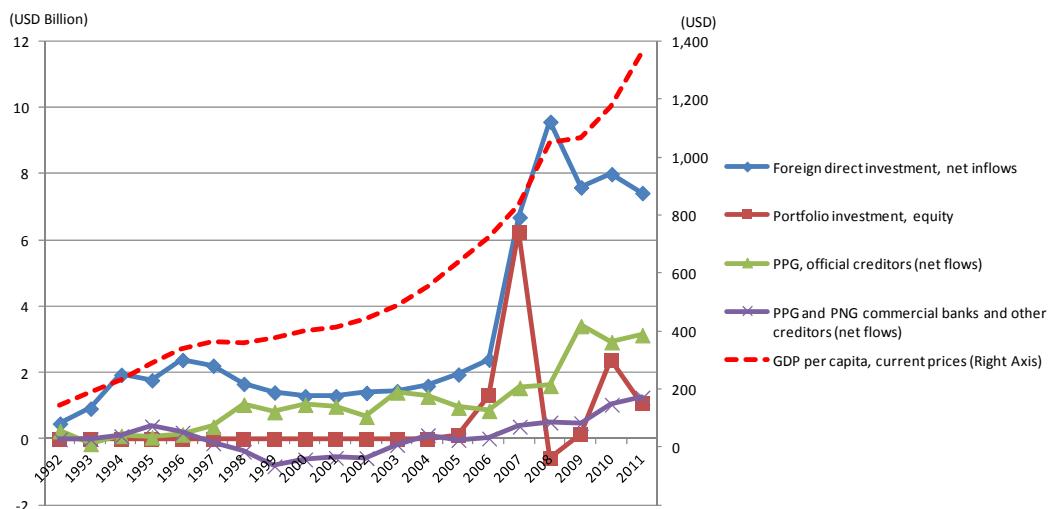
Figure 7-5: External Capital Flows to East Asia and the Pacific Region



Note: PPG stands for Public and Publicly Guaranteed and PNG does Publicly Non-Guaranteed.

Source: Modified from Nishizawa (2011), Original date is Global Development Finance (GDF) Database, accessed in March 2013.

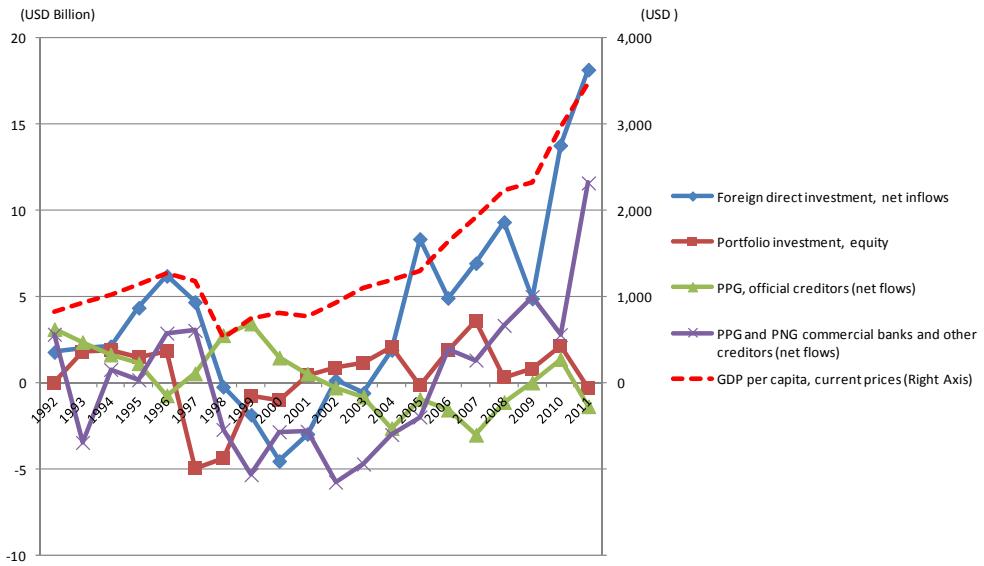
Figure 7-6: External Capital Flows to Vietnam



Note: PPG stands for Public and Publicly Guaranteed and PNG does Publicly Non-Guaranteed.

Source: Global Development Finance (GDF) Database for External Capital Flows, accessed in March 2013. IMF Database for GDP per capita, accessed in March 2013.

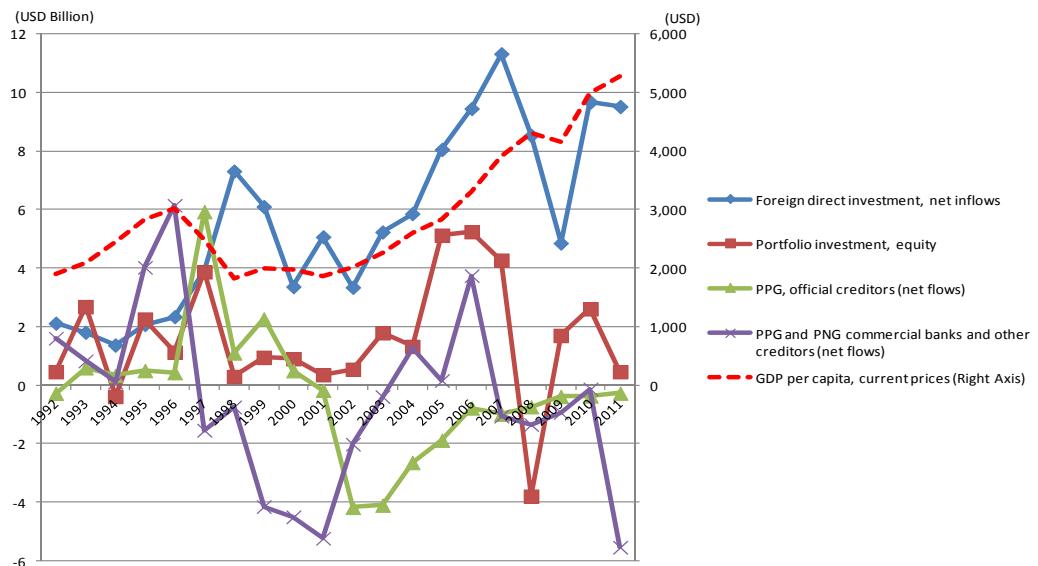
Figure 7-7: External Capital Flows to Indonesia



Note: PPG stands for Publicly and Publicly Guaranteed and PNG does Publicly Non-Guaranteed.

Source: Global Development Finance (GDF) Database for External Capital Flows, accessed in March 2013. IMF Database for GDP per capita, accessed in March 2013.

Figure 0-8. External capital flows to Thailand



Note: PPG stands for Publicly and Publicly Guaranteed and PNG does Publicly Non-Guaranteed.

Source: Global Development Finance (GDF) Database for External Capital Flows, accessed in March 2013. IMF Database for GDP per capita, accessed in March 2013.

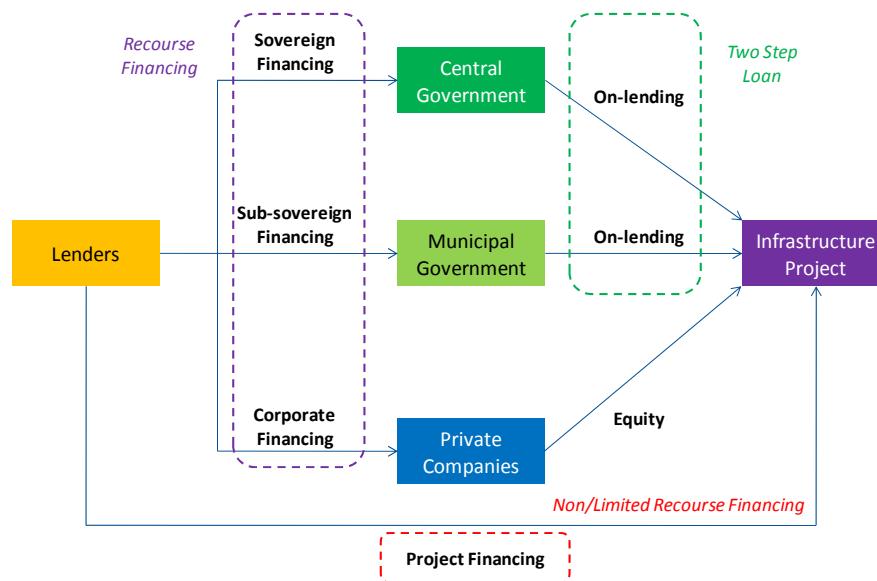
2.3. *Mobilization of Foreign Commercial Financing*

This subsection shows how the external financing sources flow to infrastructure projects with focus on foreign commercial financing. Myanmar has not obtained investment grade's rating from international rating agencies such as Standard & Poor's and Moody's Investors Service, meaning that she has difficulty tapping into foreign investors in international capital markets. Foreign commercial financing needs to be mainly sourced by bank loans and sponsors' (or project proponents') equity in this case. However, Myanmar secured a huge debt write-off of approximately USD 6 Billion in January 2013 and the new government is coordinating to clear old loans. *Myanmar, therefore, will not be able to easily obtain sufficient foreign commercial financing considering her present credit situation.*

Figure 7-9 illustrates funding flows of bank loans and equity to infrastructure projects. Bank loans could be classified as recourse financing and non/limited recourse financing. Recourse financing includes (i) sovereign financing, (ii) sub-sovereign financing, (iii) corporate financing, depending on who the borrowers are. Borrower's financial stability and bankability matter in recourse financing. These sovereign financing, sub-sovereign financing and corporate financing are utilized through two step loan when lenders regard the projects as less bankable, so that lenders can avoid directly taking project risks. On the other hand, non/limited recourse financing is usually provided through project financing where project finance lenders have no (or limited) recourse to project sponsors in terms of debt repayment, even in default. Projects' commercial viability and bankability matter in project financing, because the repayment source for the project financing loans is principally limited to the cash flows generated from the project. In case the project scale is large, sponsors' equity only cannot cover necessary funding amount and bank loans would be required

in order to make up for the funding gap. The bigger the infrastructure projects' scale gets, the more project sponsors tend to prefer project financing to recourse type financing such as corporate financing, especially in projects sponsored by private companies. This is partly because (i) the sponsors (or project proponents) are not obliged to repay debts even in projects' default and (ii) loan tenor of project financing (e.g. around 15 to 20 years) is usually longer than the one of corporate financing (e.g. around 5 to 6 years). For example, Thailand has historically well utilized project financing for infrastructure projects which is arranged by domestic lenders as well as foreign lenders, and received over USD 20 Billion for about 60 projects in the past two decades¹²⁶.

Figure 7-9: Funding Flows to Infrastructure Projects



Note: The arrows show the directions of cash flow.

Source: Compiled from Project Finance - a risk- control business (Kaga) (2007)

¹²⁶ PFI Database, accessed in December 2012.

2.4. Project Structure and Risk Allocation

How can Myanmar obtain sufficient foreign commercial financing? The key to success for foreign commercial financing is risk mitigation and incentive designing in infrastructure projects to make projects acceptable to foreign investors and lenders¹²⁷. This subsection briefly explains about typical structure of infrastructure projects sponsored by private companies and presents one project which was successfully financed in Vietnam to show how risk mitigation could be achieved and incentive designing could be incorporated through risk allocation among project stakeholders.

(1) Typical project structure

Table 7-3 summarizes some typical features of major infrastructure sectors, although each infrastructure project generally has a tailor-made structure even in the same sector category and it is difficult to generalize the features. The host government must mitigate project risks to attract foreign commercial financing to various types of infrastructure projects. Market risk¹²⁸ (which is called ridership risk in transportation projects) and foreign exchange risk¹²⁹ (currency mismatch risk) are generally considered as two of the biggest hurdles¹³⁰ to foreign investors and lenders participating in infrastructure projects, when they utilize foreign commercial financing such as project financing¹³¹. The market risk and foreign exchange risk are mitigated

¹²⁷ Nishizawa (2011)

¹²⁸ The market risk consists of (i) a price risk and (ii) a volume risk. In this section, the market risk mainly refers to a volume risk.

¹²⁹ This risk arises because the project company receives revenues from end-users in a local currency while international lenders normally provide loans in a hard currency like USD.

¹³⁰ In addition to the market risk and foreign exchange risk discussed here, there are many other projects risks in infrastructure projects, including completion risk, land acquisition risk, site condition risk etc.

¹³¹ In general, the market risk is less serious to local investors and lenders than foreign ones,

to some extent in Independent Power Producer (IPP) projects from the foreign investors' perspective. In IPP projects, there is an offtake contract (i.e. Power Purchase Agreement) signed between the project company and an offtaker (which is usually a national electricity company) on a take or pay basis. The foreign exchange adjustment factor is normally incorporated in the tariff formula in IPP projects, which is why the foreign exchange risk is theoretically transferred to the offtaker. In most cases, the capital expenditures component in the capacity charge of the tariff is fully linked to a funding currency like USD.

Table 7-3: Typical Features of Major Infrastructure Sectors

Sector	Electricity (IPP)	Water Supply	Airport (international)	Seaport (international)	Railway	Toll Road	Telecom
Offtaker	National electricity company	Municipal government	None	None	None	None	None
Revenue Currency	Local currency, but linked to hard currency	Local currency	Mainly hard currency	Partly hard currency	Local currency	Local currency	Local currency
Competing Infrastructure	Not influenced	Not influenced	Influenced	Influenced	Highly influenced	Highly influenced	Influenced, but first mover advantage is large
Others			•Large initial capital expenditure •Several revenue sources	•Large initial capital expenditure	•Large initial capital expenditure	•Partial operation is possible	•Partial operation is possible •Relatively shorter construction period and lower cost •Rapid technological change
Points for Project Structuring	•Offtaker's creditworthiness •Connection to grids	•Offtaker's creditworthiness •Coordination of raw water rights	•Allocation of construction work between the host government and private operator •Connection to access transportation	•Allocation of construction work between the host government and private operator •Connection to transportation and industrial parks	•Allocation of construction work between the host government and private operator •Connection to existing railways and public transportation	•Connection to other roads	

Note: The features above are just a few examples and more detailed observations are necessary. Allocation of construction work means separation of construction scope of work between public (i.e. host government) and private (i.e. private operator) sectors, where the public sector is responsible for civil works. Civil works element is usually less commercially viable, although heavy capital expenditures are required. Civil works are often separated from the scope of work of the private sector, to encourage the private sector to participate in airport, seaport and railway projects.

because local investors and lenders are more familiar with demand of the project in question (e.g. better understanding on local traffic situation in transportation projects) and they might be able to take the risk more aggressively. Foreign exchange risk does not emerge when the project is financed by local investors and lenders only. This is because they normally fund in a local currency to the project and currency mismatch does not happen between the revenue currency and funding currency.

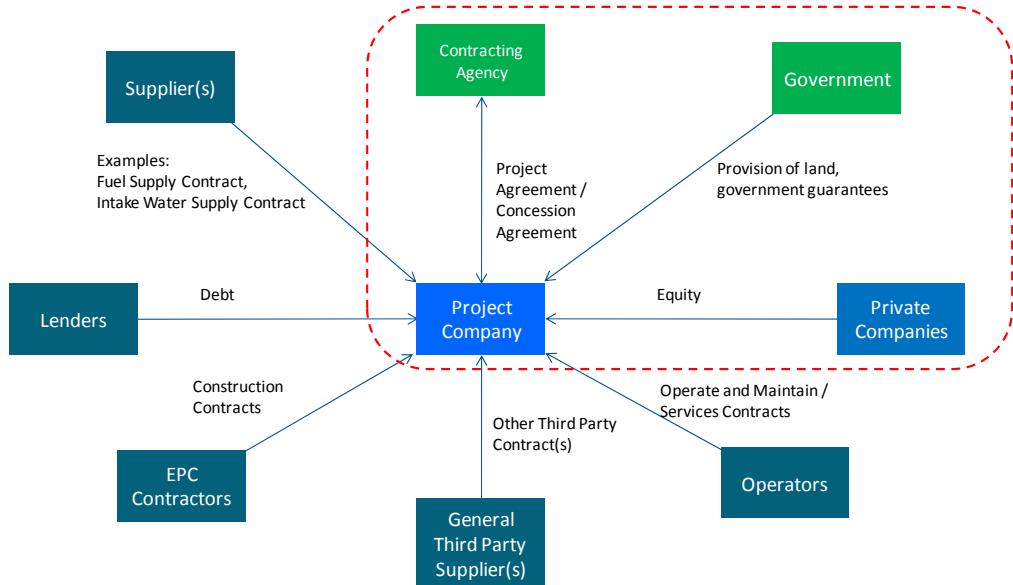
Source: Compiled from Inoue (2011), Kaga (2010) and Sugiyama (2012)

In fact, it is generally considered that IPP projects have a solid project structure which is familiar with foreign investors. The IPP project structure can be said as a textbook model in infrastructure projects. In comparison to IPP projects, transportation and logistics projects such as railway and port projects have a more complicated project structure. In many cases, there are generally no offtake contracts and revenue will be affected by demand fluctuation and competing infrastructures. Also, tariffs in these projects are not generally linked to hard currencies. Therefore it is more difficult for foreign investors to participate in transportation and logistics projects. Telecommunication is an exception. In other countries, including Cambodia, Laos and Vietnam, infrastructure provision for mobile networks is solely carried by private, privatized, state-owned operators, or their consortiums, in competition with other operators. Government's roles are licensing the frequency spectrums, setting relevant tariff scheme for operators including mobile virtual network operators, monitoring the quality of services and data security, protecting consumers, giving operators better incentives to provide services to remote areas, and changing regulations in line with the rapid technological changes.

Figure 7-10 shows the typical project structure of infrastructure projects where private companies are involved as sponsors. In most cases, the sponsors (or project proponents) set up a project company which is established only for conducting the project in question. The project company signs various project related contracts with project stakeholders. *These project contracts enable the project company to share the project risks with the project stakeholders based on the principle that the party who is most capable of managing and absorbing risks should take such risks.* This principle is usually observed in Public Private Partnership (PPP) projects in ASEAN countries.

For example, a construction risk is generally borne by an EPC (Engineering, Procurement and Construction) contractor on an EPC contract, because an EPC contractor is regarded as most able to manage any risk related to construction.

Figure 7-10: Typical Project Structure



Note: EPC stands for Engineering, Procurement and Construction.

Source: Compiled from presentation material in 3rd PPP Framework Workshop by ERIA

(2) Risk allocation between public and private sectors

One of the most important contracts is a concession agreement, signed by the host government and the project company. A concession agreement stipulates the scope of work between the public side and private side, tariff payment structure, and termination payments in the event of defaults, etc. Although it is difficult to set out all possible future events and risks in advance, a concession agreement functions as a basic risk allocation guideline between the public side and private side in the project in question.

Adequate risk allocation and risk mitigation measures need to be designed and

considered as clearly as possible in the project development stage. When the risk allocation between public and private sectors is inappropriate and the private companies are forced to take excessive risks, the private companies would be reluctant to show their interests in the projects. In the case of international tenderings opened by the host government, the government might fail to attract quality foreign bidders because of distorted risk allocation. Phased government support would be effective, whereby the host government provides various types of support including fiscal support in the early stage in order to create incentive for quality foreign investors. The host government can gradually reduce its support as the market sentiments towards the country improve and foreign investors become more confident¹³².

Table 7-4 is a good example that shows how Indonesia has allocated major project risks between public and private sectors, and how she provided the government support to attract foreign investors in her IPP projects. Indonesian IPP projects could be classified into three generations: the 1st Generation (1992-1998), the 2nd Generation (2005-2008), and the 3rd Generation (2009 onwards). In the first two generations, the risk allocation method between public and private sectors was basically same. The difference is degree of guarantees by the Indonesian government (GOI). In the 1st Generation, the Indonesian Ministry of Finance (MOF) on behalf of GOI provided Support Letter to PLN (Perusahaan Listrik Negara, Indonesian national electricity company as an offtaker in IPP projects) and IPP (i.e. the project company of IPP projects) so that PLN's financial obligations could be "ensured" directly by GOI. In 2nd Generation, GOI through MOF "affirmed", not guaranteed, that GOI would provide appropriate financial supports for PLN by signing Confirmation Note between key export credit agencies and MOF. In the 3rd Generation, GOI stopped issuing Support

¹³² Sugiyama (2012)

Letter and Confirmation Note, and it established Indonesia Infrastructure Guarantee Fund (IIGF) which would provide guarantee on behalf of GOI. IIGF, which was established by the Indonesian Ministry of Finance in December 2009, is a state-owned company and provides guarantees for the financial obligations of the government contracting agencies to mitigate government related contractual risks, including breach of contract, delays in obtaining permits and license and change in laws¹³³. IIGF is expected to act as a single window for the government guarantee which the Indonesian Ministry of Finance was in charge of. IIGF is a relatively new institution and it has not developed an extensive track record yet. However, establishment of IIGF is a good step for the Indonesian government to remove the government guarantee's obligation in order to avoid contingency liabilities. GOI has gradually reduced her fiscal burden arising from guarantees as she economically develops and market sentiments towards Indonesia by foreign investors have improved.

¹³³ ERIA (2013a)

Table 7-4: Guarantees in the Electrify Sector in Indonesia

	Risk Sharing Mechanism		
	1 st Generation (1992-1998)	2 nd Generation (2005-2008)	3 rd Generation (2009 onwards)
Fuel Supply	IPP bears the risk of availability of fuel.		
Fuel Cost	PLN bears risk on the fuel cost (through tariff C component, which is passed from IPP to PLN).		PLN shares the risk with IIGF.
Site Selection	IPP and PLN share the risk.		
Capacity and Energy Price Risk	PLN bears the capacity and energy risk.		PLN shares the risk with IIGF.
Construction Risk	IPP bears the construction risk.		
Operation Risk	IPP bears the operation risk.		
Foreign Exchange Risk	PLN bears the foreign exchange risk.		PLN shares the risk with IIGF.
Country/Regulatory Risk	IPP bears the country/regulatory risk.		PLN shares the risk with IIGF.
Guarantee Form	Support Letter from Ministry of Finance signed by Minister	Confirmation Note from Ministry of Finance signed by Head of Fiscal Policy Office	Guarantee Agreement with Indonesia Infrastructure Guarantee Fund (IIGF)

Note: IPP stands for Independent Power Producer. PLN is Perusahaan Listrik Negara, Indonesian national electricity company as an offtaker in IPP projects. Confirmation Note is Umbrella Note of Mutual Understanding between the Ministry of Finance of Indonesia and Japan Bank for International Cooperation (JBIC) and with Nippon Export and Investment Insurance (NEXI).

Source: Compiled from PwC (2011) and “Role of Ministry of Finance to promote PPP Infrastructure Development” (2013)

3. Necessary Actions to Invite Private Funds

3.1. Project Development Facility

Project Development Facility (PDF) is proposed to be created so that the Myanmar government will be able to have a better project preparation and design more viable projects. PDF could be utilized for expenses towards project development activities including preliminary feasibility studies, environment impact assessment, external consultant's fee on legal and technical studies, and bid documents preparation, etc.

PDF would be formed as a revolving fund where the expenditures incurred for the project development is reimbursed by the winning bidder or entity who is awarded the implementation of the project. The fund would be sourced by the government budget, grants from foreign governments and concessional loans from multilateral agencies such as the World Bank and the Asia Development Bank (ADB). PDF is expected to enable the Myanmar government to secure necessary funds for project preparation, so that it can analyze potential project risks more deeply and consider better risk mitigation measures. In order to manage PDF efficiently and to make it sustainable, capacity building for the Myanmar government is essential in cooperation with international organizations. Myanmar can gradually become more familiar with international practices and standards. It will result in more foreign commercial financing inflow to Myanmar.

In fact, other neighboring countries such as Thailand, Indonesia and Vietnam are now attempting to set up PDF for their infrastructure projects' preparation. The Philippines established Project Development and Monitoring Facility (PDMF) with assistance from development partners such as the Australian Agency for International Development (AusAid). PDF is utilized for funding pre-investment studies including pre-feasibility studies, feasibility studies, preparation of tender documents, drafting contracts, bidding process and contract negotiations. PDMF funds currently amount to USD 41 million composed of about USD 18 million from AusAid through ADB and about USD 23 million from the Philippines government¹³⁴.

3.2. Government Fiscal Support and Guarantee Fund

Government fiscal support is necessary in case the project is economically

¹³⁴ ERIA (2013b)

beneficial but commercially unviable to create incentive for foreign investors and lenders. As discussed in section 2-4, adequate risk allocation between public side and private side is crucial. When the risk allocation between public and private sectors is inappropriate and the private companies are forced to take excessive risks, the private companies would be reluctant to show their interests in the projects.

In general, beneficiaries of infrastructure include many stakeholders encompassing foreign investors who would like to do business in the country, but it would be the most beneficial for nationals, especially the host government because infrastructure could function as a growth engine for the country. Therefore, strong host government commitments in the projects are extremely important in order to ensure the success of the projects. There are no magical schemes and tools that can automatically generate and bring necessary financing.

When it comes to government fiscal support, the Myanmar government needs to have careful fiscal management. Reckless government support not only devastates the projects but also negatively impacts the fiscal stability of Myanmar. Phased government support would be effective, whereby the host government provides various types of support, including guarantees, in the early stage in order to attract quality foreign investors. The Myanmar government could gradually reduce the support as the market sentiments towards the country improve and foreign investors become more confident. IIGF in Indonesia can be a good on-going example. Introduction of guarantee fund might be too early for Myanmar, but it could be one of the future options that it could undertake to help its infrastructure provisions.

In addition to PDF and government fiscal support mentioned above, additional credit enhancement for political risk mitigation will be required to accelerate foreign commercial financing. This is because the regulatory and legal framework has not

been well organized in Myanmar even while the country appears to be still politically unstable. Political risk is beyond private companies' control. Political risk¹³⁵ could be mitigated through utilizing political risk guarantee or insurance extended by multilateral agencies and expert credit agencies. In fact, the political risk guarantee and political risk insurance are often utilized for infrastructure projects in some of ASEAN countries such as Vietnam, because foreign investors still regard them as being politically risky.

3.3. Enhancing Credibility

Lastly, Myanmar must enhance its credibility. Credibility is gradually generated through sound macroeconomic policy operation (e.g. stable inflation and foreign exchange, etc.), healthy fiscal management and better governance, etc. These things are foundations for everything including infrastructure provision, especially in the case of attracting foreign investors. They cannot be accomplished overnight and steady effort should be made.

Financial sector plays a key role for the whole economic development. In macro perspective it provides a platform for the economic agents to interact with and exchange the resources. Under an efficient and effective financial market, available financial resources will be allocated at efficient cost. One of important uses of financial resources in the development issue is to finance infrastructure. In a country with limited public fiscal resources such as Myanmar, a functioning financial market will be essential to mobilize potential financial resources from a wider scope of providers for

¹³⁵ Political risk is normally broken down into (i) a foreign currency exchange risk (untransferability and inconvertibility of foreign currencies), (ii) a political violence risk (i.e. war etc.), (iii) an expropriation and nationalization risk and (iv) breach of contract risk by the host government entities in project finance space.

developmental purpose.

Myanmar, however, has not yet established the robust financial system, including banking system as intermediaries. Unfortunately it does not have sufficient domestic funds to meet all infrastructure development and other public needs. Hence, developing financial market is vital for the government of Myanmar. Myanmar can utilize accumulated experiences of international development partners, including lessons from other developing countries and capacity building. To assure a successful program of developing financial markets, the Government of Myanmar should initiate and lead the process. In the immediate term, to meet its fiscal gap, Myanmar can combine both domestic and foreign sources with emphasis on foreign supply. In the future when domestic sources are sufficiently accumulated within a sound and healthy financial system, Myanmar can reduce its dependence on foreign resources to a level of minimum necessity.

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Conclusion

Seeking people-centered growth

Development stage of Myanmar is lagged behind in the region but there are vast opportunities to enjoy latecomer's advantages. Myanmar is presently in a transition to a new modern developed nation, and it is the most suitable period of time to exercise people-centered development. With the top priority in seeking people-centered development, the MCDV indicates the developing transitional economy to orient such growth as high and globally linked, inclusive and balanced, and green and sustainable in its development strategies. In this conclusion, we again would like to reaffirm our three pillar approaches that are suitable for people-centered development.

(1) High and Globally Linked Growth

Myanmar has been a mixed bag of economic performance. Based on regional research on connectivity, Myanmar can be a test case of improved growth through global and regional connectivity. Located at the middle ground between ASEAN, China and India, Myanmar can sharply improve its competitiveness by offering its production capacities to the existing production network in the region. Myanmar's connectivity with the rest of ASEAN and India and China is the key to its joining the regional production network first, and then the global supply chains. Massive infrastructure projects are being planned, or already under construction, to take advantage of the country's geostrategic location and boost connectivity between regional economic powerhouses.

In order to explore its full potential and achieve high growth through enhanced

regional connectivity, physical infrastructure alone is not sufficient. The growth strategy requires a multi-functional approach towards connectivity. This strategy would include infrastructure for physical connectivity, such as roads, ports, airports, gas pipelines, and power grids. A modest level of connectivity would bring in manufacturing activities which would allow the country to participate in the production networks of South East and East Asia. With enhanced connectivity, different regions of Myanmar are expected to expand their economic activities, such as manufacturing, agriculture, mining and tourism, based on their own location advantages including the endowment of natural resources, reasonable wages and rents. Myanmar is fortunate to be endowed with natural and mineral resources such as natural gas, precious stones and coal and has potentials as the agricultural production base or tourism destination. These opportunities would not be materialized without efficient and reliable connectivity with neighboring regions.

The growth story of Myanmar can move at a great speed by adhering to institutional connectivity with the other countries of ASEAN and even East Asia. In this regard, Myanmar is blessed with two different but fortuitous events. The ASEAN Economic Community (AEC) is coming into being in 2015. Myanmar being a member of the same can aspire to great levels of institutional connectivity in the form of free movements of goods, services, investments and labor and a good deal of people to people interaction. While there is a general fear of the unknown among the nascent economic players in Myanmar, the country could well participate in the AEC by playing upon its competitive strengths, such as low wages, quality human resource, rich minerals and gas and agriculture. Second, it has the latecomer's advantage that would allow it to jump start its growth strategy by avoiding the mistakes of neighboring countries who were at the similar economic ladder in the past. Myanmar's chairmanship of the ASEAN and

related summits in 2014 would be a major opportunity to showcase its development initiatives to the region as well as to the world. As a year round activity, businesses and policy makers will be a close witness to Myanmar's readiness to join the growth story of the ASEAN and East Asia. There is reason to believe that this year would be a kick start year of Myanmar's integration into the region.

(2) Inclusive and Balanced Growth

There are no quick starts to economic reforms, or even political reforms, as they are undertaken to bring a shift in the structure of the polity and economy. The turnaround time varies from sector to sector.

Agriculture being the mainstay of the economy, reform and revitalization of this sector is directly beneficial to the population as it addresses the poverty reduction issue. Near-term measures to improve access to finance and inputs, small irrigation projects, and agricultural extension would contribute to inclusive growth and food security. Rural indebtedness is chronic and needs to be addressed by the government, especially the multiple debt issue. The goal of inclusive growth can be met through improved and increased investments in raising the productivity of farming. Concurrently, a balanced agricultural growth would require stimulation of non-farm sectors, so that they could absorb labor leaving agriculture. Another policy factor could be diversification of cropping pattern. Introduction of new crops and improved varieties of seeds, particularly in the dry zones would lead to higher earnings and increased agricultural productivity.

The economy greatly relies on the resource-based industries because the most contributed sectors to the exports are extractive industries, especially oil and gas,

mining, and forest products. The peace process offers a window of opportunity to make the mineral and natural resource sector more consultative and less exploitative. This is expected to bring broad-based development to the borderlands as well as to the interior parts of Myanmar. There are visible signs of increased business interests in these areas. MCDV also proposed border areas development by exploiting their own competitive edges. A peaceful Myanmar would allow the growth of businesses in natural and mineral resources taking economic benefits directly to people.

Manufacturing and other modern facilitating sectors, which Myanmar must exploit in order to catch-up with the growth status of its neighbors, contribute a small portion to the economy. A growing economy which can take growth closer to its people requires upgradation or investments in manufacturing, transportation, communications, power generation etc. Improvements to infrastructure would include rehabilitating roads, upgrading power systems to reduce transmission and distribution losses and developing a sound regulatory framework for independent power producers and public-private partnerships. In order to achieve these, Myanmar has to facilitate investments, in both physical and institutional infrastructure. This has been emphasized in MCDV.

Development of the financial system is a natural corollary to this approach. Allowing greater participation by private banks and with prudent regulation would increase private sector access to credit. There is also a need for reforms in the legal system pertaining to land ownership, labor, and foreign investment, as well as measures to simplify business registration. The new Foreign Investment Law 2012 is the right step in this direction. Put together, this balanced approach to growth would not only improve the business environment but also keep the people as the direct beneficiary of development.

Social development indicators show if the growth is touching the lives of people

positively or not. For Myanmar to advance into a promising emerging market in Asia, it needs long term and sustainable development in universal healthcare and inclusive education. Significant assistance is now available from international organizations in the field of health but both sectors require increased funding and capacity development.

Democracy and inclusive growth have been declared by the government as the cornerstone of development in Myanmar. But lack of capacities in the institutions can overwhelm the growth story and create a chasm between people and development. Myanmar has embarked on economic reconstruction and political reform simultaneously, setting up a major challenge for itself. Freedom of expression, an increasingly independent media and freedom of association have made it easier for people to participate in the decision making process. The democratic developments will allow for a more equitable distribution of the results of growth. Improvement in the capacities of decision making institutions, including bureaucracy, would make this development inclusive and balanced. The current reform process provides the rare opportunity to put these inclusive institutions in place.

(3) Green and Sustainable Growth

Myanmar faces the dilemma common to all emerging economies, who want to fast track their development. The dilemma is to balance economic growth with sustainability. Indeed Myanmar is blessed with diversified natural resources, both over and under the ground. Myanmar possesses dense forests, minerals, precious stones, gas and oil in ample quantity. But in fast tracking the growth in a country like Myanmar, which has a lot of ‘catching up’ to do, it must follow a green growth strategy. An environmentally friendly growth strategy will recognize that focusing on GDP as a

measure of economic progress may not be the best way forward. There are economic and social costs of economic transition which are reflected in the wealth, health and wellbeing of the people, especially those at the lower ends of development. For Myanmar, the quality and composition of growth should be as important as the quantity and its impacts on people's wealth and welfare.

The growth strategy can start at the most obvious environmental point, namely forests, which have a direct bearing on the livelihood of people. The conservation of forests should be high priority in agenda of the government as it is the predominant owner of forest land. Many developing countries have developed their growth plans by making forests sustainable. In the current reform agenda, Myanmar can easily break the political economy nexus that have degraded the rich forests in the country and upgrade its eco systems.

Similarly, Myanmar operates its extractive industries at the lowest end of the value chain of the particular sector. Investments in clean technology, moving upward in the value chain (towards finished or at least, intermediate product) would both sustain its environment and raise the livelihood standards of the population engaged in these industries. Indiscriminate extraction should be replaced with planned ones and afforestation and reclaiming of discarded mines should be given priority in the plans. Rehabilitating and protecting the natural resource base, however, is a cross-sectoral issue and will require a coherent and integrated approach. This will require an enabling framework for policy formulation and implementation that promotes environmentally sustainable development at national, regional and local levels.

Myanmar's tight rope walk is to balance between growth and environment protection. There are lessons abound in its neighborhood, where some countries have chosen high growth at the expense of environment. But there are instances of planned

industrial growth which protects the water, air and soil quality and lessens the cost of development on human health and wealth. Myanmar starts at the low end of manufacturing and industries such as garments and leather, which could be polluting. Industrial waste and water pollution are a direct outcome of these industries. There will be a need for industrial planning which locates these industries in identified zones with dedicated land and water supply. Pollution of river water would be life threatening for industries like fisheries and even livestock, which are a major part of the economy in the coastal areas as well as in the hinterland. As Myanmar grows, it may well incorporate environmental safety aspects in its growth plans for both industries and natural resources.

Policymakers may face a dilemma between environmentally sustainable growth and fast growth. But the cost saved on human health and nation's resources would offset the cost of factoring in the environmental costs of development in Myanmar. This would complete the triangle of development, which will now have economic growth, poverty reduction and sustainable development as three connected sides of the growth triangle in Myanmar.

As a conclusion, Myanmar needs to seek people-centered development supported by three pillar growth strategies, that is, high and globally linked, inclusive and balanced, and green and sustainable ones.

Appendix

Economic Performance and Growth Prospects

The purpose of this appendix document is to investigate the long-term growth prospects of Myanmar economy under such scenarios as intensifying investment and improving total factor productivity (TFP), to represent demand-management policies necessary to sustain its long-term economic growth, and also to provide strategic implications on the prerequisites to achieve an optimal growth path. For this purpose, we construct a simple macro-econometric model and utilize it for the simulations, the detailed of which are described in Appendix.

1. Long-term Growth Prospects

For investigating the long-term growth prospects of Myanmar economy, we look into the supply side of the economy, specifically, production function. This is based on our postulation that in early stage of development Myanmar is facing with ‘Supply Constraint’ as her main feature of Macro-economic structure. As factors of production side, we herein focus mainly on the contributions of capital stocks and “Total Factor Productivity” (TFP), since these are scarce factors in Myanmar’s economy, and are related with such strategies as export-oriented growth, human resource development (HRD) and infrastructure deployment. For the capital formation, intensive investment is needed during a certain period from the quantitative perspective of the economy. At the same time, the TFP, which should be treated as policy target in Myanmar economic development in coming decades, should

also be improved to pursue the efficiency of the economy from its qualitative perspective. Thus, we represent the following two scenarios: intensifying investment and enhancing TFP.

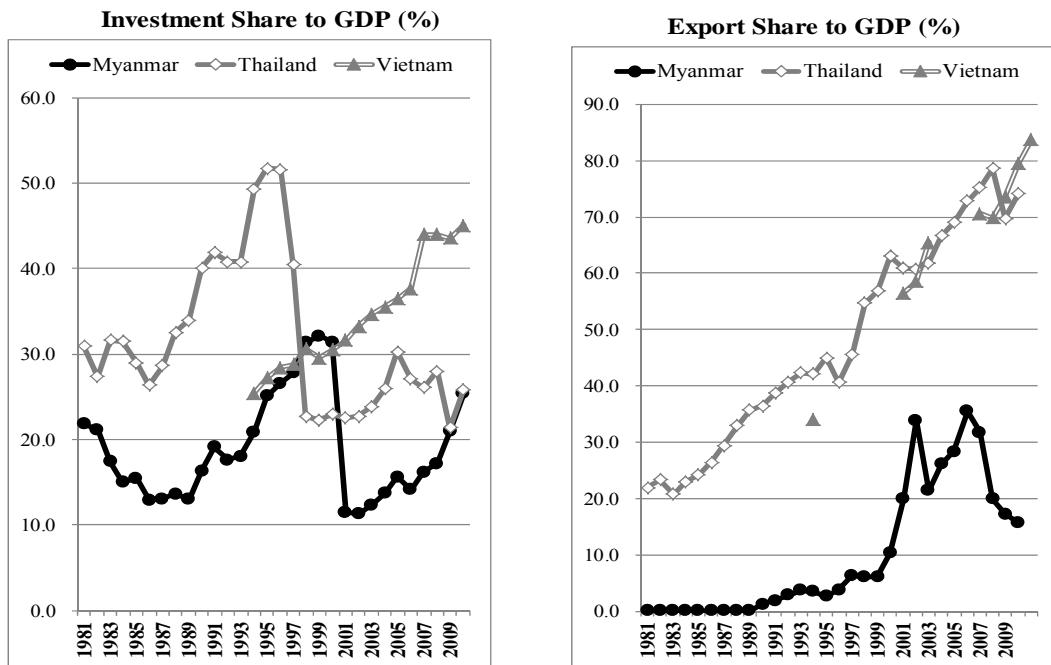
1.1. Scenarios for Intensifying Investment

The “investment” is a key economic variable in capital accumulation, regardless of the investors, i.e. private or public sectors. The investment is one of the supply-side factors as well as one of demand components. The investment flows create capital stocks, one of the production factors, in dynamic terms. Thus, the intensive investment contributes to the increase in the production capacities in the long run. Since the investment is usually equipped with technology, it also contributes to the enhancement of productivity growth.

The economic growth, therefore, requires the investment in any economies. Myanmar is not an exception. If Myanmar is going to attain export-oriented growth, in particular, it needs certain production capacities to export, thereby necessitating the intensive investment. When we see the economies of forerunners in the Mekong region, i.e., Thailand and Vietnam (see Figure A1), their intensive investments have led to their export-oriented economic structures as well as their high growth. Thailand experienced the periods with its intensive investment in the 1980-90s before the 1997 financial crisis, in which the investment ratio relative to GDP reached around 40-50 percent. Thanks to its intensive investment, Thailand could attain high growth with around 10 percent as annual rate about the year of 1990, and raise its export ratio rapidly from around 40 percent in the 1990s to 70-80 percent in the 2000s, though its investment ratio has slowed down toward 20-30 percent after the financial crisis. Vietnam has also continued to raise its investment ratio beyond 40 percent in the 2000s,

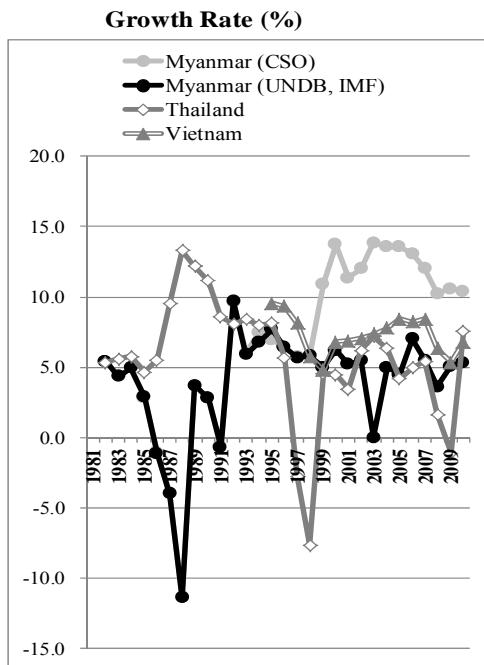
and in the parallel way it has recorded the rapid increase of its export ratio beyond 80 percent and growth rate around 7 percent in the 2000s. The Myanmar's investment ratio to GDP with around 25 percent in 2010, and its export rate with around 20 percent and its growth rate with around 5 percent¹³⁶ have been still much lower than those of the forerunners: Thailand in the 1990s and Vietnam in the 2000s. Thus, it appears to be an appropriate time for Myanmar to facilitate its investment intensively to attain its export-oriented growth¹³⁷.

Figure A1: Comparison of Investment and Export Shares to GDP, and Growth Rate



¹³⁶The growth rate in Myanmar here is based on the data of UNDP and IMF, not Myanmar's official data (Central Statistic Organization). The latter data are considered to be overestimated as we state in Appendix.

¹³⁷The reasons why we think that Myanmar's economy will follow the economic paths of Thailand and Vietnam are: 1) three economies have similarities in population size as well as cultural and ethnic backgrounds, and 2) the penetration of international production network among three economies, which we suppose, may make their economic growth paths common among the economies.



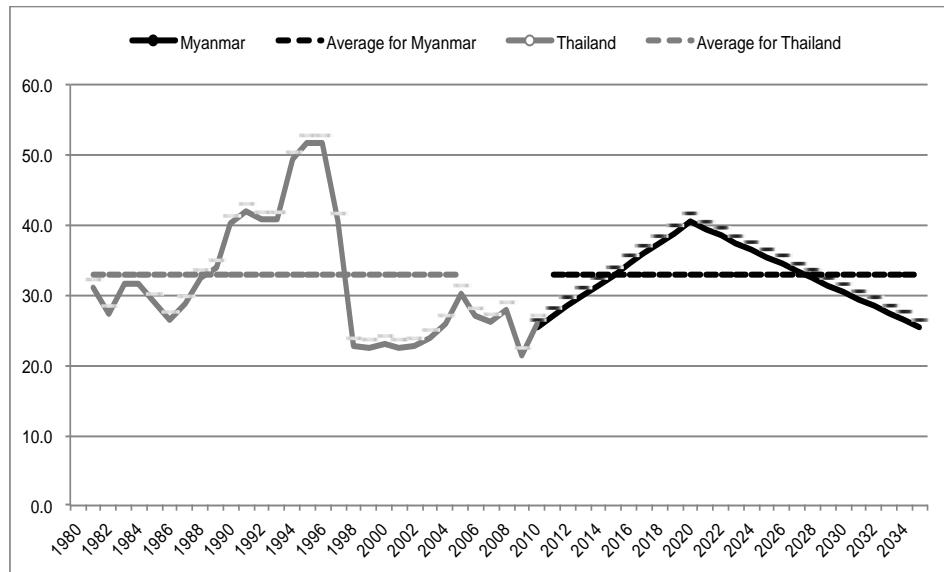
Source: ADB Key Indicators and ERIA's estimate for Myanmar's Export

Then, we herein estimate the long-term growth prospect under the scenario with intensive investment. For this purpose, we let the variable of “investment” an exogenous one instead of an endogenous one in the usual model. This specification enables us to get the implication on the linkage between investment and GDP - how much investment should be created for capital accumulation as a policy target for long-term economic growth and development in Myanmar-, although this specification may ignore the endogenous mechanism in which GDP and other economic variables also affect the level of investment. Another practical reason is that there is no such classified data in Myanmar statistics as “private investment” that is usually endogenous, and “government investment” that is exogenous.

Our assumption of “intensive investment” is that Myanmar will nearly follow the past experience of Thailand on the path of investment-GDP ratio. To be specific, Myanmar will raise the ratio from about 25 percent to 40 percent during the upcoming

ten years toward 2020 and will let it peak out thereafter (Scenario I), just as Thailand had made the ratio grow from about 30 percent to 45-50 percent in about ten-year period before the financial crisis in 1997 (see Figure A2)¹³⁸. To clarify its impacts on economic growth, we also estimate the benchmark with constant investment-GDP ratio as a “Baseline” scenario¹³⁹.

Figure A2: Assumption of Investment Ratio to GDP for Scenario I



Source: ERIA.

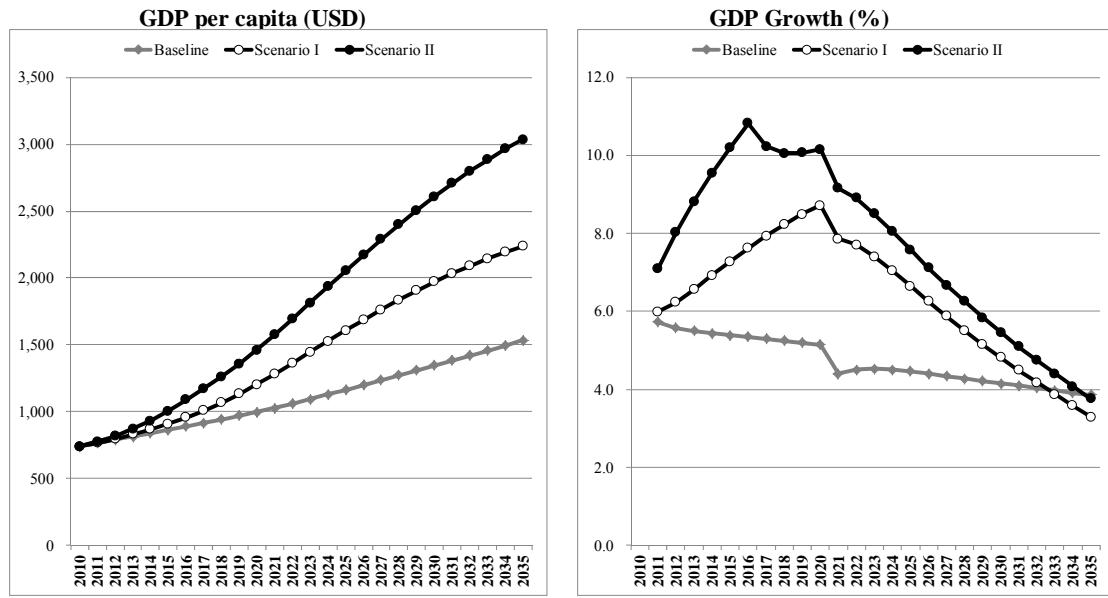
Table A-1 reports the estimation outcomes: GDP per capita in 2035 will reach 2,236 USD in Scenario I, whereas it will stay at 1,533 USD under Baseline (the trends in GDP per capita and growth rate are shown in Figure A3); growth rate will attain 6.3 percent with the contributions of capital 2.4 and TFP 2.7 in Scenario I, while it will only be 4.7

¹³⁸We assume rather gradual slope as Myanmar’s investment-GDP ratio for 2011-35 compared with its slope in Thailand for 1981-2005, while making its 25-year averages the same at 33% between Myanmar and Thailand. It is because we suppose that Myanmar should not repeat the boom-bust cycle in the Thai-1997-crisis. We did not consider the case of Vietnam, since her investment and growth appear to have not reached a steady state yet.

¹³⁹As for labor forces, we suppose 2.3% annual growth in 2011-20, and 1.3% in 2021-35 as a common assumption for Baseline, Scenario I and II. The decline of its growth is based on World Population Prospects: The 2010 Revision by Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

percent with the contributions of capital 1.8 and TFP 1.7 in Baseline; incremental capital-output ratio (ICOR) will be getting worse at 3.6 in Scenario I than at 3.3 in Baseline¹⁴⁰.

Figure A3: GDP per capita and GDP Growth under Baseline, Scenario I and II



Source: ERIA.

¹⁴⁰ There are many studies on ICOR, e.g. Patel (1968) and Sato (1971). In these studies, the general practice has been to use a fairly fixed ICOR, usually varying from 3 and 4, and relate it to a given, or a desirable, rate of growth.

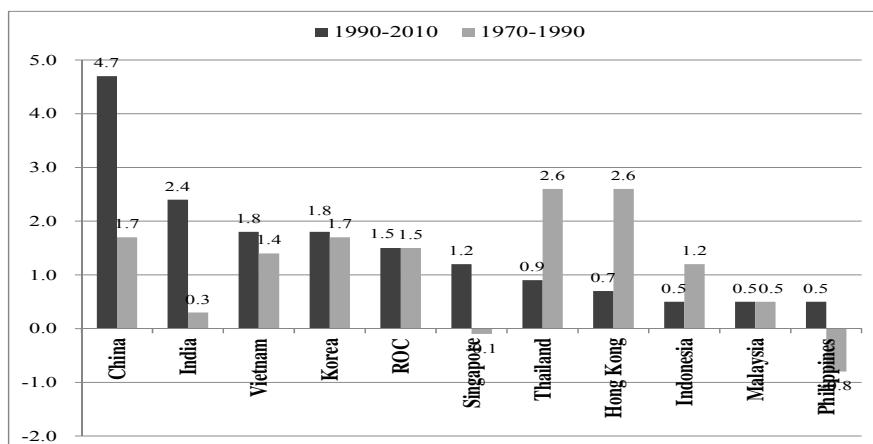
Table A1: Long-term Growth Prospect

Assumption	Baseline <Constant IV>	Scenario I <Intensive IV>	Scenario II <Intensive IV + TFP>
Investment (IV) & TFP	Constant Investment Ratio = 25% (2011-35)	Raising Investment Ratio = 40% (2020 at its peak)	Scenario I + TFP shift = 0.06 point (2011-35)
Labor	Annual Growth: 2.3% (2011-20); 1.3% (2021-35)		
Estimation Results			
GDP per capita (\$, 2035)	1,533	2,236	3,037
Annual Growth %, 2011-35)	4.7	6.3	7.6
Capital Contribution	1.8	2.4	2.8
Labor Contribution	1.2	1.2	1.2
TFP	1.7	2.7	3.7
ICOR	3.3	3.6	3.2

Source: ERIA.

Regarding with the level of TFP, 2.7 in Scenario I, it is comparable with those of Thailand and Hong Kong during the two decades of 1970-1990 (see Figure A-1). The worse ICOR in Scenario I implies that the volume effects of investment would be limited to enhance the growth and the improvement of investment quality would be needed. This consideration will be covered in the next Scenario II with TFP shift.

Figure A-1: TFP Growth in selected Asian economies



Source: APO Productivity Database 2012.01.

1.2. Scenarios for Enhancing TFP

The long-term growth prospects are closely linked with any of development strategies as long as those enhance the efficiency of the economy. The innovation of technologies, infrastructure development, institutional reformation, consolidated governance, industrial restructuring, human resource development, and any other strategies would contribute to brushing up the potential growth of economy, and all the factors could be reflected in the enhancement of total factor productivity, TFP. The TFP issue had ever attracted much attention in Asia by the argument of Krugman (1994) that there is nothing miraculous about the successes of Asia's tigers that grew by increasing only inputs, not TFP. As is reported in Figure A-1, however, the contribution of TFP to long-term economic growth should not be ignored and would often be linked with economic performances in each country.

We then add one more scenario that includes the improvement of TFP. Specifically, we assume that Myanmar could shift the production function upward without any-input increases during the estimation period of 2011-2035 while keeping the trends in investment-GDP ratio under Scenario I (we call it Scenario II).

Table A1 again reports the estimation outcomes: GDP per capita in 2035 will reach 3,037 USD in Scenario II, which is beyond the level of Scenario I (the trend can also be confirmed in Figure A3); growth rate will further attain 7.3 percent with the contributions of capital 2.8 and TFP 3.7 in Scenario II; ICOR will improve toward 3.2 from 3.6 in Scenario I.

The level of TFP, 3.7 in Scenario II appears to be rather higher than the average in Asian economies, but still lower than the level of recent China in 1990-2010. It should also be noted that the ICOR under this Scenario is recovered, thereby implying the

improvement of investment quality as well as its quantity.

2. Demand Management for Sustainable Growth

Suppose that a robust growth were attained in the long-run under the favorable Scenario II, the question is whether that growth is consistent with the macro-balance of Myanmar economy. In other words, the problem is whether or not the necessary “intensive investment” will really be financed by financial resources in the sustainable ways. Here comes the necessity to carefully consider the demand side of the economy, especially external balance (gap between exports and imports), which is equivalent to the saving-investment gap. In this context, the controllability of money supply and price stability are key factors to manage the macro-balance, although these seem to be within the issues with short-run perspectives.

We now assume the two Sub-Scenarios under Scenario II in the previous section: the Sub-Scenario A assumes the 13 percent annual growth of money supply, M1 during 2011-35, and Sub-Scenario B presumes its 20 percent growth. The world GDP volume is supposed to be 2.0 percent annual growth and the exchange rate is fixed at 802.9 Kyat per USD as common assumptions for Sub-Scenario A and B.

Table A2 reports main estimation outcomes as follows: CPI average percentage increase per year is 5.4 percent in Sub-Scenario A, while it amounts to 11.4 percent in Sub-Scenario B; export annual growth 16.5 is exceeding that of imports 15.4, thereby trade balance being a surplus at the latter estimation period in Sub-Scenario A, whereas import growth is far exceeding that of export, thereby trade deficit being enlarged extremely in Sub-Scenario B.

Table A2: Demand Management under Scenario II

Assumption	Sub-Scenario A <Controlled Money>	Sub-Scenario B <Expanded Maney>
Money Supply (M1)	Annual Growth Rate = 13% (2011-35)	Annual Growth Rate = 20% (2011-35)
World GDP Volume	Annual Growth Rate: 2.0% (2011-35)	
Exchange Rate	Constant at 802.9 Kyat per USD (2011-35)	
Estimation Results		
CPI (%), Annual Rate 2011-35)	5.4	11.4
Exports (%), Annual Rate 2011-35)	16.5	8.3
Imports (%), Annual Rate 2011-35)	15.4	20.2
Trade Balance / GDP (%), 2035)	0.4	-298.2

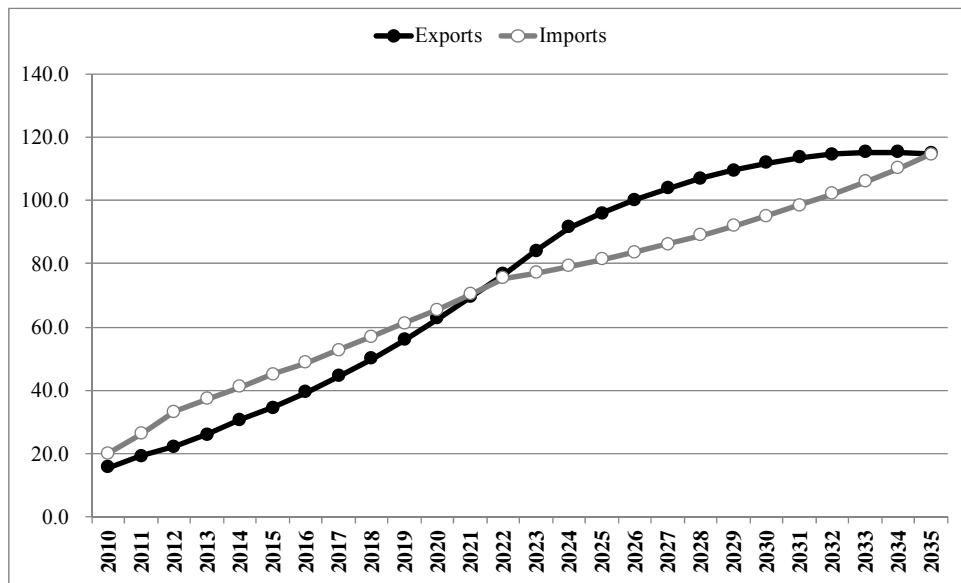
Source: ERIA.

The important implication is that too high growth of money supply under Sub-Scenario B would bring about serious repercussions: first, it would lead to two-digit inflation, which itself might threaten people's lives, and would give negative impacts on people's incentives for savings; second, what is the more serious would be that high domestic inflation would make price competitiveness to the world competitors lessen so that the exports grow less and the imports grow more. After all, trade balance would deteriorate, and as its identity relationship, the saving-investment gap would be getting worse. Thus, though there was the need for intensive investment under Scenario II, it might not be financed by domestic financial resources.

On the other hand, a proper management of money supply would cause less inflation under Sub-Scenario A, and could also keep the trade balance surplus through maintaining price competitiveness. As the result, the intensive investment could be financed by domestic savings. As Figure A5 shows, the intensive investment causes trade deficit at the initial stage due to the need for importing

capital goods. The investment, however, enhances the capacity of supply to export with time lag, and finally makes the trade balance surplus at the later stage. Under Sub-Scenario A, the export ratio to GDP will reach more than 100 percent of GDP, thereby export-oriented growth being attained under the combination of intensive investment and proper management of money supply. Under the Sub-Scenario, the aggregate demand will also be nearly matching the supply side of GDP, and thus the macro-balance consistency will hold under this scenario¹⁴¹.

Figure A5: Trends in Export- and Import- Ratio to GDP in sub-Scenario A



Source: ERIA.

3. Prerequisites to Achieve an Optimal Growth Path

We now provide several strategic implications on the prerequisites to achieve an optimal growth path based on the model estimation above. The key

¹⁴¹ The model constructed here is a kind of the two-gap model in the sense that the demand-supply gap is not adjusted by price mechanisms. For the two-gap model, see Chenery and Strout (1966).

macroeconomic directions can be focused on the following two: to intensify investment with careful demand management, and to improve TFP.

Regarding with the direction to intensify investment, the most important prerequisite is to secure financial resources for them in sustainable way. The financial resources come from domestic savings and external capital inflows. The major resources should be domestic savings rather than external finances since the large gap between investment and saving cannot be sustained for a long-term. To enhance the domestic savings, macro-economic stability is definitely needed, since high inflation discourages saving activity and international price competitiveness as we state in the previous section. Thus, careful management of demand, especially in terms of monetary control, should be an essential prerequisite. Another prerequisite for intensive investment is to develop financial frameworks to mobilize domestic savings and to intermediate between domestic saving and investment, e.g. the banking sector, equity and bond markets etc.

As for the TFP improvements, any kinds of policies to enhance the efficiency of Myanmar economy can be the prerequisites for its improvements. Major contributions would come from innovation of technologies, infrastructure development, industrial restructuring, institutional reformation (regulatory reforms, privatization, capacity development for public sector, consolidated governance, etc.), human resource development (e.g. by reducing illiteracy, raising school participation rate, promoting Technical/ Vocational Education/ Training- TVET) etc. The combinations and sequences of these instruments should be carefully designed to enhance the overall TFP.

4. Description for Macro-economic Model

This section is for describing the structure of the macro-economic model used for presenting the long-term economic prospect in the text above, which includes the data description and the list of estimated equations.

4.1 Data Description

The sample data basically cover the period from 1980 to 2010 in terms of annual base. The most important assumption on data selection is that “GDP at constant prices” (YS) should follow the growth rate estimated by UNDP and IMF (2012) because the growth rates officially released by the country after 1999 are debatable. ADB (2012) argues that Myanmar’s official growth figures have been deemed overstated and rather unreliable given the country’s poor statistical capacity and use of outdated methodologies by referring to Myint (2009). It also points out that various production indicators, presumably correlated with GDP growth, show weaker growth: electricity sales (in kilowatt hours) to households and commercial premises grew on average by 4.5 percent per annum during 2002–2009 and cement sales by 1.8 percent per annum during 2004–2009. On the other hand, UNDP (2011) and IMF (2012) present their own, rather conservative GDP-growth estimate: averaging 4.8 percent growth during 2000–2010, although official growth data records 12.1 percent and 11.3 percent growth during 2001/02-2005/06 and 2006/07-2010/11 short-term plan periods respectively.

The data for “investment” (IV) is computed by multiplying YS by investment ratio relative to GDP (IVY). The investment rate (IVY) is estimated by dividing “Expenditure on GDP at constant prices” by “Gross domestic capital formation at constant prices” in ADB Key Indicators with various issues. The data for “export” (EX) and “import” (IM) are estimated originally since their data by CSO are said to be

underestimated due to using official (overvalued) exchange rate to convert their US dollar values into local-currency values. First, the local currency values of export and import at constant prices in CSO data are converted into their US dollar values by official exchange rate in International Financial Statistics (IFS) of International Monetary Fund (IMF). Second, the US dollar values are again converted into their local-currency ones by the market exchange rate instead, which is calculated by using World Economic Outlook (WEO) Database of IMF with various issues.¹⁴² Third, the ratios of export and import relative to GDP are computed by dividing their re-estimated local-currency values by the GDP at constant prices in CSO data. Finally, the data for EX and IM is computed by multiplying YS by the re-estimated ratios of export and import to GDP. The data for “consumption” is obtained by subtracting IV and EX-IM from YS.

The data for “capital stock” (KR) is estimated following the equation in Appendix, in which the depreciation ratio is obtained from its ratio in the 1970s of Thailand, 4.5 percent. The initial capital stock is estimated under the assumption that the incremental capital output ratio (ICOR) is equal to capital output ratio following the Harrod-Domar Growth model.¹⁴³ The average ICOR in Myanmar in the 2000s estimated by CSO data is 1.0, and the initial capital stock is calculated by multiplying GDP in 1981 by the ICOR (1.0).

The data for “labor forces” (LB) and “Money Supply (M1)” (MN) are retrieved from ADB Key Indicators with various issues, and the data for “Consumer Price Index” (CP) and “World GDP Volume” (WY) come from IFS of IMF. The exchange rate

¹⁴²The market exchange rate can be computed by dividing “Gross domestic product, current prices, National currency” by “Gross domestic product, current prices, U.S. dollars”.

¹⁴³ See Harrod (1939) and Domar (1946).

(market rate) is computed by WEO database as shown by Note 7. GDP as aggregate demand (YD) is the sum of CN, IV and (EX-IM), and the trade balance (CB) is defined as (EX-IM) divided by YS. GDP per capita (YPC) is calculated by the formula in Table A3, where 741.67 is the GDP per capita (US dollar) in 2010 in WEO database (October, 2012); 20,946 is GDP at constant prices (billion Kyat) in 2010 in CSO data; and 30.96 is labor forces (million persons) in 2010 in ADB Key Indicators 2012. TFPS signifies the shift of TFP in production function by 0.06 for the Scenario II during 2011-2035.

The sample data created by the fore-mentioned methods are attached in Table A4 for the reference.

4.2 *Model Description*

For the simulation in the text, we construct a rather simple model including ten equations, which are divided into production block and expenditure block. In usual macro-econometric models, the GDP on production (supply-side) and the GDP on expenditure (demand-side) would be adjusted through price-mechanism; the GDP supply-demand-gap would be reflected in the price-determination, and the price effects caused by the GDP gap would be fed back to the GDP demand through real balance of money supply. In this model, however, such a price mechanism is not incorporated, since the prices like consumer price index have not been sensitive to the GDP gap, and thus the price mechanism has not yet been working well. Then, this model focuses the GDP determination only on the production side by sacrificing the price-adjustment mechanism on demand-side in the short-run, just because the purpose of simulations lies in showing the long-term growth prospect. Alternatively, the GDP gap can be checked in the ex post sense after the simulation so that we can judge whether the simulated

scenario is realistic one or not from the supply-demand perspective. In this sense, this model appears to be a kind of the two-gap model as shown in Note 6. At the stage when the mechanism works, however, that mechanism should be incorporated in the model-building.¹⁴⁴

Another issue to be improved is that some sector blocks like agriculture and manufacturing should be added to macro-model. In that case, the input-output table can be a useful instrument for sector-wise analyses. Since the input-out table has not been constructed yet in Myanmar, the table of the other economies such as Thailand in the times when the industrial structure is similar to that of the present Myanmar can be an alternative instrument.

The more detailed description of mode-construction is presented as follows. For the stochastic estimation, the variables take a logarithmic form. The figures in the parentheses in the second line of the estimated equation denote the T-value, and “*”, “**” and “***” shows the probability to reject null-hypothesis on the existence of each coefficient by 90, 95 and 99 percent, respectively. The “AR” is auto-regressive model, the “RR” is the Adjusted R-squared, the “DW” is the Durbin-Watson statistics, and the “EP” is the estimation period.

Production Block

➤ Production Function

$$\ln(YS/LB) = (0.484 + \text{TFPS}) + 0.347 * \ln(KR/LB) + 0.535 * \ln(YS(-1)/LB(-1)) + 0.822 * \text{AR}(1) \\ --- (1)$$

$$(0.614) \quad (2.541)** \quad (3.732)*** \quad (9.863)***$$

$$RR=0.96, DW=2.00, EP=1983-2010$$

The production function above is a usual Cobb-Douglas type that related output per

¹⁴⁴An advanced macro-model to contain price mechanism has ever been constructed such as San Htoo Aung (2009).

labor to capital per labor. The coefficient, 0.347, signifies the capital's share whereas (1-0.347) means the labor's share. In this equation, LB and TFPS is exogenous while YS and KR is endogenous.

➤ Capital Stock

$$KR = (1 - 0.045) * KR(-1) + IV \text{ ---(2)}$$

The capital stock is defined by the previous-time one, depreciation ratio and investment. The depreciation ratio is obtained from its ratio in the 1970s of Thailand, 4.5 percent. The initial capital stock is calculated by multiplying GDP in 1981 by the ICOR as we stated in the data description. The IV is determined by the next equation (3).

➤ Investment

$$IV = YS * IVY \text{ --- (3)}$$

The investment is defined by multiplying GDP by investment ratio to GDP. The investment ratio is exogenously determined.

➤ GDP per capita

$$YPC = 741.67 * (YS/ 20,946) / (LB/ 30.96) \text{ ---(4)}$$

The GDP per capita is calculated by the GDP per capita in 2010 (741.67 U.S. dollar) and the growths of GDP and labor force as we stated in the data description.

<Expenditure Block>

➤ Consumption per labor

$$\ln(CN/LB) = -0.286 + 1.020 * \ln(YS/LB) - 0.024 * \ln(CP) + 0.099 * AR(1) \text{ --- (5)}$$

$$(-0.285) (6.260)*** \quad (-1.965)* \quad (0.483)$$

RR=0.76, DW=1.96, EP=1983-2010

The consumption per labor is determined by GDP per labor and Consumer Price Index. The CP is determined by the equation (8), mainly money supply.

➤ Export ratio to GDP

$$\ln(\text{EX/YS}) = -33.118 + 0.525 * \ln(\text{IVY}(-4)) + 6.449 * \ln(\text{WY}) - 1.324 * \ln(\text{CP/ER}) + 0.322 * \text{AR}(1) \quad (6)$$

$$(-44.464)*** \quad (4.853)*** \quad (43.400)*** \quad (-19.899)*** \quad (1.458)$$

RR=0.99, DW=2.16, EP=1987-2010

The export ratio to GDP is determined by investment ratio with four-year lags, world GDP and real exchange rate (CP/ER). The IVY, WY and ER are exogenously determined and CP is decided by the equation (8).

➤ Import ratio to GDP

$$\ln(\text{IM/YS}) = -3.247 + 0.735 * \ln(\text{IVY}(-2)) + 0.734 * \ln(\text{CP}) + 0.879 * \text{AR}(1) \quad (7)$$

$$(-2.074)* \quad (2.174)** \quad (1.880)* \quad (6.461)***$$

RR=0.95, DW=1.28, EP=1984-2010

The import ratio to GDP is determined by investment ratio with two-year lags and Consumer Price Index. The IVY is exogenously determined and CP is decided by the equation (8).

➤ Consumer Price Index

$$\ln(\text{CP}) = 9.859 + 0.972 * \ln(\text{MN/YS}) + 0.192 * \text{AR}(1) \quad (8)$$

$$(61.665)*** \quad (50.272)*** \quad (1.010)$$

RR=0.99, DW=2.00, EP=1982-2010

The Consumer Price Index is determined by money supply and GDP, which is the modified formula of “Quantity Theory of Money” under the assumption of constant income velocity. MN is exogenously determined.

➤ GDP as demand aggregation

$$YD = CN + IV + EX - IM \text{ --- (9)}$$

The GDP as demand aggregation is identified as we noted in data description.

➤ Trade balance to GDP

$$CB = (EX - IM) / YS * 100 \text{ --- (10)}$$

The trade balance to GDP is identified as we noted in data description.

Table A3: Data Description

Variables		Description	Data Sources
YS	endogenous	GDP; 2005/6 price; bil. kyats	Estimated by growth rate of IMF (2012) and UNDP
CN	endogenous	Consumption; 2005/6; bil. kyats	YS-IV-(EX-IM)
IV	endogenous	Investment; 2005/6; bil. kyats	IV = YS*IVY
IVY	exogenous	Investment ratio to GDP	ADB Key Indicators
EX	endogenous	Export; 2005/6; bil. kyats	Estimated by authors
IM	endogenous	Import; 2005/6; bil. kyats	Estimated by authors
KR	endogenous	Capital Stock; 2005/6; bil. kyats	KR = (1-0.045) *KR-1 +IV Depreciation 4.5%: Thailand (1970s)
LB	exogenous	Labor Force; mil. Persons	1981-2010: ADB Key Indicators
CP	endogenous	Consumer Price Index; 2010=100	IFS (IMF)
MN	exogenous	Money Supply M1; 2010=100	ADB Key Indicators
WY	exogenous	World GDP Volume; 2010=100	IFS (IMF)
ER	exogenous	Exchange Rate (market rate); kyat per USD	WEO (IMF)
YD	endogenous	GDP as aggregated demand	CN+IV+EX-IM
CB	endogenous	Trade Balance	(EX-IM)/YS
YPC	endogenous	GDP per capita	741.67* (YS/20,946)/(LB/30.96)
TFPS	exogenous	TFP shift by 0.06 (2011-35) for Scenario II	

Source: ERIA

Table A4: Sample Data

FY	YS	CN	IV	EX	IM	KR	LB	CP	MN	WY	ER
1980					7,086		0.6		37.0	6.6	
1981	7,086	5,569	1,546	8	37	8,313	14.4	0.6	0.2	37.9	7.3
1982	7,470	5,921	1,583	8	41	9,522	14.9	0.6	0.2	38.1	7.9
1983	7,796	6,463	1,358	9	34	10,451	14.9	0.6	0.2	39.1	8.1
1984	8,180	6,949	1,227	8	33	11,207	15.2	0.7	0.2	41.0	8.6
1985	8,417	7,133	1,307	7	29	12,010	15.5	0.7	0.2	42.6	8.2
1986	8,325	7,260	1,080	8	24	12,550	15.7	0.8	0.3	44.1	7.1
1987	7,992	6,961	1,049	7	24	13,034	15.6	1.0	0.2	45.6	6.5
1988	7,081	6,128	965	8	20	13,412	15.9	1.1	0.3	47.6	6.5
1989	7,343	6,393	958	10	18	13,766	16.2	1.4	0.4	49.3	6.7
1990	7,548	6,455	1,237	100	244	14,383	16.5	1.7	0.6	50.9	58.3
1991	7,495	6,246	1,432	141	324	15,168	17.0	2.2	0.8	52.6	84.0
1992	8,222	6,928	1,451	236	392	15,937	19.0	2.7	1.1	54.8	99.3
1993	8,708	7,475	1,570	325	663	16,790	19.5	3.6	1.4	56.1	119.7
1994	9,300	7,632	1,942	331	305	17,976	20.0	4.4	1.8	58.5	113.2
1995	10,016	7,984	2,512	265	746	19,679	20.5	5.5	2.4	60.6	110.0
1996	10,657	8,374	2,837	407	961	21,631	22.0	6.5	3.2	62.9	159.8
1997	11,264	8,830	3,132	720	1,418	23,789	22.5	8.4	4.2	65.4	240.4
1998	11,918	9,141	3,736	729	1,688	26,455	23.1	12.7	5.4	66.8	249.2
1999	12,513	9,375	4,024	768	1,654	29,288	23.7	15.0	6.7	69.3	258.1
2000	13,289	9,253	4,181	1,378	1,523	32,151	24.3	15.0	9.0	72.6	286.7
2001	13,980	12,520	1,607	2,802	2,949	32,311	24.9	18.2	12.5	74.2	547.8
2002	14,749	11,615	1,666	4,998	3,529	32,523	25.6	28.5	18.0	76.1	829.9
2003	14,749	12,269	1,825	3,162	2,507	32,884	26.4	39.0	21.2	78.7	737.2
2004	15,487	11,701	2,124	4,045	2,384	33,529	26.9	40.7	26.5	82.5	859.2
2005	16,184	11,725	2,537	4,593	2,671	34,557	27.4	44.5	34.8	86.2	1,025.0
2006	17,316	12,777	2,453	6,152	4,065	35,455	28.0	53.4	44.1	90.5	1,162.0
2007	18,269	13,756	2,963	5,804	4,254	36,822	29.3	72.2	57.3	95.0	1,156.3
2008	18,926	16,197	3,254	3,777	4,301	38,419	30.0	91.5	61.0	97.2	917.5
2009	19,892	15,529	4,167	3,431	3,236	40,857	30.5	92.8	75.7	95.8	918.4
2010	20,946	16,533	5,321	3,291	4,199	44,340	31.0	100.0	100.0	100.0	802.9

Source: ERIA

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